ACADEMIC ARTICLE

Review of Exchange-Traded Funds in Thailand and the United States

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Received: *December 10, 2018;* ***Revised:*** *June 10, 2019;* ***Accepted:*** *June 10, 2019*

ABSTRACT

Exchange-Traded Funds (ETFs) and their developments in Thailand and the United States are focused on this paper. The article aims to investigate ETF concepts, characteristics, and advantages. Definitions of ETFs are reviewed as well as ETF origins are explored with particular attention, which are given to the stories in the United States and Thailand. Main concepts of ETFs are discussed. Special consideration is given to ideas behind ETF creation units or ETF baskets with their implications. The creation and redemption processes are explained. ETF trading mechanisms, in both primary and secondary markets, are covered. Analysis of the products and their characteristics then follows. This reveals a list of ETF advantages, most notably diversification, tradeability, transparency, and cost efficiency, as compared to other investment instruments. The paper is followed by coverage of ETF developments in the United States and Thailand. Statistics on ETF assets are compiled and analyzed. Asset values and expense ratios of the five largest ETFs in the United States and Thailand are compared. Previous comparative studies between ETFs and mutual funds, as well as studies on ETF investors, are covered. In conclusion, the ETF industry is larger, more developed, and more cost efficient in the United States than in Thailand. Moreover, the paper proposes the recommendation to improve products and distributions, and respond to investors' needs, technology, and regulations to move forward with greater success of both countries in the future.

KEYWORDS: Exchange-Traded Fund, Investment, Thailand, United States

Introduction

Few ideas reflect human's intellect and its ability as a species to foresee and plan for the future better than that of investment. Without it, civilizations, nations, businesses, and most of mankind's great achievements would have been difficult. Within the realm of finance, one investment vehicle, in particular, has been garnering greater attention not only within the industry itself, but also among the general public. Since the first entry into the market just a few decades ago, Exchange-Traded Funds, also known as ETFs, have grown to become integral parts of the expanding circle of investment industries and national economies of the modern world.

The advance of ETFs into the main investment arena makes it interesting and imperative for businesses, policymakers, and investors to understand the products, recent developments, and their likely courses for the future. Without proper understanding, businesses, policymakers, and investors would likely miss the opportunity to utilize ETFs, either as complements or substitutes for other existing investment vehicles, in their quests to achieve financial goals.

The objectives of this paper are to investigate the main concepts of ETFs and to analyze their characteristics and advantages over other investment instruments. Developments of ETFs in the United States and Thailand are explored. Lastly, recommendations are made with regards to how the ETF industry can be improved in order to solidify its position as a major provider of viable investment tools into the future.

The rise of ETFs has just begun. Since the beginning, ETFs of various shapes and forms have sprung up in different markets across the globe (Investment Company Institute, 2018). While taking into consideration the dynamism with which the current ETF marketplace is evolving, some working definition of ETFs can be useful in the investigation of their story.

According to the U.S. Securities and Exchange Commission, ETFs are a type of exchange-traded investment product registered under the Investment Company Act of 1940. ETFs can be established as either open-end investment companies or unit investment trusts (Securities and Exchange Commission, 2012). The Stock Exchange of Thailand (2018a) describes ETFs as investment vehicles that hold baskets of securities while tracking indices or groups of assets yet trading on exchanges. Alternatively, ETFs can be defined as marketable securities that track stock indices, commodities, bonds, or baskets of assets (Investopedia, 2018). For the purpose of analysis, it may be suitable to define ETFs as investment funds that trade on stock exchanges, deriving values from various types of indices, securities, or assets. This definition should be sufficient at capturing the key essence of ETFs, while remaining fluid and open to future development.

1. Origins of ETFs

The origin of the modern day ETFs dated back to 1989 (Wiandt & McClatchy, 2002). It was then that the Toronto Stock Exchange Index Participations (TIPS) were launched on the Toronto Exchange in Canada. Designed to track the Toronto-35 index (TSE-35), TIPs were units of a trust created by the Toronto Stock Exchange to hold shares of the 35 constituent companies of the index.

It was not until later that the true giant would be awoken. South of the Canadian border, a new financial product was about to hit the market. After years of gestation and lengthy regulatory procedures, the first ETF in the United States was launched in 1993. The Standard & Poor's Depositary Receipts (SPDRs) were introduced on the American Stock Exchange (AMEX) by State Street Global Advisors (Richards, 2003; Wiandt & McClatchy, 2002). The SPDRs tracked the Standard & Poor's 500 Index (S&P 500) by holding in proportions the stocks that were included in the Index. Thereafter, numerous ETFs were introduced in stride in the United States, turning it into the largest ETF market in the world.

In 2006, the innovative financial product reached the shore of Thailand. Interestingly, the first ETF to enter the Thai market was not an equity fund, but rather a bond fund. Listed on the Stock Exchange of Thailand, the ABF Thailand Bond Index Fund (ABFTH), launched by Kasikorn Asset Management, invested mainly in Thai baht debt instruments to generate returns close to the iBoxx ABF Thailand Index (Kasikorn Asset Management, 2018). Thailand did not witness the first equity ETF until the next year. In 2007, One Asset Management introduced Thaidex SET50 Exchange Traded Fund (TDEX). The TDEX tracked the Stock Exchange of Thailand 50 (SET50) index, while allowing investors to trade its units on the Stock Exchange of Thailand (One Asset Management, 2018).

2. Main Concepts of ETFs

Any investment, by its very nature, often involves some degree of risk and uncertainty (Thailand Securities Institute, 2013). While investment in a single security, if done well, can yield a very handsome profit, it is subject to a high degree of risk. One of the most effective ways to reduce risk is diversification. By holding a number of securities or assets whose values do not move together in the same pattern, an investor can diversify away some degree of risk.

Diversification can be accomplished through a number of means (Thailand Securities Institute, 2013). Diversification can be achieved by directly investing in single securities or assets, which altogether comprise a portfolio. Nonetheless, the time, the skills, the resources, the willpower, and the intellectual sophistication required for securities picking have left many investors exhausted and unsuccessful. Diversification can also be achieved by investing in a fund or funds that in turn invest in a set of various securities or assets. This is where financial inventions can come to the rescue.

With the promise of streamlined investing experience whereby securities selection and portfolio management are professionally accomplished by the experts, the mutual fund industry has grown to become one marketplace of choice for diversified investment products (Investment Company Institute, 2018). By putting money in a well thought out mutual fund, an investor stands to benefit from diversification in one simple undertaking. Similarly, ETFs, even as they appear to be late comers to the scene, also offer convenient solutions for diversification. Yet ETFs have potentials for much more. Analysis of ETFs reveals similarities and distinct characteristics that set them apart from other investment vehicles in the field.

The ingenuity of ETFs lies in the concept of the products. Central to the idea of ETFs is the creation unit, also known as the ETF basket. Essentially, the creation unit is the published baskets of securities or assets from which the ETF derives its value and upon which the creation and redemption processes rely (Abner, 2010).

In the creation process, the ETF issuer or sponsor exchanges a creation unit (or units) for the equivalent basket of securities or assets (in the exact conditions specified by the issuer) with an ETF authorized participant. In other words, an ETF authorized participant presents a basket of securities and assets in exchange for a creation unit (or units). The redemption process works in reverse: the creation unit (or units) is redeemed when an ETF authorized participant presents to the issuer a creation unit (or units) to be exchanged for the equivalent basket of securities or assets. All these creation and redemption activities take place in the primary market where only designated authorized participants, mostly institutions, are allowed to directly transact with the issuer of the ETF (Abner, 2010; Investment Company Institute, 2007).

Usually, a creation unit is set to represent a large number of ETF shares, for instance 50,000 or 100,000 ETF shares in the United States, and 500,000 or 1,000,000 units in Thailand. Authorized participants (also known as creation unit holders) can keep the corresponding number of ETF shares, sell them, or buy them on the open market through the exchange (Investment Company Institute, 2007; Stock Exchange of Thailand, 2018a). These buying and selling activities take place in the secondary market. ETF shares are listed on stock exchanges-such as the New York Stock Exchange, the NASDAQ, the American Stock Exchange, and the Stock Exchange of Thailand. As such, ETF shares can be bought and sold by the investing public via investment brokers throughout the trading day in a similar fashion that single stocks are traded. The unique setup of how ETF creation units are constructed and redeemed, and how ETF shares are traded on the exchange make ETFs an investment class of its own.

3. Characteristics of ETFs

By virtue of design, ETFs are blessed with a host of advantages. Among others, ETF structure lends itself especially well to diversification, tradeability, transparency, and cost efficiency (Appel, 2007; Bodie, Kane, Marcus, & Jain, 2014; KPMG, 2017; Securities and Exchange Commission, 2012; Stock Exchange of Thailand, 2018a; Thailand Securities Institute, 2013). Being listed on exchanges enables ETF investors to place buy or sell orders anytime during market opening hours for real-time execution. This contrasts favorably with mutual funds. Investors must place mutual fund trade orders before predetermined cut-off time so that the orders can be later executed at the end of the trading day at the prices later determined by the fund companies. Unlike mutual fund investors who cannot trade on a real-time basis, ETF investors can. ETF investors can also specify the type of order, borrow, short sell or even margin buy ETFs. Both ETFs and mutual funds offer convenient access to diversified portfolios; nevertheless, ETFs' tradeability opens up a wide range of possibilities previously unavailable before their invention (Appel, 2007; Thailand Securities Institute, 2013).

The ability to trade ETFs real-time gives rise to other related benefits. Investment in ETFs is considered more transparent than in mutual funds. From the perspective of investors, ETF trades are executed at the prices or by the conditions that the investors set for themselves, as opposed to the prices externally determined by mutual fund companies after market close. ETFs are also required to make public the indicative net asset values of their funds at intervals throughout the day-every 15 seconds in both the United States and Thailand (Securities and Exchange Commission, 2012; Stock Exchange of Thailand, 2018a). Although the actual execution prices are determined by the matching of orders in the market, the announcement of indicative net asset values can be of use to all parties involved. Transparency in ETFs goes beyond pricing. ETFs are also transparent about their holdings. In fact, ETFs are required to make daily disclosures of their holdings to the public. Mutual funds, on the other hand, are only required to make similar announcements at much longer intervals-every 3 months in the United States and every 6 months in Thailand (Morningstar, 2017). Every day, ETF investors know exactly what securities or assets are held in their ETF portfolios and in what proportions. Consequently, investors can make well informed decisions whether to buy or sell their ETF shares. The same cannot be said for mutual funds.

ETFs can be operated at lower costs than mutual funds (Bodie et al., 2014; KPMG, 2017). Investors buy ETFs in the secondary market via investment brokers, rather than directly from the funds. The costs of shareholder servicing, recordkeeping, and marketing are therefore largely eliminated for ETF issuers. This can translate into lower operating fees for ETF investors. Another important benefit comes in the form of a tax advantage. While investments in both mutual funds and ETFs can be subject to relevant taxes, ETFs are usually considered more tax efficient. In jurisdictions where funds are required to distribute realized capital gains to their shareholders, ETFs tend to distribute fewer capital gains than mutual funds, making ETF shareholders less susceptible to taxes. When a significant number of mutual fund investors redeem their shares, the mutual fund must sell securities and raise cash to meet the redemptions. This can result in realized capital gains that will be passed through to the remaining shareholders for tax purposes. In comparison, when retail investors redeem their ETF shares, they simply exchange shares with others in the secondary market-without incurring realized capital gains for the fund or other shareholders remaining in the fund.

ETFs are not without disadvantages, however. Being traded like single stocks on exchanges, ETFs are subject to market forces that can temporarily push prices away from the funds' net asset values, resulting in price premiums or discounts (Bodie et al., 2014). Arbitrage activities can bridge the gaps and bring prices closer to the net asset values of the funds. ETFs are subject to tracking errors-not replicating the exact returns as the indices they track. Nonetheless, this drawback is hardly specific to ETFs; all funds are subject to tracking errors to some extent. While ETFs hold an advantage over mutual funds in terms of operational costs, analysis is incomplete without taking into consideration related transaction outlays. Being traded on exchanges via brokerage houses, ETF investors are regularly liable for brokerage fees when they buy or sell their ETF shares (Securities and Exchange Commission, 2012; Stock Exchange of Thailand, 2018a). Mutual fund investors are also faced with front-end and back-end charges when they buy or sell, but in some instances, these fees can be waived. The impact of transaction fees on investment should be assessed along with factors such as the size of the transaction and the length of the holding period for the investment.

4. ETFs in the United States

At the end of 2017, the value of assets in the ETF industry in the United States stood at 3,401 billion US dollars, making it the largest ETF market in the world (Investment Company Institute, 2018). In addition, the American ETF industry features one of the most advanced developments and as such is worthy of closer investigation.

Table 1 ETF statistics in the United States

Statistics	Year			
	2014	2015	2016	2017
Total ETF Assets (billion US dollars)	1,975	2,101	2,524	3,401
Total ETF Asset Growth (percent)		6.38	20.13	34.75
Total Mutual Fund Assets (billion US dollars)	17,848	17,753	18,868	22,147
Total Mutual Fund Asset Growth (percent)		-0.53	6.28	17.38
E/M Ratio	0.124	0.134	0.154	0.181

Source: Author’s compilation (Investment Company Institute, 2018)

Table 1 displays ETF statistics in the United States from the end of 2014 to 2017. Assets held in ETFs increased by 6.38 percent in 2015, 20.13 percent in 2016, and 34.75 percent in 2017. Mutual fund assets, however, decreased by 0.53 percent in 2015, before returning positive growth rates of 6.28 and 17.38 percent in 2016 and 2017. During the time period, the size of ETF assets was smaller than the size of mutual funds. To gain a valuable perspective, it is proposed in this paper that the ETF assets to mutual fund assets ratio, or the E/M ratio, be used to track the relative size and the relative success of ETF in the investment industry. During the period covered, the E/M ratio kept improving from 0.124 in 2014 to 0.181 in 2017. Despite the fact that ETFs were still smaller than mutual funds, the relative size of the two industries was pivoting in favor of ETFs. These statistics illuminated a number of issues in the American investment management business. Firstly, the ETF industry has been growing. Secondly, the mutual fund industry, in general, has also been growing. Thirdly, the success of the ETF industry in making an inroad into what was traditionally considered a mutual fund territory has been evident. However, past success does not guarantee that the future of ETFs will be free of hurdles.

Table 2 Top 5 US ETFs by assets

Rank	ETF	ETF Category	Assets (end of Oct. 2018) (million US dollars)	Expense Ratio (percent per year)
1.	SPDR S&P500 ETF	Equity	259,006	0.09
2.	iShares Core S&P 500 ETF	Equity	157,332	0.04
3.	Vanguard Total Stock Market ETF	Equity	100,107	0.04
4.	Vanguard S&P 500 ETF	Equity	99,970	0.04
5.	Invesco QQQ	Equity	67,935	0.20

Source: Author’s compilation (ETFdb, 2018; Invesco, 2018; iShares, 2018; State Street Global Advisors, 2018; Vanguard, 2018a,b)

Table 2 ranks US ETFs by their assets. At the end of October 2018, SPDR S&P500 was the largest ETF in the United States, amassing an impressive amount of 259,006 million US dollars in assets. The list of the top five were completed by iShares Core S&P 500 ETF at 157,332 million US dollars, Vanguard Total Stock Market ETF at 101,107 million US dollars, Vanguard S&P 500 ETF at 99,970 million US dollars, and Invesco QQQ at 67,935 million US dollars. Expense ratios for the top five American ETFs ranged from 0.04 to 0.20 percent. While there were funds that charged more, these top ETFs with high asset values operating at low costs were true testaments to economies of scale in the American ETF industry. ETF product concepts allowed for the possibility of low costs in running investment funds. These top ETF issuers not only realized that possibility for themselves, but also passed on the benefit to their customers in the form of very low fees.

In the United States, ETFs span an extensive range of products and philosophies. ETFs are available for domestic equities, sector equities, foreign equities, domestic government bonds, foreign government bonds, domestic corporate bonds, foreign corporate bonds, real estates, foreign currencies, and commodities (including a variety of precious metal, petroleum, and timber resources). Some of these products even come in multiple configurations, including inverse and leveraged ETFs.

Previous studies have attempted to compare ETFs to mutual funds in the market. Utilizing data from the American market, an investigation into financial returns of index ETFs and comparable index mutual funds was conducted by Nandy (2014). According to the research, which covered the period since the inception of ETFs to 2013, the null hypotheses that the distributions of the Sharpe Ratios and the risk-adjusted buy and hold returns of index ETFs and the distributions of the Sharpe Ratios and the risk-adjusted buy and hold returns of matched index mutual funds had the same medians were not rejected. In another study, the performance of ETFs versus closed-end mutual funds investing in international equity over a ten-year period ending in 2012 was compared. The study found that expenses and turnover rates for ETFs were significantly lower. However, closed-end mutual fund returns after deducting expenses were significantly higher both unconditionally and on a risk-adjusted basis, using the Sharpe Ratios, Treynor Measures, and Jensen's Alpha (Chang, Ragan, & Witte, 2013). In another study, in which aggregate flows into open-end index (mutual) funds were compared to aggregate flows into ETFs during the period between 2000 and 2004, it was concluded that mutual funds and ETFs were considered imperfect substitutes and coexistence of both instruments could be explained by a clientele effect in different market niches (Agapova, 2009). While the evidence had not been clear cut as to which instruments, ETFs or mutual funds, reign supreme in the race for return and performance, investment management industry would likely continue to offer both options to the investing public.

A number of studies explored the demand side of the ETF industry. Charles Schwab (2018) surveyed 1,500 general ETF investors and produced insights into general investors' behavior, perception, and attitude towards ETFs. According to the study, when evaluating ETFs, investors' top priorities, in descending order, were: 1. low expense ratio, 2. low total cost, and 3. ability to track index. Intriguingly, historical returns did not make it to the top three. The study found that higher percentage of Millennials (age 25-37) agreed that ETFs were their investment vehicle of choice, compared with Gen Xers (age 38-53), boomers (age 54-72) and matures (over age 73). Unsurprisingly, Millennials held more ETFs in their portfolios than any other generations. More than half of all surveyed and nearly three quarters of Millennials planned to increase ETF investment in the next year. A quarter of all respondents reported using technology, such as automated investing platform (robo-advisor) or portfolio-building tool designed for self-directed investors.

Enete, Reiter, Usrey, Scott, and Seay (2018) investigated the relationship between individual financial characteristics and ETF ownership. In the study, they found that ETF owners had higher financial knowledge than non-ETF owners. Seeking financial advisor's help and aversion to fees were not significant variables in explaining the variation in ETF ownership. Nevertheless, increased risk tolerance and financial satisfaction were associated with ETF ownership.

Exploring ETF demand from institutional side, Brown Brothers Harriman (2019) surveyed 300 institutional investors, financial advisors, and fund managers. According to the findings, when selecting ETFs, the top three in terms of importance were: 1. historical performance and expense ratio, 2. ETF issuer, and 3. index methodology. It should be noted that during the previous surveys in 2017 and 2018, the top list were: 1. expense ratio, 2. index methodology, and 3. historical performance. The study also indicated that 61% of respondents planned to increase their ETF investments in the next 12 months. On a related note, Investment Company Institute (2018) reported that demand for ETFs had increased as institutional investors utilize ETFs to participate in, or hedge against, movements in the market, while increased awareness by retail investors and financial advisers also influenced demand for ETFs.

Given its past success, further progress of ETFs into the investment management market is not guaranteed. In order to advance further, American ETF industry must overcome fiercer competition-both from within the ETF industry and from outside, most notably mutual funds. The industry needs to adapt to the changing environment. It must continue to improve products and distributions, and respond to investors' needs and regulations while remaining costs competitive and transparent (EY, 2017; PwC, 2016). Despite their original reputation as prominent tools for passive or index investment, American ETFs have also been branching out into the sphere where traditional mutual funds have taken a stronghold. Recently, an increasing number of actively managed ETFs have been launched. Identified as a major area for potential growth, this trend will likely continue into the future. Technology is another factor that, if handled well, can transform the ETF industry. Among its immense potentials, digital technology can open up new distribution capabilities. The emergence of robo-advisors can bolster growth in the American market where funds are numerous and diverse enough to support composition of complete portfolios purely and entirely from ETFs.

5. ETFs in Thailand

At the end of 2017, the value of assets in the ETF industry in Thailand stood at 15,581 million bahts (Securities and Exchange Commission Thailand, 2018; Stock Exchange of Thailand, 2018b). This figure was equivalent to 477 million US dollars (Bank of Thailand, 2018). The amount paled in comparison to 3,401 billion US dollars invested in ETFs in the United States at the end of 2017 (Investment Company Institute, 2018). The ETF industry in the United States was more than seven thousand times larger than the industry in Thailand.

Table 3 ETF statistics in Thailand

Statistics	Year			
	2014	2015	2016	2017
Total ETF Assets (million bahts)	11,136	10,876	13,918	15,581
Total ETF Asset Growth (percent)		-2.33	27.97	11.95
Total Mutual Fund Assets (million bahts)	3,248,732	3,458,292	4,022,763	4,523,243
Total Mutual Fund Asset Growth (percent)		6.45	16.32	12.44
E/M Ratio	0.00342	0.00315	0.00346	0.00344

Source: Author's compilation (Securities and Exchange Commission Thailand, 2018; Stock Exchange of Thailand, 2018b)

Table 3 provides statistics of ETFs in Thailand from the end of 2014 to 2017. During that period, ETF assets dropped by 2.33 percent in 2015, then grew by 27.97 and 11.95 percent in 2016 and 2017. Mutual fund assets, on the other hand, maintained positive growth rates of 6.45, 16.32, and 12.44 percent in 2015, 2016, and 2017, respectively. The size of ETF assets was very small compared to assets in mutual funds. During the period covered, the E/M ratio in Thailand hovered just above the 0.003 mark. The relative size of the ETF industry to that of the mutual fund industry did not change much. These statistics reflected a few important issues in the Thai investment management business. Firstly, the ETF industry in general has been on a growth path. Secondly, the mutual fund industry has also been growing. Thirdly, the success of the ETF industry relative to the mutual fund industry has been limited. This can be viewed as a sign that the ETF industry in Thailand has encountered a roadblock. Alternatively, it can also mean that substantial room for growth is still available.

Table 4 Top 5 Thailand ETFs by assets

Rank	ETF	ETF Category	Assets (end of Oct. 2018) (million bahts)	Expense Ratio (percent per year)
1.	ABF Thailand Bond Index Fund	Bond	9,537	0.20
2.	Thaidex SET50 ETF	Equity	2,929	0.52
3.	BCAP MSCI Thailand ETF	Equity	1,295	0.70
4.	BCAP SET100 ETF	Equity	914	0.57
5.	BCAP Mid Small CG ETF	Equity	601	1.11

Source: Author's compilation (BCAP Asset Management, 2018a,b,c; Kasikorn Asset Management 2018; One Asset Management, 2018; Stock Exchange of Thailand, 2018b)

Table 4 ranks Thailand ETFs by assets. At the end of October 2018, the largest ETF was the ABF Thailand Bond Index Fund at 9,537 million bahts. The top five were completed by Thaidex SET50 ETF at 2,929 million bahts, BCAP MSCI Thailand ETF at 1,295 million bahts, BCAP SET100 ETF at 914 million bahts, and BCAP Mid Small CG ETF at 601 million bahts. The largest equity ETF in Thailand was the Thaidex SET50 Exchange Traded Fund.

In comparison to their American counterparts, Thai ETFs were quite small. The largest U.S. ETF, SPDR S&P500 ETF, was more than nine hundred times the size of the largest Thai ETF, the ABF Thailand Bond Index Fund. Limited fund size made it difficult for the industry in Thailand to realize some of the benefits that ETFs had to offer, especially their cost efficiency. At the end of October 2018, the majority Thai ETFs did not even breach the 100 million baht threshold in assets. In such cases, economies of scale were hard to achieve, and costs, expressed in terms of percentage of assets, would most likely be high. Expense ratios of Thailand's top five ETFs ranged from 0.20 to 1.11 percent. While these were reasonable, when compared to mutual funds in Thailand, the ratios were significantly higher than those of

ETFs in the United States.

As of this writing, Thai ETFs are available in the following categories: domestic equity, sector equity (for example, banking, commerce, energy, information and communication technologies), domestic bond, foreign equity (Chinese equity), and commodity (gold). Foreign bond ETF has yet to be launched. Neither foreign equity ETFs (apart from Chinese equity) nor commodity ETFs (other than gold) are currently offered in the Thai market. Inverse and leveraged ETFs are not available. So far, ETFs in Thailand are passively managed to track indices. Actively-managed ETFs are nonexistent in the Thai market.

A comparative study of risk and return between Thailand's ETF, namely the Thaidex SET50, and a comparable set of nine SET50 mutual funds, using data from November 1, 2007 to October 31, 2010 was conducted by Ruanchai (2011). According to the study, Sharpe Index, Treynor Index and Jensen's Alpha for seven mutual funds were higher than those for Thaidex SET50, while Sharpe Index, Treynor Index and Jensen's Alpha for two mutual funds were lower than those for Thaidex SET50.

Another study using data from December 9, 2014 to September 10, 2015 to compare return and risk between Thailand's ETFs that invested in foreign equity and foreign investment feeder (FIF) mutual funds was completed by Sitthiho (2015). It was found that on average, ETFs' Sharpe Index was superior to FIF funds. However, according to the study, ETFs' Treynor Index was inferior to FIF funds.

Overall, the aforementioned studies indicated no clear performance winner in the competition between ETFs and mutual funds. The limited number of ETFs in Thailand invariably translated into limited sets of data available for analysis. Regarding the investment management industry in Thailand, open-end mutual funds, rather than ETFs, were the most popular fund like products for investors in the country (Morningstar, 2017). While a variety of distribution channels were available, banks continued to dominate fund sales in Thailand.

The ETF industry in Thailand can still grow relative to its past. In order for the industry to grow relative to its main competitors, specifically mutual funds, however, measures must be taken to overcome obstacles and turn challenges into opportunities. The industry must continue to improve upon its products and distributions, and continue to respond to investors' needs and regulations while remaining costs competitive and transparent (EY, 2017; PwC, 2016).

With regards to products, the Thai market has not featured a full range of ETF categories. More products in foreign equity, domestic bond, foreign bond, real estate, and commodity categories, as well as actively-managed funds are needed to make ETF offerings in Thailand more comprehensive, more competitive, and more suitable to the development of complete portfolios out of ETFs. If this goal can be attained, wider adoption of ETFs are more likely. Simultaneously, the rise of robo-advisors, together with investors' increasing proclivity for technology, can leapfrog the ETF industry to a much faster growth path. Improving market shares in promising segments of retail and institutional investors, insurance companies, and pension funds can broaden the customer base for ETFs. Wider adoption of ETFs can, in turn, lead to greater cost efficiency. The Thai market in and of itself is medium-sized. Regional integration with other fragmented markets in Asia, while not an easy endeavor, can potentially put the continent on the same ETF league as Europe and maybe even the United States.

Conclusion

ETFs are relatively recent phenomena in the field of finance. From its humble beginning, ETFs have grown to become permanent components of the investment industry. ETF creation units, along with their creation and redemption processes that involve ETF issuers and ETF authorized participants are central to the product concept. Trade activities in secondary market through stock exchanges allow ETF shares to be bought and sold by the public via investment brokers throughout the trading day. ETF's clever design is conducive to diversification, tradeability, transparency, and cost efficiency. All aforementioned benefits of ETFs have been realized to a larger degree in the American market, and to a certain degree in the Thai market. While ETF assets have registered positive growth rates for a number of years in both countries, ETFs in the United States have been more successful in capturing market shares relative to mutual funds.

In conclusion, the American ETF market is larger and more developed than the Thai market. ETFs in a greater number of categories are offered in the United States than in Thailand. Expense ratios for the top 5 ETFs by assets in the United States are lower than in Thailand. Poised for continuing growth, the American ETF market is likely to remain at the forefront of the industry in terms of new product innovation and cost leadership for years to come. Thailand, on the other hand, experiences limited success in ETF adoption. Despite the general growth trajectory of ETF assets in Thailand, the country's E/M ratios have essentially stagnated, signaling the limited growth of ETFs relative to mutual funds. The Thai market offers a reasonable, though not extensive range of ETF products. The costs of ETFs in Thailand are generally higher than in the United States. This can be partly attributed to the relatively smaller sizes of ETFs in Thailand.

Evidence from comparative studies between ETFs and mutual funds in terms of risk and return has been inconclusive, with ETFs appearing superior in some cases and mutual funds dominating in others. ETF owners are found to have higher financial knowledge than non-ETF owners. Individual investors prioritize low expense ratio as their top criterion when evaluating ETFs, whereas institutional investors place their top priorities on both low expense ratio and historical performance. Looking to the future, ETF industries in Thailand and the United States need to turn challenges into opportunities in order to sustain growth in the long run.

Recommendation

ETFs are here to stay. Nonetheless, competition and changes in investors' needs, technology, and regulatory framework can derail progress. In order to equip themselves with greater capabilities for continuing success, ETF industries in the United States and Thailand must adapt to the new investment landscape.

ETF industries in Thailand and the United States must improve their products and distributions. While the American industry can focus on some fast-growing areas, such as actively-managed ETFs, the Thai industry has a large task to accomplish—striving to create a complete range of ETF offerings that will support wider product adoption and lower operating costs. The importance of product offerings cannot be overstated. Without appropriate and adequate products in the market, any attempts to promote ETFs are likely to be met with failure.

ETF industries in Thailand and the United States must continue to respond to evolving investors' needs, technology, and regulations. The industries need to pay special attention to the demand side of ETFs and respond to individual investors' and institutional investors' behavior, perception, and attitude. The industries should keep on top of decisive priority factors that investors use to make investment decisions, be they low expense ratio and cost or performance, in order to remain competitive with mutual funds. Comprehensive product offerings will synergize well with the rise of technology, robo-advisors, and investors' endorsement of digital distributions. Industries in both countries need to keep an eye on regulatory framework that may affect their positions. In Thailand, a case can be made for regional market integration. Well-connected Asian markets can potentially help Thailand overcome its market size limitation.

The potentials are too vast to leave the fate of the ETF industry entirely up to chance. In order to turn potentials into realities, the benefits of ETFs need to be communicated with the public through investors' education. With strategic planning and effective execution, ETF advantages in diversification, tradeability, transparency, and cost efficiency can be fully realized and sustained through the next decade of development. The future of ETFs can be bright. With great care, the fruits of this intelligent creation can be bountiful, and the gains thereof can be mutually enjoyed by the financial industry and the investing public.

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