The Attractiveness of Passive Forms of Investment in Poland

Abstract

Summing up; passive investments in Poland are slowly becoming more popular. It should be expected that the development of this market will give rise to growing accessibility and attractiveness. There is still some space for improvement in their results, and the outcomes may turn out to be even more promising when full time series for long term horizons become available. The decrease in fees, which exceeds those on mature markets by several times, can change significantly. The entry of new players onto the market may reduce the total expenses incurred by the investor. This study does not explicitly answer the question as to whether the attractiveness of passive investment is higher than that of active investment. The differences in fees themselves are not big enough to explain the differences in the rates of return after costs. But it may be stated that an essential difference lies in the profitability of funds before costs. However, for such a short time series, it cannot be determined whether the indicated differences are stable or result from incidental market fluctuations. All the more reason why not all the passive instruments performed better in terms of rate of return for the period analysed, as the WIG20 ETFs appeared to be less attractive than other active funds.

Keywords: passive vs active management, investment funds, index funds, ETF
Introduction

Passive investment is an investment strategy whereby an investor acts on the basis of formerly adopted principles while not undertaking any activities aimed at making changes to the portfolio structure. The investment is meant to achieve profits that result not from the short-term fluctuations of companies’ share prices that comprise the portfolio, but from long-term corporate value growth.

In this article the concepts of passive portfolio management as well as the underlying economic theories have been presented. The instruments of passive investment, their construction and features, as well as their availability on the Polish market have been briefly discussed. Finally, a comparative analysis of the rates of return and risk level for the passive and active funds available in Poland have been performed.

The author approached the question of which investment, passive or active, is the most advantageous from the investor’s perspective, by taking into consideration all the costs and risks. The rates of return and the risk level (as standard deviation) of index funds and ETFs available in Poland will be collated with actively managed instruments that are possible to compare. Theoretically, better paid fund managers, based on their expertise, should offer investors – particularly over a long period of time – higher rates of return than the market average; which is the benchmark for passive funds. Thus, the thesis of the superiority of actively managed investments over those managed passively will be verified.

Passive investment minimizes the investment expenses connected not only with high brokerage commissions, but also with expenses incurred by actively managed funds, which have to employ highly qualified experts that are responsible for selecting portfolio assets. The most common method of passive investment is to replicate the composition of a selected stock index. A fund of this type focuses on the most accurate replication of the index’ behaviour as it is not aimed at attaining an extraordinary rate of return (i.e. higher than the market rate). A predefined investment scheme, minimal portfolio changes, as well as diversification, allows fees and commissions to be kept at a very low level, while still making fairly high and stable rates of return achievable.

The most common passively managed products are index funds and the wide group of ETP instruments (exchange traded products), which being even cheaper and more liquid than conventional index funds, constitute the vast majority of passively managed funds.

Interest in passively managed funds has been rising dynamically for the past few years. The share of passively managed funds in the global fund market grew from 11%
in 2005 to 16% in 2013. Figure 1 presents the way in which the global level of ETP assets changed from the beginning of 2000 to February 2015. The assets managed by ETPs increased 37 times in that period. This means that the average annual growth of assets for that period amounted to 27%, despite the global crisis on the financial markets of 2008–2012.

Figure 1. ETP Total Assets [USD bn] and the Number of ETPs [pcs] Globally (2000–2015)

The past year was also successful in terms of inflows to passive funds. Figure 2 shows the monthly inflows for February 2014 to February 2015. In 2014 alone, ETP inflows rose by about USD 330 billion, and the data from the first two months of 2015 indicates a growth of about 60% year to year.

In Poland the first passively managed funds appeared in 2010. However, the Polish market is still narrow in comparison with, for example, the American market. The global data shows that the majority of actively managed funds do not earn a higher rate of return than passive ones. According to a report made in 2013 by Bank of America Merrill Lynch, less than every fifth fund manager earned more than the benchmark.

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An environment of low interest rates, market instability and the growing significance of speculation over value building, induces reflection as to whether high commissions for fund managers are fully justified from the investor's perspective. This is the way the research problem has been formulated. Taking into consideration the ineptitude of actively managed funds in generating extraordinary rates of return, let us scrutinise their profitability in comparison to passive funds.

1. Concepts and Premises

The concept of passive asset management may seem counterintuitive. It undermines the opinion that as a result of the scrupulous analysis of financial results or forecasts of share price behaviour, one can achieve extraordinary profits. This theory is supported by some of the elementary laws and theories of financial markets.

Firstly, in the long run the average investor cannot surpass the market. Such a conclusion results from simple arithmetic: for any period of time the rate of return will be equal to the weighted average of the rates of return achieved by all investors. All the passive investors (for example in the broad market index) will theoretically attain a rate of return equal to the market rate. Hence, active investors, as an aggregated group, earn only as much as the whole market earns on average. This, in turn, means that if an active investor is to earn more than the market average, another active investor must earn respectively less. The search for an extraordinary rate of
return, i.e. higher than the average market rate is a zero-sum game: one investor's gain has to be balanced by another investor's loss.3

Secondly, the efficient markets hypothesis is in favour of the passive management of asset portfolios. According to the hypothesis, the prices of financial instruments fully reflect all the available information concerning them. The condition here is zero transaction costs (for example, commissions, costs of conversion etc.) and financial market rationality, that is, no speculation bubbles.4,5 As a consequence, this means that rates of return cannot be forecast, and that technical as well as fundamental analyses are useless, as they are based on publicly available information, which has already been included in the asset prices.

Thirdly, in the case of an investment using a fund, the so-called principal-agent problem occurs. This concerns a situation where the investor, who decides that his or her capital should be managed by an active fund manager, has different goals to the manager (agent). The investor's goal would be to maximise profit within a given level of risk, while the agent's goal may be to maximise their own bonus. Such a situation can encourage managers to change the composition of their customer's portfolio too often, as the commission is paid on turnover. A manager may also be motivated to pursue a more risky strategy (greatly exceeding the customer's risk appetite) giving a greater chance of achieving an extraordinary rate of return and hence a higher bonus.6

Finally, the Capital Asset Pricing Model (CAPM), which is the basis of modern portfolio theories, suggests that when certain conditions are met in a state of equilibrium, the optimum portfolio is the one that is simply market indexed. The rate of return $r_p$, according to CAPM, comprises three elements: the risk free rate $r_f$, the market risk bonus, (i.e. the difference of market rate of return $r_m$ and risk free rate $r_f$), and the sampling error $\epsilon_i$:

$$r_i = r_f + \beta_i (r_m - r_f) + \epsilon_i$$

By definition, the risk free rate does not fluctuate (is constant), while $\epsilon_i$ is a random value and its expected value amounts to zero. Consequently, the only component of the rate of return that is exposed to the volatility of risk and is dependent on the

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6 D. Gad, *Źródła konfliktu agencyjnego w towarzystwach funduszy inwestycyjnych (Sources of Principal-Agent Conflict in Investment Funds)*, "Studia Prawno-Ekonomiczne” 2014, XCI/2, Łódzkie Towarzystwo Naukowe.
Alicja Fraś, Waldemar Rogowski investor’s decision, is the market risk bonus. Basically, the investor’s decision boils down to a choice of to what extent they are willing to accept exposure to the full market risk, which is measured by the $\beta$ ratio. Such an approach disqualifies the active management concept. The rate of return results directly from the level of accepted risk, while a bonus for accurate selection does not exist.\footnote{Asste Institut für Vermögenaufbau (IVA) AG, “Asset Management based on Passive Strategies”, July 2014, Munich.}

Data from the United States shows that very few active fund managers are able to achieve results better than the benchmark,\footnote{C.B. Philips, F.M. Kinniry Jr., T. Schlanger, J.M. Hirt, The Case for Index-Fund Investing, Vanguard research, April 2014.} and additionally that their profits are burdened by relatively high charges. Some managers may exceed the benchmark in one year or even during several consecutive years, but the investor will not be able to credibly define whether this result should be ascribed to the extraordinary skills of the manager or simply to good luck. Thus, fund’s results from past periods must not be the basis for forecasting its efficiency in the future.

2. Passive Investment Instruments

Two of most common groups of passively managed financial instruments are index funds and ETPs.

Both index funds and ETPs aim to track selected indexes, for example, the WIG20 or S&P500. The most important goal of both instruments is to replicate the indexes’ behaviour as accurately as possible. Unlike active funds, they do not try to achieve extraordinary rates of return. They are, therefore, an excellent product for the investors who do not possess expert knowledge of financial markets. They do not require the active allocation of assets nor the tracking of stock prices. Both products are oriented towards the minimization of portfolio management costs. Due to a simple algorithm for asset selection, there is no need to pay top class market analysis specialists – the existing indices may be replicated even automatically, which allows for a significant reduction in management costs. A formula that omits managers who are trying to achieve results better than the market, should potentially result in a reduced level of risk for the investor.

One of the consequences of the popularization of index funds on well developed markets (like the USA, where index funds in 2013 accounted for nearly 20% of the whole equity funds market) may be the excessive allocation of fund assets to shares in popular indices. Theoretically, a situation may occur where the direct reason for an
increase in the share price of a company is because it is entering an important index, not because of any fundamental factor. Another consequence may be pressure on investment funds so that they reduce management fees, especially when the results of passively managed funds do not differ greatly, or even at all, from those achieved by their active counterparts.

There are many differences between index funds and ETPs, but the most important one is that ETPs are listed on the stock exchange while the index funds are not. From the investor's perspective, this has a few important implications. Investment in index funds does not require the possession of a broker's account, which somewhat reduces the expenses. They are available directly from investment fund companies or from intermediaries (for example, from some banks). The valuation of an index fund is performed at the end of every day. The value of all assets of the fund are summed and divided by the number of units. They are purchased, evaluated and sold in a similar way to ordinary investment funds. It is also worth mentioning that dividends are included in the valuation.

Index funds may replicate popular equity stock exchange indices, both Polish and foreign (WIG40 or S&P500), bond indices (Barclays Capital Aggregate Bond Index) or commodity indices (gold). Less popular are the funds that reflect the results of a sector or industry, for example the real-estate market or whole national economies. Funds that want to make use of existing, well-known and recognisable indices have to pay for licences to use them. However, the cost pressure encourages investment funds to create their own indices in order to avoid these charges. This phenomenon is known as self-indexation.

There are a few methods of indexation that can replicate a selected index. Traditional indexation consists of the acquisition of an analogous portfolio with the same share of assets. Changes in the composition of the portfolio occur only when the index's composition changes (usually these changes are not dynamic). A slightly more modern technique is synthetic indexation, which utilises investment in derivatives (futures contracts). They are selected in a way that results in being able to achieve, possibly, a similar rate of return. Unfortunately, this method appears to be more costly than the traditional one due to the expenses associated with the conclusion of contracts. However, the purchase of a full assets portfolio in appropriate proportions using a traditional method may prove impossible. Moreover, there are also strategies for the "improvement" of indexation. They combine both passive and active fund management in order to maximise the rate of return for the investor (minimization of expenses in the passive management and maximization of rate of return before costs in the active management). The strategy of indexation improvement may consist, for example, of the inclusion of instruments with a stable income for the
portfolio, for example, bonds. Another method applies filters and the exclusion of certain groups of companies from the replicated index, for example, those who are excessively indebted. There are also indices focusing strongly on tax optimization.

The purchase of listed ETPs, unlike index funds, requires the ownership of a broker’s account, which entails bearing some costs. However, it is worth mentioning that ETPs were created as a cheaper alternative to index funds. Usually in the case of ETPs the management fee is lower and there is no loading for the purchase or redemption of units. Additionally, they are evaluated in real time, which gives the investor more control over the time of entering or exiting an investment; although in the long run this aspect should not be relevant.

It is also worth adding that in the terminology the phrase ETF (exchange traded fund) is more frequently used than ETP. Sometimes they are interchangeable, but the ETP is a broader term than ETF. Generally, ETPs may be divided into three subgroups of instruments. ETFs replicate equity indices. In order to achieve this, direct (accurate replicating of results and structure of the index) or synthetic replication (creating a basket of assets with similar characteristics that simultaneously conclude swap transactions of ETF assets’ results into base index results) is utilised.\footnote{R. Krawczyk, Rola Exchange Traded Fund w funkcjonowaniu rynku kapitałowego (Role of Exchange Traded Fund in the Capital Market Operation), “Ekonomia” 2012, issue 4, no. 21, Uniwersytet Ekonomiczny, Wrocław.} As a part of the ETP one can also distinguish ETC (exchange traded commodities/currencies), that track quotations in the commodities markets. They may replicate the quotation of a selected commodity or a wide aggregate of commodity indices. The last ETP sub-group is ETN (exchange traded notes), which are issued by banks and not asset based. The bank is obliged to pay the rate of return from the given index; it does not replicate its structure as part of its own assets. This also means that the investor directly incurs the insolvency risk of the bank issuing the ETN.

3. Instruments of Passive Investment Available in Poland

Both index funds and ETFs are available in Poland, however at present (April 2015) the range is relatively narrow.

Ipopema m-Indeks is an index fund accessible to the ordinary investor. It enables an investments of from PLN 100 in the basket of companies listed on the Warsaw Stock Exchange as a part of mWIG40 index.

Furthermore, TFI Quercus offers a few index funds. However, all of these require a minimum investment value of PLN 200,000, which considerably limits the number
of interested investors. Quercus lev replicates the behaviour of the WIG20 index with double financial leverage, which means simply, that WIG20 results (profits as well as losses) will be multiplied by two. The Quercus short fund is also offered. Its aim is to inversely replicate changes in the WIG20 changes; thus, the investors gain when the index value declines and lose when WIG20 rises. Analogous indices are created for the oil (Quercus Oil lev and Quercus Oil short), wheat (Quercus Wheat lev and Quercus Wheat short) and gold markets (Quercus Gold lev and Quercus Gold short).

Competition for the Quercus short fund comes from Altus short, which has a similar construction (attempts to replicate the reverse of WIG20 price changes through short positions in futures contracts), but has much lower entry barriers. The first payment should be to at least PLN 1,000 and each subsequent payment at least PLN 100.

ETF instruments for WIG20 have been traded on the Warsaw Stock Exchange since 2010, and on the American S&P500 and German DAX since 2011. The issuer is Lyxor Asset Management (Société Générale).

4. Comparison of the Rates of Return from Passively and Actively Managed Funds in Poland

When analysing the profitability of investment in passive and active instruments, it is worth scrutinizing not only the rates of return achieved when applying both these strategies, but also the risks incurred with the asset purchase. Therefore, the level of risk will also be measured for the funds analysed (standard deviation of the rates of return). It is worth noting that for many of the funds there is a maximum four-element time series for annual rates of return, as most of them were established after 2010. It may be assumed, though, that a quarter is the shortest investment horizon for the potential investor, so the standard deviation can be calculated for the quarterly period instead of annual rates of return. Higher risk will be related to a higher rate of return (risk–return trade off), while instruments with stable and relatively low rates of return may be less profitable. The relation between the rate of return and the level of investment risk can be measured using the Sharpe ratio:

\[ S_i = \frac{(R_i - R_f)}{\delta_i} \]

where
\( R_i \) is the rate of return on i-th asset
\( R_f \) is the risk-free rate of return
\( \delta_i \) is the standard deviation of the rate of return on i-th asset for a given period
Rates of return will be analysed for one-year and three-year time periods (i.e. average annual rate of return for the period of three years). The Ipopema Małych i Średnich Spółek (SME) fund is the only analysed fund that does not have a three-year history of quotations. Therefore, in order to ensure comparability for all the funds analysed in Table 1 and Table 2, the annualized rate of return for the last nine quarters was calculated (the longest period for which the Ipopema Małych i Średnich Spółek fund quotations are available), but not for the last three years.

From a correct research method perspective, it would be optimal to focus on the periods covering the whole business cycle, as well as the years of the 2008–2010 crisis. However, many funds were established after 2010 and such a long time series is currently not available. It should be emphasized right at the beginning that this is a serious research limitation and it will reduce the possibility of drawing conclusions based on the available data considerably. Passive funds are created for long term investment, so the analysis should be based on at least five to seven years worth of rates of return. The risk free rate of return used in the calculations is assumed to be equal to the profitability of Polish 10-year government bonds, which amounts to 2.5% for 24 April 2015.

Tables 1 and 2 present the results of the Ipopema mIndeks index fund for mWIG40. For reasons of comparability of the active funds, other equity funds with the same TFI were selected: Makro Alokacji (Macro Allocation), Agresywny (Aggressive) and Małych i Średnich Spółek (SME). Each of these funds is available in category A (Table 1) and category B (Table 2).

**Table 1. Comparison of the Ipopema mIndeks Index Fund and Ipopema Active Equity Funds, Category A**

<table>
<thead>
<tr>
<th></th>
<th>Ipopema mIndeks</th>
<th>Ipopema Makro Alokacji</th>
<th>Ipopema Agresywny Ipopema</th>
<th>Ipopema Małych i Średnich Spółek</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of establishment</td>
<td>June 2010</td>
<td>December 2011</td>
<td>December 2011</td>
<td>November 2012</td>
</tr>
<tr>
<td>Annual rate of return$^{10}$</td>
<td>11.9%</td>
<td>1.9%</td>
<td>4.5%</td>
<td>5.2%</td>
</tr>
<tr>
<td>9-quarter rate of return$^{11}$</td>
<td>17.3%</td>
<td>5.6%</td>
<td>4.5%</td>
<td>14.1%</td>
</tr>
<tr>
<td>Standard deviation$^{12}$</td>
<td>7.7%</td>
<td>2.0%</td>
<td>4.8%</td>
<td>7.6%</td>
</tr>
<tr>
<td>Sharpe ratio</td>
<td>1.9</td>
<td>1.5</td>
<td>0.4</td>
<td>1.5</td>
</tr>
</tbody>
</table>


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$^{10}$ Rate of return for the period 15 April 2014 – 14 April 2015.

$^{11}$ Average annual rate of return in the last nine quarters for the period 12 October 2012 – 14 April 2015.

$^{12}$ Standard deviation for quarterly rates of return for the period 12 October 2012 – 14 April 2015.
### Table 2. Comparison of Index Fund Ipopema mIndeks and Ipopema Active Equity Funds, Category B

<table>
<thead>
<tr>
<th></th>
<th>Ipopema mIndeks</th>
<th>Ipopema Makro Alokacji</th>
<th>Ipopema Agresywny</th>
<th>Ipopema Małych i Średnich Spółek</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of establishment</td>
<td>June 2010</td>
<td>February 2012</td>
<td>February 2012</td>
<td>November 2012</td>
</tr>
<tr>
<td>Annual rate of return</td>
<td>11.3%</td>
<td>1.3%</td>
<td>3.8%</td>
<td>4.6%</td>
</tr>
<tr>
<td>9-quarter rate of return</td>
<td>16.5%</td>
<td>4.9%</td>
<td>3.5%</td>
<td>13.5%</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>7.6%</td>
<td>2.0%</td>
<td>4.9%</td>
<td>7.6%</td>
</tr>
<tr>
<td>Sharpe ratio</td>
<td>1.8</td>
<td>1.2</td>
<td>0.2</td>
<td>1.4</td>
</tr>
</tbody>
</table>

Source: authors’ calculations based on the data available on the Ipopema TFI website [www.ipopematfi.pl/funds/id,67.html](http://www.ipopematfi.pl/funds/id,67.html), (27.04.2015).

In comparing the passive fund mIndeks with the three Ipopema active equity funds, one should point out first that the passive fund had a relatively high rate of return in relation to each of the active funds. This regularity occurs both in asset category A as well as in category B; moreover, it also occurs in both time perspectives (yearly and 9-quarterly). On the other hand, the risk level measured using the standard deviation of the rates of return is higher for mIndeks than for the Makro Alokacji and Agresywny funds, and actually equal to the standard deviation of the Małych i Średnich Spółek active fund. This may be connected with the fact that the Małych i Średnich Spółek fund was exposed to a similar risk as mIndeks. However, the Sharpe ratio is most significant as it shows the relationship between the rate of return exposed to risk and the investment risk. It appears that, from the investor’s perspective, it is the passive fund that gives the best relationship between the rate of return and the incurred risk, i.e. a higher rate of return with the same risk level, or lower risk with equal return.

Such considerable differences in the levels of rates of return for passive and active investments cannot be explained in terms of lower charges in the mIndeks fund. The difference in the management fee does not exceed 2%, while the difference in the analysed annual rates of return ranges from about 6% up to as much as 10%, depending on the active fund compared. A time series of only a few years should not give rise to any far-reaching conclusions. The rates of return in the period analysed, 2010–2015, were subject to strong fluctuations due to the increased market instability connected with the economic slowdown and with overcoming it. It can only be stated that the problem lies in profitability, not in the costs incurred by the

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13 Rate of return for the period 15 April 2014 – 14 April 2015.
14 Average annual rate of return in the last 9 quarters for the period 12 October 2012 – 14 April 2015.
15 Standard deviation for quarterly rates of return for the period 12 October 2012 – 14 April 2015.
investor. And lower profitability (before costs) may be associated some with managers’ ineptitude as well as ordinary coincidence, to the disadvantage of the active funds.

The passive commodity funds offered by TFI Quercus can be compared to active funds that are investing on the same markets, and consequently, exposed to the same sectoral or market risk. For example in the case of the gold fund, Quercus Gold, a comparable fund could be an active fund investing in precious metals. Unfortunately, there is no TFI offering for such a product in Poland. All funds available in Poland that invest in precious metal markets confine their business to gold. It is therefore difficult to analyse active management in this case. There are also raw material market funds offered, but they combine investment in precious metals, energy, food etc. Thus, funds such as these will be exposed to different risk and business cycle factors, and so their rates of return must not be compared with gold focused funds, especially for periods as short as three years. The rates of return on foreign funds should be excluded from the comparison as they are settled in foreign currencies, which for a Polish investor means additional exposure to currency risk.

In Poland it is easier to find comparable active funds in the form of exchange traded funds. These instruments have a clearly defined benchmark, so attempts can be made to find funds of a similar benchmark and asset allocation.

As a comparison to the WIG20 ETFs (ETFW20L), active funds that invest in shares on the Warsaw Stock Exchange were selected that have fixed the value of the WIG20 as their benchmark (or the WIG20 as a substantial component of the benchmark). It is worth adding that there are funds that base the building of their benchmark on the WIG20 index, but they allocate a relatively small part of their assets to shares. As can be illustrated by funds such as Skarbiec Akcja or PZU Akcji Krakowiak, whose benchmark consists of 90% WIG20 and 10% WIBID3M, their investment policy allows for the allocation of as much as 50% of assets towards instruments other than shares. Even if, at present, their allocation is dominated by equity, these funds are free to shift as much as a half of their assets to, for example, the bond market. Therefore, the requirement of equity allocation was added to the selection process of comparative active funds. It has been assumed in the analysis, that a condition for the selected funds is to declare at least a 70% contribution to financial instruments that are based on equity shares in their investment policies.

Table 3 presents selected funds together with their benchmarks and allocation policy.

The selected funds have been analysed in the same way as the Ipopema funds in Table 1 and 2 with regard to rates of return, risk level and the relation of profitability to risk (measured using the Sharpe ratio). The results are presented in Table 4.
Table 3. Polish Investment Funds with a Benchmark Based on the WIG20 and Substantial Asset Allocation in Equity Based Financial Instruments

<table>
<thead>
<tr>
<th>Fund name</th>
<th>Benchmark</th>
<th>Allocation in shares</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inwestor Dużych Spółek</td>
<td>80% WIG20, 10% BUX, 5% PX, 5% WIBID 6M</td>
<td>70–100%</td>
</tr>
<tr>
<td>BNP Paribas Akcji</td>
<td>100% WIG20</td>
<td>70–100%</td>
</tr>
<tr>
<td>KBC Akcyjny</td>
<td>60% WIG20, 40% mWIG40</td>
<td>70–100%</td>
</tr>
</tbody>
</table>


Table 4. Comparison between WIG20 ETF Results and Selected Actively Managed Equity Funds Investing on the WSE

<table>
<thead>
<tr>
<th>ETF WIG20</th>
<th>Inwestor Akcji Dużych Spółek</th>
<th>BNP Paribas Akcji</th>
<th>KBC Akcyjny</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date established</td>
<td>September 2010</td>
<td>January 1998</td>
<td>January 2005</td>
</tr>
<tr>
<td>Annual rate of return$^{16}$</td>
<td>2.7%</td>
<td>7.9%</td>
<td>9.3%</td>
</tr>
<tr>
<td>3-year rate of return$^{17}$</td>
<td>6.9%</td>
<td>7.5%</td>
<td>9.4%</td>
</tr>
<tr>
<td>Standard deviation$^{18}$</td>
<td>5.6%</td>
<td>4.2%</td>
<td>5.8%</td>
</tr>
<tr>
<td>Sharpe ratio</td>
<td>0.8</td>
<td>1.2</td>
<td>1.2</td>
</tr>
</tbody>
</table>

Source: authors’ calculations based on information available on the websites of selected TFI (as in sources in Table 3) and WSE www.gpw.pl/etfy, (27.04.2015).

In the case of the WIG20 ETFs the situation looks worse than that for the index fund mIndeks, as the active funds had higher rates of return than ETFs and a similar level of risk. As a result, the Sharpe ratio is lowest with regard to ETFs. However, it should be taken into account that the period analysed was a period of stabilisation for the WIG20 index with relatively small rises, this after the prosperous years of 2009–2011. Passive management should be analysed with respect to the whole business cycle, including the boom and decline, as well as the period of stabilisation. In the short term active funds may more easily overcome unfavourable conditions. For example, for the analysed period, KGHM, which amounts to 7.6% of the WIG20 index, lost nearly 18%. This company also had growth periods, however, for the selected

$^{16}$ Rate of return for the period 15 April 2014 – 14 April 2015.
$^{17}$ An average annual rate of return for the last 3 years, for the period of 13 April 2012 – 14 April 2015.
$^{18}$ Standard deviation for quarterly rates of return for the period of 13 April 2015 – 14 April 2015.
time horizon it was not a profitable investment. To a certain extent an active fund may avoid losses of this sort. Moreover, it should be underlined that the calculations presented include management fees and taxes paid by TFIs, but do not include the purchase and redemption fees, nor the distribution fee, which do not concern ETFs. They have not been included because such charges are calculated at the beginning or end of the investment period. Their total amount depends on the value of investment and the investment horizon. Such fees may be substantial for the rate of return after costs. For the TFIs indicated the distribution fee charged at the beginning of the investment period ranged between 2% and 5%. This amount reduces the value of the invested funds.

Funds comparable to S&P500 ETF (i.e. funds exposed to a similar market risk) may be funds that are actively investing in shares on the American market. There are several funds investing in companies in the USA that are available in Poland in PLN. Some of these utilize the value of the S&P500 index as their benchmark basis – Subfundusz Akcji Amerykańskich MetLife and Fundusz Akcji Rynku Amerykańskiego PKO.

Table 5 presents selected funds and their benchmarks.

<table>
<thead>
<tr>
<th>Fund name</th>
<th>Benchmark</th>
</tr>
</thead>
<tbody>
<tr>
<td>ING Spółek Dywidendowych USA</td>
<td>None</td>
</tr>
<tr>
<td>MetLife Subfundusz Akcji Amerykańskich</td>
<td>90% S&amp;P500 + 10% WIBID 1M</td>
</tr>
<tr>
<td>PKO Akcji Rynku Amerykańskiego</td>
<td>90% S&amp;P500 + 10% WIBID ON</td>
</tr>
</tbody>
</table>


An analogous comparison has been conducted for selected funds and S&P500 ETFs.

Table 6 presents the rates of return, the standard deviation of the rates of return and the Sharpe ratio, for each instrument.

In this case the advantage of the passive fund is considerable. The rate of return is very high: the average annual return for the last 3 years is 21.6%. The standard deviation is a little higher than that of the other instruments in the comparison, but the high Sharpe ratio indicates that a higher risk is more than compensated for by the rate of return. It should be emphasized that the difference would have been even greater if the calculation of the rates of return had included distribution, purchase and redemption fees. However, it should also be admitted that the time horizon should be
lengthened. Since mid-2011 the American stock market has enjoyed an unremitting period of boom. So, in this case the business cycle may distort the results.

### Table 6. Comparison of Results Between S&P500 ETFs and Selected Actively Managed Equity Funds that Invest on the American Stock Market

<table>
<thead>
<tr>
<th></th>
<th>ETF S&amp;P500</th>
<th>ING Spółek Dywidendowych USA</th>
<th>MetLife Akcji Amerykańskich</th>
<th>PKO Akcji Rynku Amerykańskiego</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of establishment</td>
<td>May 2011</td>
<td>November 2009</td>
<td>March 2004</td>
<td>November 2006</td>
</tr>
<tr>
<td>Annual rate of return</td>
<td>42.7%</td>
<td>4.3%</td>
<td>43.5%</td>
<td>12.7%</td>
</tr>
<tr>
<td>3-yearly rate of return</td>
<td>21.5%</td>
<td>11.9%</td>
<td>16.0%</td>
<td>9.8%</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>6.2%</td>
<td>3.9%</td>
<td>7.8%</td>
<td>3.9%</td>
</tr>
<tr>
<td>Sharpe ratio</td>
<td>3.2</td>
<td>2.5</td>
<td>1.9</td>
<td>1.9</td>
</tr>
</tbody>
</table>

Source: authors’ calculations based on information available on the websites of selected TFI (as in sources in Table 5) and WSE www.gpw.pl/etfy, (27.04.2015).

### Conclusions

The passive investment market in Poland is still in a phase of initial development. The available instruments are not numerous and are offered in less than favourable conditions than those on mature markets. For example, the management fees for Ipopema mIndeks range from 2% to 2.5%, for categories A and B respectively. A purchase fee of 4% and the unit redemption fee of 2% is also included. For comparison, the largest American index fund, Vanguard Total Stock Market, has a total cost indicator at a level of 0.17%.

Furthermore, the difference in fees between active and passive funds in Poland is relatively low. Other Ipopema equity funds (active) charge management fees of 2.9% up to 3.8%. In Poland index funds are still a novelty, and competition is in fact non-existent. Hence, despite considerably lower management expenses on the fund’s side, an index fund is only 30% cheaper than actively managed funds. Figure 3 presents the total expense ratio for active and index funds in the USA. In the years 2000–2013 the average TER for active funds grew from a fourfold ratio to a sevenfold ratio.

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19 Rate of return for the period 15 April 2014 – 14 April 2015.
20 An average annual rate of return for the last 3 years, for the period of 13 April 2012 – 14 April 2015.
21 Standard deviation for quarterly rates of return for the period of 13 April 2015 – 14 April 2015.
The situation on the ETF market seems to be a little more attractive, as management fees range from 0.15% for the S&P500 ETF, through to 0.2% for the DAX ETF, and up to 0.45% for the WIG20 ETF. The brokerage commissions should be included, however, these are remarkably low compared to the management fees (share trading stands at circa 0.4%). These values do not differ much from those on mature markets.

The accessibility of passive instruments is more limited in Poland than, for example, in the United States. Among index funds, only Ipopema mIndeks allows for investments of PLN 100 and over, though only in the assets of category B, with higher fees and lower rates of return than the assets of category A (these are available from a PLN 200,000 investment quota). Similarly, the WIG20 index funds and gold, wheat and oil commodity funds offered by TFI Quercus are offered for a minimum investment level of PLN 200,000. For comparison, most Vanguard index funds are accessible for the amount of USD 3,000, and some funds associated with pension security enable investment from USD 1,000. Only specialist sectoral funds have higher thresholds than USD 10,000. That the average disposable income in the USA is much higher than in Poland, makes theses limits in terms of the purchasing power of the society even lower.

It should be underlined again that the time series available as of April 2015 are too short to conduct a full analysis of this market. Passive investments, due to their nature, are long term and should be analysed for the horizons of the whole business cycle. A similar analysis should be repeated when historical data for 10 or 15 year periods is available for passively managed instruments.
Besides, the market may also be an important aspect in the comparison of active and passive funds. On developing and emerging markets asset undervaluation or mistakes in evaluation happen much more often than on mature ones. Moreover, these markets may be exposed to much higher fluctuations and instabilities. This provides more opportunities for active managers to achieve extraordinary profits. Thus, it may be assumed that on a market such as Poland's, it will be easier, relatively, for active funds to achieve extraordinary returns.

References

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