

Risk and Return of Equity Funds and Exchange-traded Fund: Krungthai Asset Management Company Limited Evidence

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บทคัดย่อ งานวิจัยนี้มีวัตถุประสงค์เพื่อศึกษาหาอัตราผลตอบแทนและความเสี่ยงของการลงทุนในกองทุนรวมตราสารทุน และกองทุนรวมอีทีเอฟ ภายใต้การบริหารงานของบริษัทจัดการหลักทรัพย์กรุงไทย โดย การศึกษานี้เป็นการศึกษาเปรียบเทียบในกลุ่มของอัตราผลตอบแทนและความเสี่ยงของกองทุนรวมตราสารทุน กองทุนรวมอีทีเอฟ และอัตราผลตอบแทนและความเสี่ยงของหลักทรัพย์ทั้งหมดในตลาดหลักทรัพย์แห่งประเทศไทย โดยการใช้แบบจำลองการคิดราคาสินทรัพย์ทุน (Capital Asset Pricing Model: CAPM) การศึกษานี้ใช้ข้อมูลทศวรรษเป็นข้อมูลรายเดือนของมูลค่าสินทรัพย์สุทธิของกองทุนรวม และราคาปิด ณ สิ้นเดือนของกองทุนรวม ETFs รวมทั้งดัชนีหลักทรัพย์ตั้งแต่ เดือนธันวาคม พ.ศ. 2554 ถึง เดือนกันยายน พ.ศ.2559 ข้อมูลกองทุนรวมประกอบด้วยกองทุนรวม 3 กองทุนรวม ประกอบด้วย 1) กองทุนเปิดกรุงไทย ซีเอทีพี อีคิวดี ฟินด์ (KTSE 2) กองทุนเปิดกรุงไทย สมาร์ท อีคิวดี ฟินด์ (KTEF) และ 3) กองทุนเปิดกรุงไทยหุ้นปันผล (KTSF) นอกจากนี้ยังมีกองทุนรวม ETF ประกอบด้วย 1) ไทยเด็กซ์ (TDEX) และ 2) ไทยเด็กซ์ ไอคิวดีเวนท (1DIV) การศึกษานี้ใช้ข้อมูลอัตราดอกเบี้ยของตัวเงินคลังอายุ 1 ปี เป็นตัวแทนของอัตราผลตอบแทนหลักทรัพย์ที่ปราศจากความเสี่ยง ผลการศึกษพบว่า กองทุนรวมส่วนใหญ่ให้ผลตอบแทนที่สูงกว่าตลาดยกเว้น กองทุนกองทุนเปิดกรุงไทย สมาร์ท อีคิวดี ฟินด์ (KTSE) นอกจากนี้ กองทุนรวมทั้งหมคว่ามีค่าสัมประสิทธิ์เบต้าที่น้อยกว่า 1 สะท้อนว่ามีความเสี่ยงที่ต่ำกว่าหลักทรัพย์โดยเฉลี่ยในตลาดหลักทรัพย์แห่งประเทศไทย

คำสำคัญ: ความเสี่ยง ผลตอบแทน กองทุนรวม กองทุนอีทีเอฟ ค่าสัมประสิทธิ์เบต้า

Abstract— This research has attempted to examine risk and return of equity funds and exchange-traded fund (ETFs) under administrated by Krung Thai Asset

Management Company Limited. This study focused on the comparison among the relationship of the return rate of equity funds and ETFs funds and the return of security markets (the Stock Exchange of Thailand: SET) by employing Capital Asset Pricing Model (CAPM). The secondary data were used in term of monthly net asset value (NAV) for equity funds, closing price for ETFs and SET index during December 2011 to August 2016. The study included three equity funds: 1) Krung Thai Selective Equity Fund: KTSE, 2) Krung Thai Smart Equity Fund: KTEF and 3) The Krung Thai Dividend Selected Fund: KTSF. In addition, two ETFs were added: 1) THAIDEX SET50 EXCHANGE TRADED FUND: TDEX, and 2) ThaiDEX SET High Dividend ETF: 1DIV. This study employed the rate of one-year Treasury bill as the rate of return of non-risk security. This study found that most of equity funds and ETFs, except KTSE fund, provided rate of return higher than the return of market. However, all funds provided beta coefficient lower than 1.00, reflecting lower risk than overall securities in SET.

Keywords: risk; return; equity fund; ETFs fund, beta coefficient

I. Introduction

Currently, individual investors are concern about their saving management. They expect to gain higher returns than traditional investment as bank deposits. During 2007 –2016, Interest rate based on government policy including deposit interest rate and government bond yield were fairly low and gradually declined, especially during 2011 – 2016 [1] as shown in Figure 1 below.

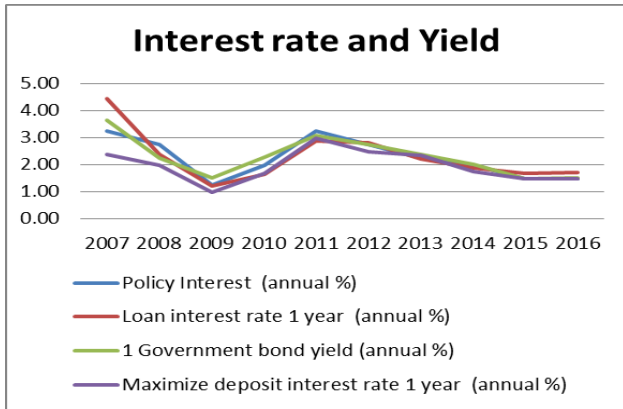


Figure 1: Comparison among types of interest rate during 2007 – 2011 (From: Bank of Thailand, 2016)

Based on Figure 1, the trend of interest rates quite reduced during 2011 – 2016. However, Thailand has faced the increase consumer price index (CPI) since 2009 as shown in Figure2 below.

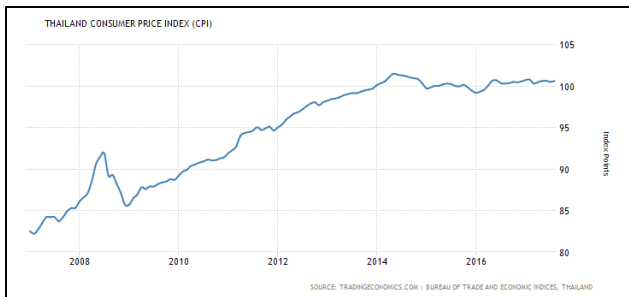


Figure 2: Thailand Consumer Price Index (CPI)
Source: Tradingeconomics.com [2]

Interestingly, the CPI has significantly increased during 2009 – 2016, implying that consumer goods price has increased. Under these economic circumstance Thai investors has gain low returns but faces high cost of living. As a result, most individual investors are looking for attractive investment alternatives, which provide a higher return such as security investment, real-estate investment and precious metal investment. However, these investment alternatives also provide higher risk. Currently, risk-aversion investors are more likely to prefer invest in mutual funds due to higher return and lower risk than other security investment. Currently, Thai government has promoted individual investors to invest in mutual funds as Retirement Mutual Fund (RMF) and Long Term Equity Fund (LTF) in terms of tax deduction.

To gain insights for individual investors, researcher conducts this study to respond research question, which is what distinction of risk and return between mutual fund and Exchange-traded Fund (ETFs). This study focused on equity funds managed by Krung Thai Asset Management co; Ltd (KTAM) due to co-operative training period. As a result, this research endeavored to compare risk and return of mutual funds and

ETF fund of KTAM during December 2011 to August 2016. A major distinction of this research is the inclusion of unsystematic risk as standard deviation and systematic risk as the beta coefficient (β) rely on Capital Asset Pricing Model (CAPM).

The organization of the rest of the paper is as follows: Section II deals with the literature review and the Krung Thai Asset Management co; Ltd (KTAM). Section III is concerned with data and methodology, including the calculations of focusing variables as return and risk of mutual funds and ETFs. Section IV discusses empirical model used and the research findings, and finally the discussions and conclusion are provided in Section V.

II. LITERATURE REVIEW

A mutual fund is a type of equity investment. Its special characteristic is that it raises funds from many individual or institutional investors by purchase unit trusts of mutual fund and those funds are invested in many financial instruments and/or precious metal such as government bonds, commercial bonds, common stocks, gold future, treasury bills and similar assets. Mutual funds are normally managed by fund management companies such as Krungsri Asset Management Co; Ltd (KSAM), and Krung Thai Asset Management Co; Ltd (KTAM). These asset management companies invest the fund's capital rely on their objectives stated in prospectus. While, investors might gain returns in term of dividends and/or capital gains as stated in mutual funds policies.

An exchange-traded fund (ETFs) is similar to mutual funds in regard to poll funds from many investors and to invest them in financial instruments rely on investment' objectives. However, a major distinction of ETFs from mutual funds is that ETFs trading on the SET, showing on daily real time of net asset value (NAV), whereas the NAVs of mutual funds report at the end of trading date .

According to the SET [3], the definition of mutual funds is divided into 2 types: Open-End Fund and Closed-end fund. The first type can be operated unlimited period and contains unlimited capital; implying that fund management companies can issue unit trusts to gain more capitals and repurchase them weekly trading or monthly trading based on its policies. As a result, the NAV of open-end fund can be notified at the end of trading date. Open-End fund investment is more favor among individual investors due to more liquidity trading. The latter one, Closed-End Fund, must be performed within limited period and obtains limited capital by issuing a number of unit trusts rely on prospectus to achieve funds' objective. Thus, fund management companies only issue unit trusts at the beginning of operation day and repurchase unit trusts only at the end of that date. Thus, Closed-End fund might have lower liquidity trading than that of Open-End fund.

Furthermore, the SET classifies mutual funds rely on its objective into 10 categories: Money market fund,

General fixed income fund, Long-term fixed income fund, Short-term fixed income fund, Equity fund, Balanced fund, Flexible portfolio fund, Fund of funds, Warrant fund and Sector fund. This study spotlighted on Equity fund, which concentrated on investing in equity instruments such as common stocks and warrants in 65 percentages of net fund assets as the regulation of stock exchange commission [4]. The equity funds provide risk level 6 out of 8 of mutual fund risk, implying that this equity fund is quite more high risk due to high fluctuation of stock price.

In regard to mutual fund risk, normally fund managers use fund risk scale to evaluate risk level, which consists of 8 levels ranking by the lowest risk to the highest risk

In several other studies employed proxy risk variables based on both accounting basis and marketing basis. This study concerned only on marketing basis due to unavailable data for accounting basis. Market-based risk variables might be used by many researchers such as Powell (2007) [6]. In addition, many researchers conducted the study of the relationship between risk and return, started with the famous finance scholars as Fama and French, who found the positive relationship between risk and return (1992) [7]. Subpakit and Sricharueng (2015) employed CAPM to stock valuation in information and communication Technology sector in 2014. They found that SMART provided the highest rate of return. There were 6 undervalued securities: ADVANC, INTUCH, SMART, SAMTEL, TRUE and TRUEIF [8] According to Malkiel and Saha (2005), the risker hedge funds have, the lower return they gain [9]. Nilapornkul, Yuttasri and Suaysom (2016) [10] found the negative relationship between return and risk of Thai finance and security companies listed on the SET during 2010 – 2014.

Krung Thai Asset Management Co; Ltd (KTAM)

Krung Thai Asset Management Co; Ltd (KTAM) has renamed from Mahanakorn Assets management corporation since 1999. Thereafter the company increased registered capital to 200 million baht. This company status is currently state enterprise because Krung Thai bank has hold 99.99 percent of KTAM’s outstanding shares. KTAM provides asset management service to individual and big institutions organizations and state enterprises in terms of mutual funds, property fund, private funds, provident fund and foreign fund.

KTAM provides hundreds mutual fund; however this study focuses on Equity Fund, which includes 6 mutual funds: 1) Krung Thai mai Equity Fund: KT-mai, 2) Krung Thai Mid-Small Cap Equity Fund: KTMSEQ, 3) The Krung Thai Dividend Selected Fund: KTSF, 4) Krung Thai Selective Equity Fund: KTSE, 5) Krung Thai Smart Equity Fund: KTEF and 6) Krung Thai High Dividend Equity Fund: KT-HiDiv.

Additional, KTAM also manages 8 ETFs, which invest both in Thailand and overseas: 1) KTAM SET

Banking ETF Tracker: EBANK, 2) KTAM SET Commerce ETF Tracker: ECOMM, 3) KTAM SET Food and Beverage ETF Tracker: EFOOD, 4) KTAM SET ICT ETF Tracker: EICT, 5) KTAM SET Energy ETF Tracker: ENY, 6) KTAM SET50 ETF Tracker: ESET50, 7) KTAM Gold ETF Tracker: GLD and 8) W.I.S.E. KTAM CSI 300 China Tracker: CHINA.

In 2016, KTAM has Asset under Management approximately 686,424 million baht [11], consisting of each fund as shown in Table 2 below.

Table 2: Total NAV under KTAM management in 2016 (Unit: Million Baht)

Provident Fund	64,593
Private Fund	39,380
Mutual Fund	383,659
Property Fund	198,791
TOTAL	686,424

III. DATA AND METHODOLOGY

1. Data

This research employed time-series data. The data were of mutual funds and exchange-traded fund (ETFs) of Krung Thai Asset Management Co; Ltd (KTAM) during on December 2011 – August 2016. The data were of monthly basis, except annual return of 1 year Treasury bill [12]. Delist and new list mutual funds and ETFs were excluded because of unavailable data. This study focused on equity; as a result, the samples of this study consisted of 3 out of 6 mutual funds and 2 out of 8 of ETFs funds as below: 1) Krung Thai Selective Equity Fund: KTSE, 2) Krung Thai Smart Equity Fund: KTEF, 3) The Krung Thai Dividend Selected Fund: KTSF, 4) Thaidex SET50 Exchange Traded Fund: TDEX and 5) ThaiDEX SET High Dividend ETF: 1DIV

2. Dependent Variable

In regard to fund’s return, this study calculate rate of return of mutual funds and market as shown below:

2.1 The rate of return of mutual fund and ETFs

$$R_i = \left(\frac{P_{t+D}}{P_{t-1}} - 1 \right) \times 100 \dots \dots \dots (1)$$

Note for mutual fund:

- P_t = net asset value at the end of this month
- P_{t,1} = net asset value at the end of previous month
- D = dividend payment for that period

Note for ETFs:

- P_t = closing price at the end of this month
- P_{t,1} = closing price at the end of previous month

2.2 The rate of return of SET Index

$$R_m = \left(\frac{SET\ Index_t}{SET\ Index_{t-1}} - 1 \right) \times 100 \dots \dots \dots (2)$$

Note:

SET Index_t = SET Index at the end of this month
 SET Index_{t-1} = SET Index at the end of previous month

2.3 The rate of return of mutual fund and ETFs by employing Capital Asset Pricing Model (CAMP)

$$K = K_{rf} + \beta(K_M - K_{rf}) \dots \dots \dots (3)$$

Note: K = expected rate of return
 β = Beta Coefficient
 K_{rf} = rate of return of 1 year treasury bill
 K_M = rate of return of capital market

3. Explanatory variable

For risk variables, this study calculates 2 types of risks: 1) standard deviation and 2) Beta coefficient. Each of variables is computed as below:

3.1 Standard Deviation (σ) of fund return

$$\sigma_i = \sqrt{\frac{\sum_{i=1}^n (R_i - \bar{R}_i)^2}{n-1}} \dots \dots \dots (4)$$

Note: R_i = rate of return of fund_i
 R̄_t = the average return of fund_i
 n = a number of observations

3.2 Standard Deviation (σ) of market return

$$\sigma_m = \sqrt{\frac{\sum_{i=1}^n (R_m - \bar{R}_m)^2}{n-1}} \dots \dots \dots (5)$$

Note: R_m = rate of return of market
 R̄_m = the average return of market
 n = a number of observations

3.3 Calculate Covariance (COV) of return between fund and market

$$COV = \frac{\sum_{i=1}^n (R_m - \bar{R}_m)(R_i - \bar{R}_i)}{n} \dots \dots \dots (6)$$

3.4 Calculate beta coefficient (β)

$$B_i = \frac{COV_{i,m}}{\sigma_m^2} \dots \dots \dots (7)$$

Note: σ_m² = variance of return of market

4. Software Package

All data were retrieved from many sources: KTAM website, SET website and the Bank of Thailand website and were arranged for calculating rate of return of mutual funds, ETFs and stock market by using Microsoft Excel. Furthermore, data were transformed to statistical variables as average and standard deviation of returns and covariance by employed statistic functions in Excel.

IV. EMPIRICAL STUDY AND FINDINGS

After calculating average annual return, standard deviation and coefficient of beta, the comparison study of these variables was conducted among 3 mutual funds, 2 ETFs and SET index representing market capital as shown in Table 3.

The study found that during 2012 -2016 most of equity funds and ETFs provided rate of return higher than average market return of 0.791%. TDX provided the

highest rate of return of 1.664%, following by 1DIV of 1.538%, which they were ITFs. Whereas equity funds: KTEF and KTSF gained the return of 1.355% and 1.207% respectively. Obviously, KTSE was the only on equity fund which gain negative performance of -0.099%. Interestingly, the standard deviation of all funds were above the SET; while coefficient betas were lower than the SET, reflecting that all funds had lower systematic risks (β) but higher unsystematic risks (S.D) than market capital. This reflected that Krung Thai Asset Management Co; Ltd (KTAM) still had high business risk in its operations.

Table 3: Descriptive statistics of the dependent and explanatory variables

Year Fund		2012	2013	2014	2015	2016 (9 months)	Total
KSTE	R	0.474	-1.261	-0.857	-0.928	0.517	-0.099
	S.D	6.310	6.802	4.748	5.551	4.396	5.758
	β	-0.026	0.321	0.526	-0.124	1.679	0.266
KTEF	R	0.252	-0.938	1.703	-0.432	2.217	1.355
	S.D	4.837	7.300	4.275	4.641	2.746	5.184
	β	-0.020	0.643	0.346	-0.351	1.024	0.340
KTSF	R	0.148	0.933	2.431	-0.575	1.953	1.207
	S.D	4.896	5.856	5.102	4.810	2.860	5.001
	β	0.449	0.574	0.849	-0.567	1.078	0.397
1DIV	R	2.105	1.128	2.268	-0.346	2.868	1.538
	S.D	4.668	4.018	5.004	7.818	5.395	5.654
	β	-0.530	0.237	0.307	-0.467	1.056	0.090
TDX	R	2.937	1.277	2.475	-0.557	2.358	1.664
	S.D	4.797	4.560	5.091	5.581	4.591	5.118
	β	-0.390	0.129	0.374	-0.499	0.737	0.097
SET	R	2.642	-0.441	1.239	-1.194	1.146	0.791
	S.D	3.483	4.799	3.011	2.735	1.668	3.863
	β	1.000	1.000	1.000	1.000	1.000	1.000

Note: R = average annual rate of return, S.D = Standard deviation and β = Beta coefficient

Move to year 2012, all funds and the SET provide positive returns. Only TDX performed return of 2.937%, which higher than the SET return of 2.642%. Surprisingly, negative beta coefficient were provided by KSTE, KTEF, 1DIV and TDX, interpreting that systematic risk and return performed a reverse relationship at that period. For year 2013, the market return was a negative performance; whereas KTSF, 1DIV and TDX showed outperformances.

In year 2013, 2 equity funds: KTEF and KTSF and 2ETFs: 1DIV and TDX were outperforms. For year 2015, equity funds, ETFs and the SET provided negative performance; however, all funds showed outperformance comparing with the SET. During 9 months in 2016, the SET provided positive return of 1.146%. Two equity funds: KTEF and KTSF and two ETFs: 1DIV and TDX were outperformance, whereas KSTE was the only equity fund was underperformance.

Capital Asset Pricing Model (CAMP)

This study compared the realized return and the required rate of return based on CAMP by using equation 3. The results were presented in Table 4 as below.

The comparison results revealed that most of realized returns quite diverged from the required returns developed

by CAPM. Researcher employed absolute error criterion that if the absolute error was above 1, reflecting it was quite high difference; conversely, if it was lower than 1, meaning a low difference. From Table 3, research results showed that 2 ETFs: 1DIV and TDX provided low absolute error, meaning that realized returns were quite similar to required returns computed by CAPM during 2012 – 2014. Whereas, 3 equity funds: KSTE, KTEF and KTSF were quite high different, especially KSTE which had absolute error above 2 during that period.

Table 4: Comparison between realized return and required return of equity funds

Year		2012	2013	2014	2015	2016 (9 months)
KSTE	R	0.474	-1.261	-0.857	-0.928	0.517
	R*	2.763	1.458	1.620	1.831	0.907
Absolute error		2.289	2.719	2.477	2.759	0.390
KTEF	R	0.252	-0.938	1.703	-0.432	2.217
	R*	2.762	0.558	1.764	2.442	1.138
Absolute error		2.510	1.496	0.061	2.874	1.079
KTSF	R	0.148	0.933	2.431	-0.575	1.953
	R*	2.707	0.751	1.360	3.023	1.119
Absolute error		2.559	0.182	1.071	3.598	0.834
1DIV	R	2.105	1.128	2.268	-0.346	2.868
	R*	2.823	1.693	1.795	2.754	1.126
Absolute error		0.718	0.565	0.473	3.100	1.742
TDX	R	2.937	1.277	2.475	-0.557	2.358
	R*	2.806	1.995	1.742	2.840	1.239
Absolute error		0.131	0.718	0.733	3.397	1.119

Note: R = realized return, R* = Required return and Absolute error = R* - R

Interestingly, for year 2015, all equity funds provided negative return, whereas required return showed in opposite sign. During 9 months in 2016, the rate of return of all equity funds quite recover quickly. They moved from negative sign to positive sign only in 9 months in 2016. In addition, equity funds as KSTE and KTSF had a lower absolute error.

V. DISCUSSIONS AND CONCLUSIONS

This study examined risk and return of equity funds and ETFs under managed by KrungThai Asset Management Co. Ltd (KTAM) during 2012 – 2016. The major findings revealed that two ETFs: TDX and 1DIV providing more rate of returns than equity funds and quite also produced outperformance. This might be because ETFs are traded in the SET, leading to higher liquidity and more popular among investors than equity funds. In term of systematic risk, during 2012- 2015, all equity funds and ETFs had beta coefficient lower than 1, reflecting less systematic risks than the SET. In 2015 all mutual funds, ETFs and the SET provided negative return, reflecting the impact from coup d’etat in Thailand on May 22, 2014. Because unstable politics situation in Thailand relaxed in the following year, the return of all funds turned to positive signs and quite higher return comparing with the SET, except KSTE. However, most of funds had higher systematic risk, stating from beta coefficient above 1.00 in

2015. Additionally, KTAM had quite higher standard deviation and lower beta coefficient comparing with the SET. This means that KTAM had high unsystematic risk or business risk, which was a weak point of the company. Comparing between realized return and required return developed by CAPM, ETFs had a smaller error than equity funds. In 2016, KTEF, KTSF, 1DIV and TDX were overvalued.

In conclusion, ETFs provided higher rate of return and lower systematic risk than equity funds. The CAPM quite worked better for ETFs than equity funds. Interestingly, in 2016 most of funds were overvalued.

VI. SUGGESTION AND FUTURE RESEARCH

From research results, KTAM fund manager should suggest their customers to invest in ETFs better than equity funds due to producing higher returns and lower beta coefficient. Importantly, KTAM should get rid of their business risk, reflecting from the high standard deviation and low beta coefficient. KTAM should aware about the overvalued of all equity funds in 2016 and should give more information to investors.

New financial application for calculating average and standard deviation of returns of mutual funds and ETFs, including stock market should be developed to serve investors. This might assist them for investment decision making.

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