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Why Cannot Active Funds be Replaced by Passive Funds?

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Abstract: *This article's purpose is to assess whether active funds may be comprehensively replaced by passive funds in the future. Generally, active funds continue to offer advantages and relevance, meaning they cannot be completely replaced. Accordingly, this paper analyses the future performance of active and passive funds in three sections, namely market effectiveness, market volatility, as well as investor behavior. The market efficiency hypothesis was adopted to derive a random-walk model, aiming to provide further clarification of active and passive funds' varying efficiency and performance in various markets. In addition to varied performance in different periods of the same market, during periods of market expansion and recession, active fund management is characterized by superior performance during times of market recession. Additionally, a dearth of expertise, individual needs, and behavioral bias due to investor demand results in more investors being willing to purchase active funds.*

Keywords: Active fund, Passive fund, Market efficiency, Behaviour finance.

1. Introduction

According to the different initiatives of investment, the fund can generally be divided into active funds and passive funds. An active fund is to give full play to the fund manager's initiative when choosing the investment portfolio and the investment time to win the income beyond the market (Housel, 2020). On the contrary, passive funds usually use a specific index, such as the S&P 500, as its underlying index, and take the constituent stocks of the index as investment objects and build a portfolio by purchasing all or part of the constituent stocks of the index to track the underlying index performance (Russell, 2006). The overall return of the active funds is worse than that of passive funds net of fees (Malkiel, 2003). People now argue whether the current fund markets will completely shift to a passive fund market or not in the future. This article indicates that the topic of "whether the passive fund will completely replace the active fund" cannot be simply rejected or accepted. It needs to be classified and discussed in different market environments. At the same time, individuals' factors cannot be ignored when analyzing their investing behaviors. This paper will make a critical analysis of this topic from the following three aspects.

First of all, active funds' performance differs from that of passive funds under the random walk model and varying market effectiveness (Fama, 1970). Passive funds typically perform more effectively in strong effective markets compared with weak effective markets. This result concerning active funds usually outperforms the market, thus becoming a more favored choice for a greater number of investors. Secondly, under varying market trends, active funds and passive funds' performance differs (Kosowski, 2011). During the period of market expansion, the α of active funds becomes less obvious, while the passive funds perform more effectively. Contrastingly, during the period of market recession, active funds' advantages will be highlighted. Finally, from the perspective of investors' behavior, market investors tend not to follow analysts' expectations. Their investment decisions give greater consideration to funding performance (Capon, Fitzsimons and Prince, 1996). Meanwhile, many investors with limited financial knowledge tend to select actively managed funds due to being influenced

by external advertisement (Müller and Weber, 2010). Additionally, behavioral bias is a further variable driving investors to purchase more active funds (Bailey, Kumar and Ng, 2011).

2. Contributing Factors

This section focuses on market effectiveness, market trends and Individual Investors' behavior to explain why active funds continue to have a place in the market even when they underperform passive funds.

2.1 Market Efficiency Factors

According to Fama (1970), a productive and well-organized marketplace has a pricing policy that takes all relevant data into account. For instance, individuals who trade in securities can do so securely in the knowledge that they have access to all obtainable information. Neither Arbitrage nor LOOP (the law of one price) is a factor, although, in such instances, the market may lose its efficiency.

Fama (1970) recognizes these circumstances and outlines a trio of forms that reflect the market's condition: weak, semi-strong, and strong. A weak marketplace presents security prices that solely mirror information about trade volumes and pricing fluctuations. Thus, it is unlikely that arbitrage profits are possible if technical assessments of previous pricing and volumes are employed. Meanwhile, the prices of a semi-strong marketplace utilize all data available to the public, such as promotional material, news updates, estimates, and so forth. Finally, a strong marketplace bolsters the information available in a semi-strong market with private data only available to insiders. Fama's notion of an effective marketplace posits the impossibility of regularly outperforming the market using policies that have been adjusted to risk (1970). Theoretically, stock market pricing corresponds to a "random walk" model, characterized by randomized, unpredictable price fluctuations that align with the efficient market hypothesis (Fama, 1965, 1970). The 'random walk' model is the inverse of what active investors believe because unpredictable market prices mean any pre-investment checks will never be beneficial.

Thus, the “random walk” model indicates that passive marketplace strategies are more likely to produce gains than a selective active approach (Chun and Kim, 2004). This is because the new information in the future may be good or bad, the nature of buying and selling stocks and casting a coin is similar. Therefore, Klemens Kremnitzer (2012) mentions that for an investor, neither buying nor selling can give him an advantage. For the long-term investment, the best strategy is to “Buy and Hold”. Therefore, it is a waste of time to choose

stocks at this time.

As Figure 1 shows below, the data from Morningstar, among 47 groups of US funds, only 7 groups show that the winning rate of active funds exceeds 50% in 2017, that is, they outperform index funds. By looking at the overall trend of the data, over time, the winning rate of active funds is getting smaller and smaller, reaching the lowest in 10 years, and remaining around 20% in the next 15 or 20 years.

Exhibit 16 Summary results for the period ended June 30, 2017

Category	Active Funds' Success Rates by Category (%)					
	1-Year	3-Year	5-Year	10-Year	15-Year	20-Year
U.S. Large Blend	48.8	18.7	20.4	13.8	14.6	16.7
U.S. Large Value	58.2	10.4	24.1	18.3	21.4	—
U.S. Large Growth	42.4	25.7	16.5	11.7	7.1	—
U.S. Mid-Blend	39.7	24.3	20.0	12.5	9.1	10.5
U.S. Mid-Value	56.1	24.3	13.3	21.4	—	—
U.S. Mid-Growth	55.4	41.0	27.8	27.6	21.7	—
U.S. Small Blend	31.5	25.0	28.0	26.1	19.6	31.3
U.S. Small Value	55.9	40.7	42.5	30.2	38.3	—
U.S. Small Growth	60.8	37.5	32.1	18.0	8.6	—
Foreign Large Blend	53.8	46.0	39.4	31.8	36.2	39.3
Diversified Emerging Markets	61.8	67.4	70.0	33.7	—	—
Intermediate-Term Bond	85.1	54.1	66.1	44.4	38.7	22.2

Source: Morningstar. Calculations as of 6/30/17.

Figure 1: US Market Active Funds' Success Rates by Category (%) in 2017

Source: Johnson and Bryan, 2018: p.16

However, these conclusions stand on the data set of the semi-strong efficient market represented by the U.S. market. The Asian Economic and Financial Review journal conducted an empirical review of this theory and discovered that share prices on the Nigerian Stock Exchange are not arbitrary, meaning, by extension, the prices did not comply with Fama's “andom walk” model (1965). Such a finding matches Herzberg, Kapetanios and Price (2003); Lo and Mackinlay (1988), and (Sharma, 2011) although this research focused solely on Bangladesh's capital market. Here, caution is advised: the apparent defectiveness of testing the “random walk” model has yet to be adjusted to each economy (Chinhamu and Chikobvu, 2014). Stuart Michelson and Rich

Fortin (2002) also point out active fund managers gain excess returns from less efficient markets where stocks might be mispriced. If the market price is not a completely random walk, then fund managers can apply fundamental analysis to beat the market indices. Thus, it can be seen from this that in some developing countries and emerging markets, the market is usually weak or semi-strong and effective, so active funds tend to perform better in these markets. To this end, we use data from the Chinese market to support our view. As Figure 2 below shows: In the Chinese market, in contrast to the U.S. market, in the majority, active funds have shown overwhelming advantages in 2020.

Period	Active Funds		Passive Funds		Asset-Weighted Performance		Equal-Weighted Performance		Active Success Rate (%)
	# at Beginning of Period	Survivorship Rate (%)	# at Beginning of Period	Survivorship Rate (%)	Active (%)	Passive (%)	Active (%)	Passive (%)	
1-Year	137	90.5	31	96.8	38.6	26.0	37.0	22.7	77.4
3-Year	121	78.5	21	76.2	12.5	8.3	10.8	5.6	68.6
5-Year	124	67.7	19	63.2	14.3	13.0	12.6	9.6	54.8
10-Year	102	46.1	15	46.7	7.6	5.6	6.2	4.4	36.3

Source: Morningstar Direct. Data as of 31/12/2020.

Figure 2: Chinese Market Active Funds VS Passive Fund in 2020

Source: Boyadzhiev and Johnson, 2021: p.6

Some scholars also hold a similar view. Kremnitzer (2012) believes that there are more arbitrage opportunities in the inefficient market, so the initiative of the active fund can be given full play. By analyzing the funds and ETFs specially used in emerging markets in the United States, it is concluded that the active fund is 2.75% after-tax, due to ETFs (Kremnitzer, 2012). Verheyden, De Moor and Vanpée (2016) believe that the management of active funds is not completely outdated. Top-level active funds are not unable to surpass the market. On the contrary, they can take advantage of the inefficiency of the market to generate significant α , which is positive when the market is sluggish. Rao et al. (2017) believe that some smart investors can predict future performance by

historical results, and fund managers in emerging markets have a high probability of surpassing the benchmark market.

2.2 Market Trend Factors

The second argument is based on the market period in the same market. Even in a strong and efficient market, passive funds cannot outperform active funds all the time. Michelson and Fortin (2002) think that index funds outperform active funds most of the time, but if we look at the analysis results more closely, active funds outperform passive funds during periods of economic exit or recession. Kenourgios and Samios (2012) put forward the same conclusion: active funds

are better than passive funds in the period of falling stock index. Kosowski (2011) gives a more detailed analysis of this issue. By testing the performance of equity mutual funds in the period of expansion and recession in the United States from 1962 to 2001, Kosowski (2011) found that people tend to underestimate the value increment of mutual funds in the period of recession, because in both single-factor and multi-factor models, α in the period of recession is the highest, and the annual difference between α in the period of recession and α in the period of expansion is 3%-5%, indicating that active funds are more dominant in the period of recession.

One explanation for active funds outperforming passive funds during recession periods can be information disclosure. Kothari, Shu & Wuysocki (2009) and Shin (2003) hold the view that considering the market information factors, companies will only disclose good news as much as possible during the recession, thus resulting in information asymmetry. Then fund managers can carry out arbitrage by obtaining additional information. However, information is mostly positive during the expansion period, so the information is evenly distributed and the possibility of arbitrage by information asymmetry is very small (Kothari, Shu & Wuysocki 2009; Shin, 2003). Another reason may be that mutual fund managers can actively adjust the exposure of funds to the market when the market is experiencing volatility to hedge from that, which results in the positive α for active funds (Busse, 1999). One of the stated studies not only measured performance but also ascribed it to the portfolio manager's investment selections. To analyze managerial

skills and their association with security mispricing, an econometric methodology was devised. The study compares portfolio managers' opinions, perspectives, and other factors to portfolios with the greatest and lowest Sharpe ratios. When performance is quantified using the Sharpe ratio, the results show that active funds may be a better choice than passive indexes (Pástor and Stambaugh, 2002).

Therefore, only considering the market effectiveness factor (Section 1.1) is not enough, the market trend is another factor investors should focus on. From section 1.1, in a strong and semi-strong efficient market, passive funds perform better in the long run; and in weak efficient markets, active funds perform better. However, from the above analysis, during a recession, active funds can exceed passive ones. A better choice is to invest passive funds in the market expansion period.

The following data are found to support this view. The Chinese market (Figure 3) (by conducting data from Morningstar) is highly volatile with ups and downs. As shown in Figure 4 below (data obtained from Wind Financial Terminal), the passive fund was abnormally superior to the active fund when the Chinese market was in a sharply rising bull market, i.e., 2014-2015, which was contrary to our view in Section 1.1: the active fund was dominant in the weak efficient market. However, in the long run (at least for 10 years) the Chinese market is still dominated by active funds, so this "anomaly" is due to market volatility, i.e., passive performance is better in bull markets.



Figure 3: Shanghai Composite Index

Source: Morningstar database

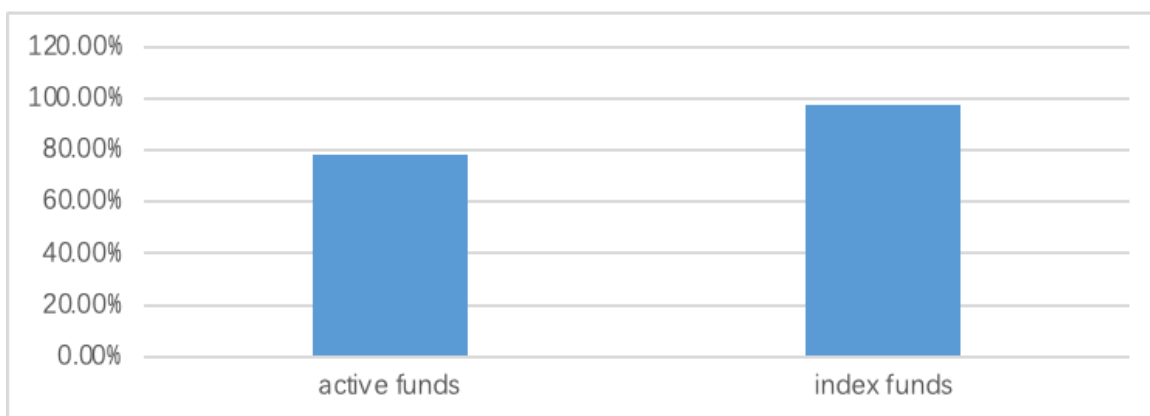


Figure 4: Returns of Active Funds and Index Funds in the Chinese Market from 2014 to 2015

Source: Wind Financial Terminal

From the investor’s point of view, we can’t guarantee that all investors in the market tend to invest funds for the long term. For example, there is an investor who has idle money and wants to invest in the fund, but he expects that he will use the money in three years, and right now the economy is in a recession. However, although the long-term performance of active funds in the US market is not good, there is still a considerable possibility of outperforming the market in the short term, because it is related to the period. From the above analysis, this investor can gain more during the recession period by investing in an active mutual fund. If the active funds in the American market are completely replaced by passive funds, then those investors who want to make short-term investments will lose an opportunity to win more profits in a short recession. Therefore, to meet the needs of some short-term investors who want to take advantage of the market recession to obtain excess profits in a short period, active funds still have the value of existence.

2.3 Individual Investors Behavior

By conducting Figure 4 and Figure 5 by using the data of funds from the “2018 Investment Company Fact Book” published by the Investment Companies Institution (ICI) in May 2018, from 2000 to 2017, it is clear that the total net assets of active mutual funds have been far more than those of index mutual funds (Figure 4), and the number of funds of active mutual funds is also far more than that of index mutual funds by an overwhelming margin (Figure 5). To look at the situation from the investor perspective, individual investors’ behavior is an aspect that can explain why individual investors tend to select actively managed funds with low returns rather than indices (Peteros and Maleyeff, 2013). Investors may act differently from financial experts’ predictions.

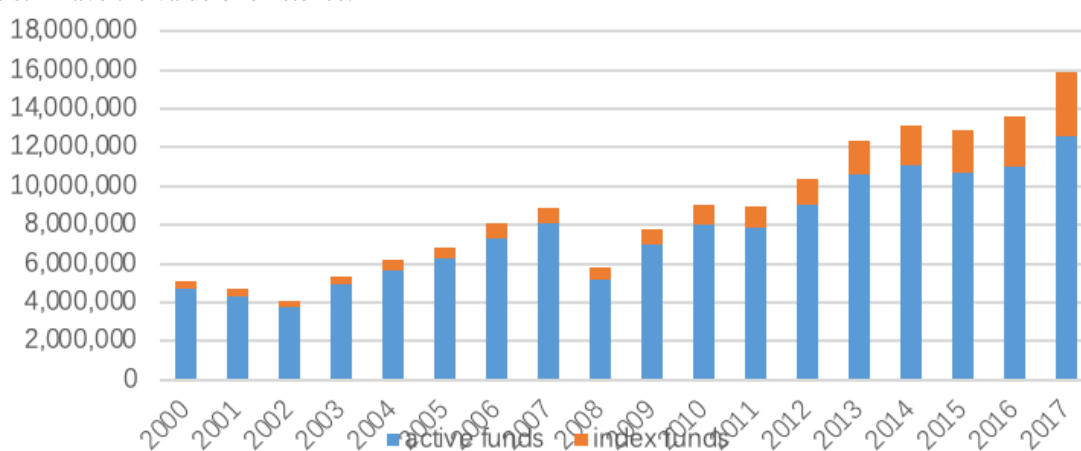


Figure 5: Active and Index Mutual Funds: Total Net Assets

Source: Investment Company Institution “2018 Investment Company Fact Book”.

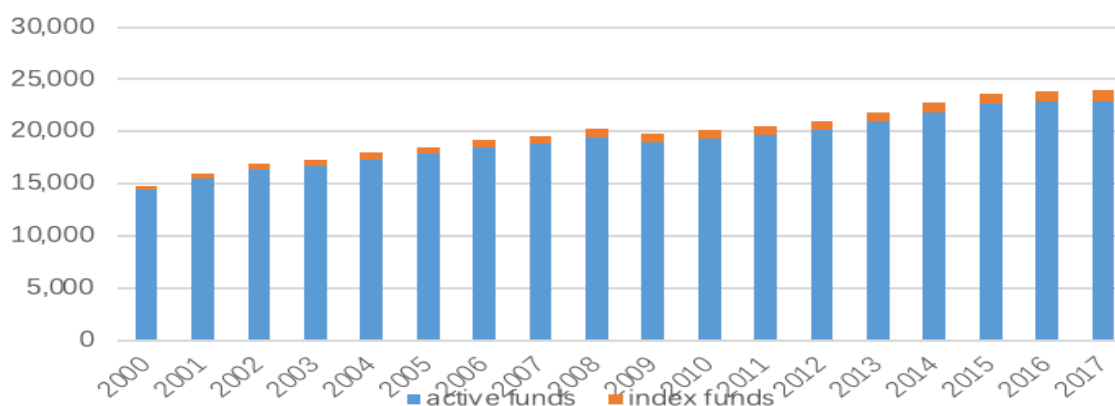


Figure 6: Active and Index Mutual Funds: Number of Share Classes

Source: Investment Company Institution “2018 Investment Company Fact Book”.

Investors’ behaviors are driven by other fund attributes besides risk and return such as fund scale and the reputation of the fund managers, etc (Capon, Fitzsimons and Prince, 1996). When we analyze the investors’ fund preference, only focusing on the fund performance can drive the result of fund selection differently. Although index funds can outperform active funds, other factors may have a more significant influence on investors’ fund selection than fund performance.

Also, investors’ financial ability should be considered, and not every investor in the fund markets is considered as a

skillful investor which has finance knowledge to guide them to invest. Research conducted by Alexander, Jones, and Nigro (1998) found that the majority of investors in the market cannot realize that high fund fees hurt their return, and many investors still think they will not gain a negative return on their bond funds. This research illustrates that a large number of fund market investors lack financial professional knowledge, so it is hard for them to act as financial experts predict. Also, some investors who lack investment knowledge are more likely to be affected by external factors such as market advertising and their financial managers’ suggestions,

and this leads to their eventual preference for active funds (Müller and Weber (2010)). Research conducted by Sun (2019) also shows financial advisors guide investors to purchase active funds with high incentives for them by using the reliance on low financial literacy investors on financial advisors. In reality, advertising also does impose a significant influence on investors' fund selection opinions. Research conducted by Cronqvist (2006) has shown funds' significant spending on the advertisement (around \$6 billion per year in the US) and advertisement's important influence on people's investing behavior, which guided investors to select more actively managed funds with higher equity exposure and risk due to high incentives to funds. In addition, Jain and Wu (2000) also found out that advertised funds are much more popular for investors than non-advertised ones. Therefore, those external financial advisors and marketing advertising lead investors to buy higher expense active funds rather than index funds which have better performance.

By looking at the investors with more financial knowledge, the research conducted by Müller and Weber (2010) found out investors with higher levels of financial literacy also rely on active funds as well as those less skillful investors due to overconfidence, although there is a positive correlation between financial literacy and investors' allocation on passive funds. Müller and Weber's (2010) study illustrates overconfidence makes those investors believe their fund's picking skills can outperform that of average investors. Similarly, Gort (2009) demonstrated that Swiss prefer active pension plans over passive ones due to their belief that their managers are better-than-average, although their managers cannot beat the market in reality.

When conducting financial analysis, the subjective psychological characteristics of investors are very important factors besides the characteristics of objective market changes. We ideally assume that investors are all "rational economic men", but in fact, investors will be affected by psychological factors when making investment decisions (De Bondt et al., 2008). Those behavior biases are driving investors to purchase active funds with the high cost and avoid those cheap index funds, which cause a loss to them (Bailey, Kumar and Ng, 2011). Sometimes people overestimate their abilities and think that their estimates of the future are more accurate than what is reflected, which is referred to as "overconfidence bias" in behavioral finance. Chaudhary (2013) believes that overconfident investors tend to think that they have better control over the investment opportunity than others and that their prediction for the future is more accurate; however, the fact is that this often makes them slow to respond to new information, so they can't get the best return. De Bondt et al (2008) have similar options that investors' overconfidence may cause investors to undervalue the risks or overestimate their ability to defeat the market. Overconfidence bias may also lead to over-trading (Odean, 1998). This will allow investors to make "unusual moves": they are more willing to invest in active funds, although active funds do not perform as well as passive funds. Hirshleifer (2015) also believes that overconfidence can explain the puzzle of active investment: individual investors invest in active funds rather than indexes to achieve better net results. Therefore, the characteristics of individual investors are another aspect we should use to explain why active funds will not be replaced by index funds.

3. Conclusion

According to the analysis in this paper, we can conclude that the overall performance of passive funds, in the long run, is better than that of active funds, and that passive funds will replace active funds completely in the future is not correct. First of all, from the perspective of the macro global market, passive funds do perform better in a strong and effective market in the long run. However, in some emerging markets such as developing countries like China, active funds can give full play to their initiative to generate excess returns. Therefore, active funds cannot disappear completely in the global market. Secondly, even if the market is effective like the United States, there is no guarantee that the market will always be on the rise. In other words, there will be a certain degree of market volatility. When the market goes into recession, it is time for the active fund managers to show their skills. At this time, investors who hold active funds for a short period may get some additional returns. These investors often have a low degree of risk aversion and hope to get some additional returns through active operations. But for those who are conservative and want to invest in the long term, no matter how volatile the market may be, buying and holding passive funds is the safest way to invest. Therefore, even in a strong efficient market, passive funds cannot completely replace active funds. Finally, individual investors' behavior can partly explain why they invest more in active funds than passive funds in three aspects. Firstly, their investment decision is considered more than fund performance. Also, many of them who lack financial knowledge tend to be affected by external fund advertisements and financial advisors to choose actively managed funds when making fund selections. In addition, behavior bias is another factor that drives investors to purchase more active funds. To sum up, "What exists is reasonable". The existence of the active fund necessarily indicates that it still has some advantages that investors should explore, so it cannot be replaced.

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