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COMPLEXITY OF INNOVATIVE FINANCIAL PRODUCTS: THE CASE OF SYNTHETIC EXCHANGE TRADED FUNDS IN EUROPE[1]

ZŁOŻONOŚĆ INNOWACYJNYCH PRODUKTÓW FINANSOWYCH: PRZYPADEK SYNTETYCZNYCH *EXCHANGE TRADED FUNDS* W EUROPIE

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Summary: the aim of the text is the presentation of the most important categories of exchange traded funds (ETFs) – physical and synthetic ones. A theoretical part of the text includes an overview of the main features of ETFs, the presentation of the differences between physical and synthetic funds and the main risks posed by both types to their users and the whole financial systems. An empirical part focuses on the European market. The time span of the analysis covers the years 2001-2015 (or shorter periods in cases of lack of sufficient data). Using key statistics regarding the European ETFs market, its size, structure (both historically and currently) as well as predictions of the main future changes are discussed. The main results of the research indicate that the size of the European ETFs market, both in terms of the assets under management and number of listed funds, has been growing in recent years, yet at a rate lower than before the global financial crisis. An important observed change on the European ETFs market is the declining share of synthetic ETFs after their peak popularity in 2010. The most recent data from the first months of 2015 confirm this trend. Considering the data on cash flows into these two categories, physical ETFs will most probably continue to increase their market share compared to synthetic ones.

Keywords: exchange traded funds, financial innovation, mutual funds, financial markets.

Streszczenie: Celem tekstu jest przedstawienie najważniejszych kategorii *exchange traded funds* (ETFs) – fizycznych oraz syntetycznych. Teoretyczna część zawiera przegląd najważniejszych cech ETFs, przedstawia też różnice między funduszami syntetycznymi oraz fizycznymi, a także najważniejsze zagrożenia dla użytkowników oraz całych systemów finansowych. Empiryczna część artykułu dotyczy rynku europejskiego. Okres analizy to lata 2001-2015 (lub krótsze okresy w razie braku danych). Z wykorzystaniem najważniejszych wskaźników dotyczących rynku europejskiego omówiono jego rozmiary, strukturę (w prze-

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szłości i aktualną) oraz przyszłe zmiany. Najistotniejsze wyniki wskazują na wzrost rozmiarów europejskiego rynku ETFs w ostatnich latach pod względem zarówno zarządzanych aktywów, jak i liczby funduszy, przy tempie wzrostu niższym niż przed globalnym kryzysem finansowym. Ważną zaobserwowaną zmianą jest spadek udziałow funduszy syntetycznych po ich szczytowej popularności w 2010 r. Najnowsze dane z 2015 r. potwierdzają te wnioski. Na podstawie danych dotyczących środków pieniężnych napływających do dwóch omawianych kategorii funduszy można oczekiwać dalszego wzrostu udziału fizycznych ETFs względem syntetycznych.

Słowa kluczowe: *exchange traded funds*, innowacje finansowe, fundusze inwestycyjne, rynki finansowe.

1. Introduction

Global financial markets have been shaped by a number of innovations in recent years. One of the key innovations that have been transforming the markets are exchange traded funds (ETFs). The main aim of this text is to present one of the main categories of ETFs – synthetic ETFs, whose operations are radically different from the most widely recognized simple ETFs (labeled 'physical ETFs'), and their European market.

The first part of the text will include an overview of the main features of the exchange traded funds and the key benefits compared to conventional investment products. The second part will be devoted to the presentation of the differences between simpler, physical ETFs, and the more complicated, synthetic ETFs. In the third, empirical part, the main results of the analysis of the ETFs market in Europe will be outlined – the size of the marketand its structure (both historically and currently) as well as predictions of the main future changes. The empirical part will end with a short overview of the Polish synthetic ETFs market.

2. Exchange traded funds: basic facts

Exchange Traded Funds (ETFs) can be defined most generally as a type of fund structure which issues shares that are listed and traded on one or more stock exchanges, similar to equities [Deutsche Bank 2015a]; ETFs are also defined as a subcategory of investment vehicles, collective investment schemes, investment funds or financial products [Ramaswamy 2011; International Organization… 2013; Marszk 2014]. ETFs are innovative financial products with a relatively short presence on the financial markets – the first ETFs were launched in North America in the late 1980s yet their popularity on a global scale started to grow rapidly at the beginning of this century. The main entities involved in the process of launching and trading in ETFs are: ETF sponsors (companies that are responsible for the introduction of ETFs as well as their advertising; they are also called ETF providers), authorized

participants, stock exchanges and market investors [Ramaswamy 2011]. The aim of ETFs in their basic form is to replicate the returns of selected financial assets, usually financial market indexes, in other words to track their returns.

In order to fully evaluate the benefits offered by ETFs to their users, which may be regarded as the key cause of their undeniable success, it is necessary to list the financial instruments or products that are their substitutes. ETFs compete above all with index funds, the direct purchase of selected assets or derivatives (such as index futures or index options) − see e.g. [Agapova 2011; Deutsche Bank 2015a; Gastineau 2010; Lechman, Marszk 2015; Hill et al. 2015]. The most important of them, i.e. most closely resembling the key characteristics, are index mutual funds − a subcategory of mutual funds. Mutual funds are open-end fund structures in which managers buy a defined portfolio of securities, managed in order to meet a stated financial goal; the managing company stands ready to buy back the fund's units at a calculated price – their net asset value [Investment Company Institute 2015]. Index mutual funds are mutual funds in which the above-mentioned goal is to track the performance of the selected index. The performance of both ETFs and index mutual funds is evaluated by the degree by which the rates of return of these products remain close to the tracked index (tracking error) and their costs (tracking costs) [Foucher, Gray 2014]. It should be remembered, though, that apart from ETFs tracking financial market indexes, there is a number of more recently introduced products, e.g. inverse, leveraged, inverse-leveraged or even active ETFs – they cannot be simply compared to index mutual funds, their reference points are other categories of mutual funds.

The main difference between ETFs and index mutual funds lies in their distribution method. The shares of ETFs are listed and traded on a stock exchange and may thus be bought or sold analogically to listed securities (equities, bonds etc.); the price of ETF's share is determined by the interaction of market demand and supply together with the arbitrage transactions occurring on both the ETFs market and the market for the underlying assets. Transactions in the units of the index mutual fund are conducted with the investment company which manages such a fund and the price is determined by this corporation (or appointed company); units can be redeemed only at a fixed time, usually once a day [Aggarwal, Schofield 2013]. Therefore these two types of financial products have varying distribution channels – shares of ETFs are bought and sold through broker-dealer networks while units of index mutual funds are distributed through a wide network of financial institutions such as bank offices and financial advisory companies [Agapova 2011].

The differences in the key features of the innovative products, ETFs, in comparison to the conventional ones, index mutual funds, result in the three most important relative benefits of the ETFs which are listed below [Aggarwal, Schofield 2013; International Monetary Fund 2011; Lechman, Marszk 2015; Marszk 2014; Ramaswamy 2011]:

1. Tracking errors of ETFs tend to be lower, mostly due to the transactions undertaken on the primary and secondary ETFs market that keep the returns of ETFs close to the returns of the tracked assets.

2. Tracking costs of ETFs are also usually lower as they consist mostly of the costs of the transactions undertaken on the exchange, while investors in index mutual funds are faced with a number of charges such as management and distribution fees.

3. Liquidity and pricing efficiency of ETFs is higher as the price of ETFs' shares is determined many times a day during the trading hours and transactions in such shares may also be conducted more often than in the case of conventional mutual funds.

The most significant disadvantages of ETFs, when compared to conventional products, are the unfamiliarity among investors, problems with correct risk assessment as well as possible wrong applications [Hill et al. 2015].

In recent years the problem of synthetic ETFs has been quite often present in economic publications (rare in Polish, a few such publications include [Miziołek 2011; 2012; 2013]). The authors describe the theoretical background and the results of empirical research on synthetic ETFs in such areas as tracking error and tracking costs (separately or compared to physical ETFs) [Maurer, Williams 2015; Naumenko, Chystiakova 2015], liquidity [Calamia, Deville, Riva 2013] and collateral risk [Hurlin et al. 2014]. Nevertheless, the topic of ETFs' market development, its structure, dynamics and the influencing factors, as well as the risks for the financial systems has been rarely covered. It seems that after the peak interest in this topic between 2010 and 2011 when a number of important papers on the risks of ETFs to the financial stability was published, especially by the global financial organizations or regulatory authorities and the linked entities (see e.g. [Financial Stability… 2011; International Monetary… 2011; Ramaswamy 2011]), since 2012 this topic has been rather neglected and only a few authors have dealt with this subject (e.g. [Diaz-Rainey, Ibikunle 2012]. This seems rather surprising as both the size of the global ETF market and its complexity have significantly increased since 2011 and the scale of the potential problems have become much larger, which also means that the analysis of the determinants of the ETF market development and its structure constitute an even more crucial topic.

3. Construction of exchange traded funds: physical versus synthetic funds

Before discussing the two different ETF types, it should be stressed that the presented differences refer only to the ETFs primary market. In both cases, transactions on the secondary market are conducted in an identical manner. Analogically to the equity market, the secondary market consists of various market participants who trade in the shares of ETFs through the stock exchanges, e.g. using brokerage accounts. The creation and redemption of ETFs' shares take place on the primary market.

3.1. Physical exchange traded funds

Regardless of the type of ETF, the process of its development is initiated by the ETF sponsor (the largest ETF sponsors in terms of assets at the end of 2014 were BlackRock, State Stret and Vanguard [Deutsche Bank 2015a]). The ETF sponsor is not involved in the transactions on the secondary market. The second important entity is the authorized participant (i.e. market maker) which is responsible for the creation and redemption of the shares of ETFs in cooperation with the ETF sponsor. The whole process differs from the operations in the conventional mutual funds industry.

The authorized participants are usually large financial institutions, brokers/dealers which were granted access to the ETF primary market. They are able to create new shares of a selected ETF by engaging in transactions with the fund sponsor – they deliver the securities according to the list published by the sponsor. Such a list is usually published daily and covers securities which form a 'creation basket' [Hill et al. 2015]. An authorized participant may buy the required securities on the market or use assets from its inventory. In return for the delivered securities, the authorized participant receives shares of the ETF which may be sold to investors through the stock exchanges (i.e. on the secondary ETFs market) [International Monetary… 2011]. In some cases the ETF sponsor may accept cash instead of a creation basket, especially when the liquidity of the underlying assets is low, yet this creation method is treated as secondary due to its lower tax efficiency in some countries (e.g. in the United States) [Hill et al. 2015].

The opposite transaction to the ETF creation described above is the redemption of the ETF shares. An authorized participant may accumulate ETF shares from various investors and wish to reduce its position in these assets. The ETF sponsor stands ready to transact with the authorized participant and exchange the ETF units for the basket of the tracked securities – the authorized participant may afterwards sell these securities on the stock exchange or through other trading systems [Gastineau 2010]. The creation and redemption transactions undertaken by the authorized participants are often motivated by the potential profits from the arbitrage opportunities on the ETF market. As a result, the prices of ETFs' shares remain close to the net asset value of the tracked securities (apart from the rare situation when the arbitrage is disrupted, e.g. by low liquidity).

A key feature of the physical ETFs lies in their returns replication method. As was described in the preceding paragraphs, ETF sponsors 'physically' hold complete baskets of the tracked securities (full replication) or at least use some portfolio sampling methods (sampling replication) – they hold only a carefully selected sample of securities in order to most closely match the returns of the whole index [Kosev, Williams 2011].

One important feature of physical ETFs, often neglected by researchers and market analysts, is the common strategy of the ETF sponsors to lend some of the

kept securities in order to receive additional gains that may be used, e.g. to cover transaction costs [European Fund… 2011]. Such actions may lead to counterparty risk which is often disregarded by buyers of physical ETFs as it is thought to be present only in synthetic funds [Amenc et al. 2012].

3.2. Synthetic exchange traded funds

The decision to develop a synthetic ETF and distribute its shares is made by the fund sponsor, analogically to the physical fund. However, the rest of the creation and redemption process is conducted in a different manner. The key difference in relation to the physical funds is the use of over-the-counter derivatives for the replication of the returns of the underlying assets, e.g. total return swaps (most often), forwards or options [Kosev, Williams 2011].

The first type of synthetic ETFs structure which was introduced in Europe in the 2000s and remains the most popular, is the unfunded swap model. Authorized participants willing to receive ETF shares (usually some larger number) need to pay for them with cash. The ETF sponsor enters a total-return swap transaction, i.e. an agreement between the two parties to exchange returns on certain assets [Kosev, Williams 2011], and uses the cash received from the authorized participants to buy and hold a basket of securities purchased from the swap counterparty or from the market (depending on the terms of agreement). What is important is that this basket of securities ('substitute basket') may differ significantly from the tracked assets (however, in some cases the ETF sponsor buys a basket that is highly correlated with the underlying) and it must meet certain legal requirements on asset type, liquidity and diversification (the exact requirements differ by country).

According to the terms of the swap agreement, the ETF sponsor forwards the return on the purchased securities in the substitute basket to the swap counterparty. In exchange it receives a stream of cash flows equal to the performance of the tracked assets (usually stock market index). It should be noted, though, that the structure of an unfunded synthetic ETF is usually more complicated as it involves entering more than one swap contract, sometimes with different parties, and with various streams of exchanged cash flows, yet the final result should be similar to the one presented using the simplest example. Unfunded swap ETF structure sponsors take various actions in order to limit the counterparty risk (negative impact of the counterparty default or other related problems) by entering contracts with various parties, regular marking-to-market and resetting of the contracts as well as collateralization [European Fund… 2011; Johnson, Bioy, Rose 2011].

The second main type of the synthetic ETFs are funded swap ETFs. This kind of ETF is relatively new as the first such funds were launched in Europe in 2009 [Johnson, Bioy, Rose 2011]. The main difference in comparison to the unfunded swap model is the lack of a substitute basket – the ETF sponsor invests directly in the swap contract (usually more than one). Proceedings received from the

authorized participant are transferred by the ETF sponsor to the counterparty in the swap contract in exchange for the returns on the tracked assets. Exposure to the counterparty risk for the ETF sponsor is limited by the collateral securities put by the swap counterparty in the custodian account [Kosev, Williams 2011]. Some ETF sponsors require over-collateralization, i.e. the value of the collateral must remain higher by a certain percentage than the net asset value of the ETF. Funded swap synthetic funds are perceived as more transparent to the potential investors [Kosev, Williams 2011].

3.3. Benefits and risks of physical and synthetic ETFs: a comparison

Synthetic ETFs are used mostly to track the assets that cannot be adequately replicated using the full or sample physical replication, the second motivation is the reduction of the tracking error [European Fund… 2011]. They are often used to track less liquid assets or foreign assets listed in countries with currencies which are not freely convertible. The development of synthetic ETFs is often motivated with the ability to offer investors products with lower tracking costs, yet the results of the empirical research on this subject are mixed [Maurer, Williams 2015] – it seems that this particular advantage of synthetic ETFs is overemphasized.

Table 1. Key threats associated with exchange traded funds

Risk category	Type of the risk (micro/ macro)	Physical ETFs	Synthetic ETFs
1	2	3	4
Market	micro	losses for ETF investors related to political, economy, currency and other factors	similar to physical ETFs
Tracking error	micro	deviations of the ETF returns from the returns of the tracked assets	lower than in physical ETFs
Liquidity (I)	micro	low liquidity of the underlying assets leading to low liquidity of ETFs' shares and increased tracking errors	similar to physical ETFs yet lower
Liquidity (II)	macro	increased volatility of the tracked assets' prices due to shocks on the ETF market	similar to physical ETFs
Counterparty	micro and macro	default of the borrower in the securities lending transaction	usually higher than in physical ETFs: default of the counterparty in the swap transaction and/or risk similar to physical ETFs

Table 1, cont.

1	2	3	4
Contagion	micro and macro	transmission of negative changes in the situation of the counterparties (micro scale) or transmission of shocks between various ETF markets (e.g. in different countries through the cross-listing)	similar to physical ETFs
Transparency	micro and macro	does not apply	difficulties with correct assessment of risks of synthetic ETFs involved in complex transactions, leading to problems for their users and limited control exercised by the financial authorities

Source: own compilation based on [Amenc et al. 2012; Diaz-Rainey, Ibikunle 2012; Foucher, Gray 2014; Hong Kong… 2010; International Monetary… 2011; Kosev, Williams 2011; Ramaswamy 2011].

The most important risks posed by ETFs to their users (labeled here as 'micro' threats) and financial systems at large ('macro' threats) are summarized in Table 1. It should be noted, however, that the level of the presented threats depends to a large extent on the supervisory environment and the investor's situation. The increased usage of synthetic ETFs may lead to a higher risk for the whole financial systems (macro level in Table 1) due to the higher level of the following risks: counterparty and transparency. From the point of view of their users (micro level) synthetic ETFs offer lower tracking error and less liquidity problems, however they expose users to higher counterparty and transparency risk which are more difficult to assess than, e.g. tracking error.

4. Synthetic exchange traded funds in Europe

The rest of the text focuses on the European market (understood as the ETFs market in the EU and related countries e.g. Switzerland), including Poland. Research was based on data acquired from the reports published by the leading financial institutions evaluating the ETFs market: BlackRock [BlackRock 2012], monthly and annual highlights published by Deutsche Bank [Deutsche Bank 2015a; 2015b] and ETFGI [ETFGI 2014; 2015]. Additional data were gathered from the databases of the stock exchanges. Descriptive statistics were used in the analysis. The indicators used to evaluate the development of the ETFs market are assets under management (AUM) and number of the listed ETFs. The time period under consideration is 2001-2014 (or the newest data available).

An important factor influencing the development of the European ETF market is the legal environment, which turned out to play a significant role in shaping the market's structure in terms of the method of replication used (physical versus synthetic). According to the Undertakings for Collective Investments in Transferrable Securities (UCITS) directive, most ETFs in Europe are structured as open-end investment companies [Maurer, Williams 2015], whereas in the United States the most popular legal structure is a registered investment company [Hill et al. 2015]. US ETFs established under this structure cannot use derivatives while managing their portfolio. In Europe, UCITS directive allows the use of derivatives e.g. swap contracts, which are the most important tool for the ETF sponsors, as described in the preceding sections. As a consequence, synthetic ETFs quickly gained much popularity in Europe while in the United States they remained a marginal option.

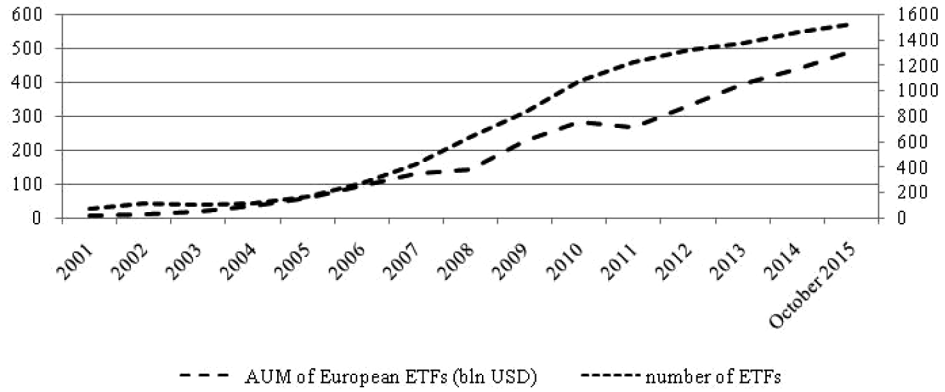

Fig. 1. European ETFs market between 2001 and 2015: key indicators

Source: own elaboration based on [BlackRock 2012; Deutsche Bank 2015b; ETFGI 2015].

The rate of growth of the European ETFs market between 2001 and 2015 was very high, both in terms of AUM and the number of listed funds (see Figure 1). Average annual growth rate in 2001-2014 was ca. 40% (AUM) or 27% (number of funds). At the end of 2001 there were 70 ETFs listed in Europe and their assets amounted to 6 billion USD. 13 years later at the end of 2014, the size of the European ETFs was much bigger: 1459 ETFs managed 438 billion USD of assets. The rate of growth of the AUM of the European ETFs was fastest in the first part of the considered time period, i.e. until 2007 (see Figure 1), which may be attributed to the growing popularity and adoption by an increasingly larger number of investors due to their benefits. Despite the turmoil on the global financial markets, the European ETFs market continued to develop in 2008, yet the AUM increased by only ca. 8%. Both 2009 and 2010 marked a strong rebound – in 2008-2010 assets almost doubled. Over the next few years the rate of growth stabilized at the high level of ca. 10-

20%, 2011 excepted, when assets declined by ca. 5% (this was the only decrease observed in the whole period) – caused mostly by the problems occurring on the European financial markets, linked with the sovereign debt crisis of some Euro zone countries. Tendencies on the European ETFs market observed in terms of the number of funds were similar but with the growth dynamics even more convincing, especially between 2005 and 2011.

Soon after the introduction of the first synthetic ETFs on the European market, their popularity was growing quickly as indicated by their share in the total assets of European-listed funds (see Figure 2 presenting the structure from 2006 onwards). In 2006 their market share amounted to ca. 26%, whereas in 2010 it reached a record-high level of ca. 43%. However, an apparent trend visible after 2010 is the decline of the synthetic ETFs' market share. This tendency can be understood if the events that occurred in the ETF environment in 2010 and 2011 are considered. The fast growth in 2009 and 2010, despite the events on the global financial markets, attracted much publicity to the ETFs. Their mechanics and possible benefits/risks suddenly came under the spotlight. The basic benefits and drawbacks of both physical and synthetic ETFs were discussed, with special focus on the risks posed by the synthetic ETFs (for details see e.g. [Financial Stability Board 2011; International Monetary... 2011; Ramaswamy 2011]). Such publications were accompanied by articles published in the press (e.g. [Rubino 2011]). As a result of the events described above, the users became increasingly aware of the potential effects of synthetic ETFs as opposed to the physical ETFs which used to be considered the main type of such funds – many investors were attracted to ETFs yet did not know the details of their functioning. Consequently, the demand for synthetic ETFs declined and ETF providers started offering more physical ETFs [Hurlin et al. 2014]. However, it should be noted that this reaction seems to have been too strong – despite relatively fewer risk factors, physical ETFs also expose their users to some threats, and in certain situation (e.g. physical ETFs engaged in intensive securities lending) they may be even more risky than synthetic products. The possible risks for the whole financial system are relatively larger in the case of synthetic ETFs, but it should be remembered that ETFs are still a rather niche product and account only for only a small percentage of all the investment funds (a category still dominated by conventional mutual funds).

Despite the decline in the share of synthetic ETFs in the combined AUM of the European market, until recently they still accounted for the majority of funds (e.g. at the end of 2014 there were 734 synthetic ETFs and 684 physical ETFs listed in Europe). However, the number of physical ETFs continued to grow whereas the number of synthetic ones stabilized – new funds are launched sporadically. In July 2015 physical ETFs overtook synthetic in this perspective and in the next months the difference grew even further [Deutsche Bank 2015b]. It must be noted that, in absolute terms (the value in billions of EUR, not their market share) the assets of both physical and synthetic ETFs continue to grow. The discussed weakening of the synthetic ETFs should therefore be considered in relative terms only (i.e. as their market share).

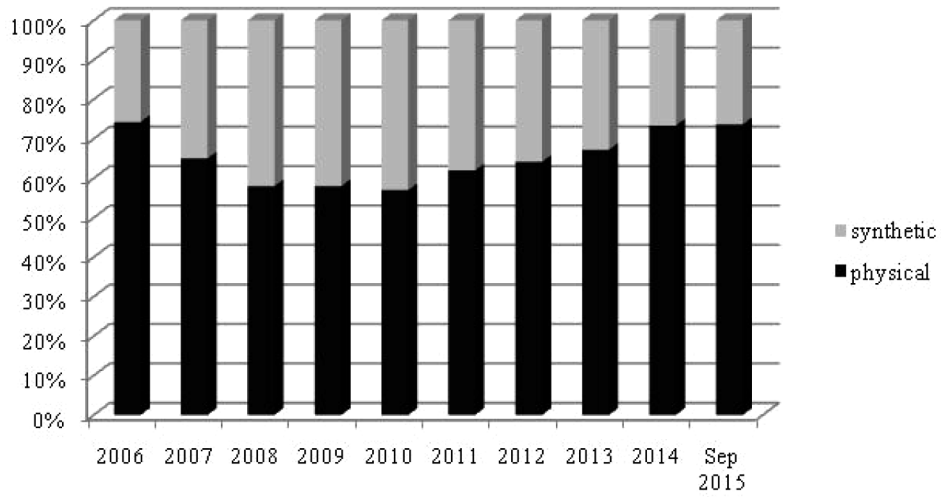

Fig. 2. European ETFs market in terms of replication method. 2006 – September 2015

Source: own elaboration based on [BlackRock 2012; Deutsche Bank 2015b; ETFGI 2015].

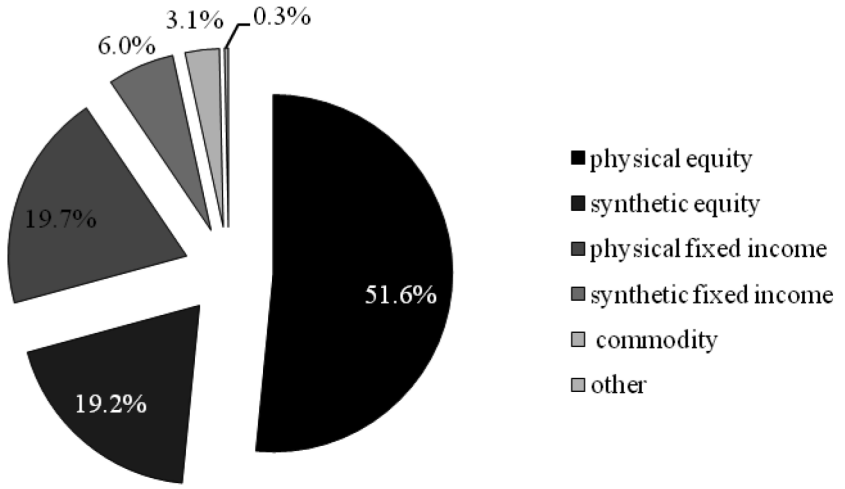

Fig. 3. Structure of the European ETFs market according to replication type and tracked assets in terms of AUM (end of September 2015)

Source: own elaboration based on [Deutsche Bank 2015b].

Figures 3 and 4 depict various aspects of the most current situation on the European ETF market (data presented is as of September 2015). Most assets invested in the European ETFs were managed by the physical funds – almost three quarters

(see Figure 3). The largest category, which accounts for more than half of all assets, were physical equity ETFs, i.e. the oldest and simplest type of ETFs. The second largest group were physical fixed income ETFs, i.e. tracking fixed income markets. In the synthetic ETFs category, first place in terms of assets belonged to the synthetic equity ETFs. It is worth noticing that the share of the most complicated ETF types (e.g. commodity) remains very low, in the period between January and September 2015 their assets were declining, while the assets of all the other types were growing steadily.

The structure of the European market in terms of the number of ETFs (Figure 4) confirms the findings from the analysis presented above – physical equity funds are the products most often managed by the European ETF providers. However, second position belongs to the synthetic equity, a few years ago the most popular product (in terms of AUM and number of funds) – a remainder of the past strength of synthetic ETFs in Europe. The current dynamics of the synthetic ETFs is much lower than physical – in the first nine months of 2015 the number of physical ETFs grew by 66 to 759, and in the case of synthetic ones the growth was only 2, to 726. In the two categories, synthetic fixed income and synthetic other, the number of funds declined.

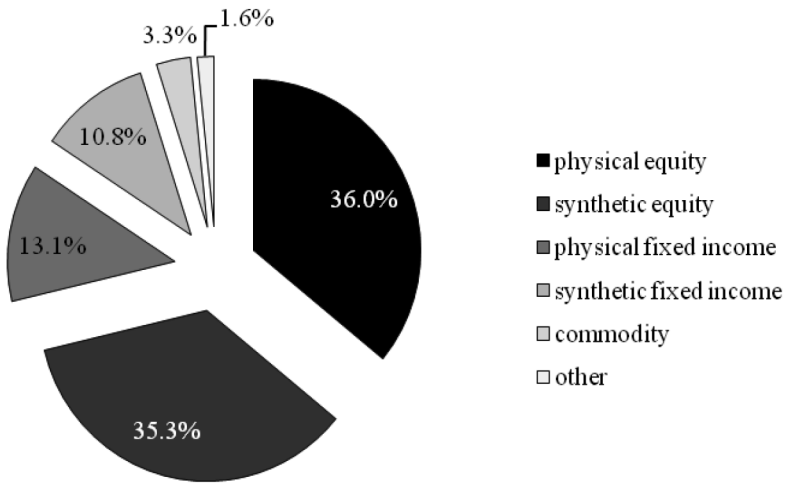

Fig. 4. Structure of the European ETFs market according to replication type and tracked assets in terms of number of funds (end of September, 2015)

Source: own elaboration based on [Deutsche Bank 2015b].

An important indicator of the changes occurring on the ETFs market are cash flows into various groups of funds – their value and direction (positive cash flows may be regarded as a sign of growing interest and negative show the opposite tendency). In 2013 and 2014 cash flows into physical funds were positive: 21.8 and 38.3 billion EUR respectively, whereas in the case of synthetic ETFs in 2013 cash

flows were negative, and in 2014 they amounted to only to 6,4 billion EUR [Deutsche Bank 2015a]. In all of the first nine months of 2015, total cash flows to European ETFs were positive yet significant variations could be observed – between April and June as well as in September they were much smaller than in the other months (see Figure 5). Low inflows in the late spring of 2015 may be explained by yet another part of the Greek crisis and the fears concerning the revival of the European economies [Deutsche Bank 2015b] – cash was flowing out of physical equity and fixed income ETFs. Nevertheless, in 2013 and 2014 and in the nine months of 2015, the much higher popularity of physical ETFs in comparison to synthetic is evident. The picture is even clearer than in the case of data on AUM or the number of funds which are to a large extent affected by the past market situation. Data on cash flows into ETFs are obvious proof of the shift of investors' preferences towards physical products.

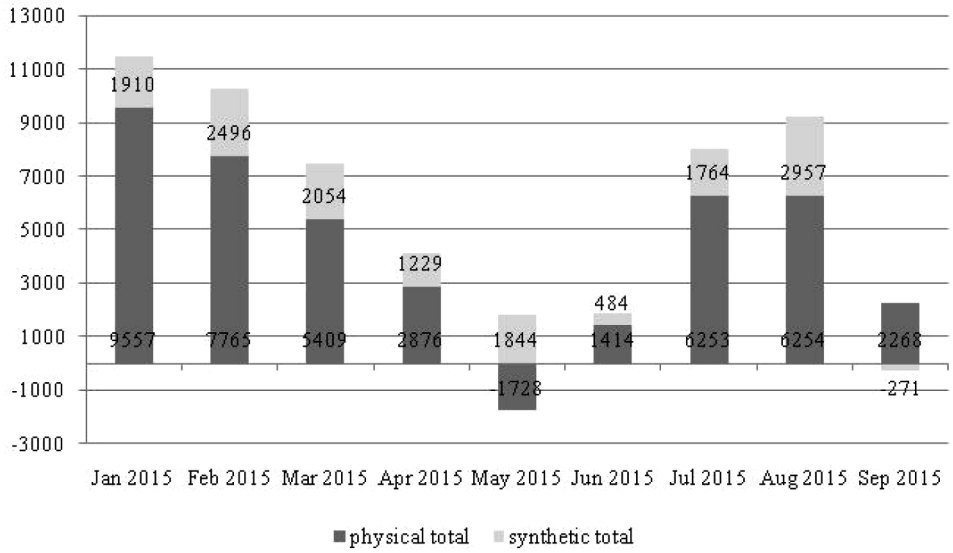

Fig. 5. Monthly cash flows into the European ETFs in 2015 by replication method (mln EUR)

Source: own estimations based on [Deutsche Bank 2015b].

Polish ETFs market is a part of the European market but its role is very limited, both in comparison to its counterparts in other countries of the region and to similar financial products in Poland. The first ETF was launched on the Warsaw Stock Exchange (WSE) in 2010 (ETF tracking WIG20 stock market index) [Chodnicka, Jaworski 2012]. As of the end of October 2015 it remains the only ETF listed primary in Poland; there are also two cross-listed ETFs, i.e. with their primary listing location outside Poland. The assets of the only ETF that can be regarded as fully

linked to the Polish market remain at a similar level since its inception – ca. 80 million USD [Warsaw Stock Exchange 2015]. The share of ETFs in the combined Polish investment funds market (understood as the sum of the assets of ETFs and mutual funds) in 2010-2014 remained at ca. 0.35%. All ETFs traded on the WSE use a synthetic replication structure.

5. Conclusions

Exchange trade funds are one of the most important financial innovations launched in the recent decades. ETFs evolved from simple products based on replication using the purchase of tracked assets into complicated products managed with derivatives. Nevertheless, new types of ETFs have not superseded the better known categories, i.e. physical ETFs have not been fully replaced by synthetic ones. Even though the basic benefits are the same, and in some cases even magnified when using synthetic products (e.g. lower tracking error), the types and level of risk can be quite different. Whether synthetic ETFs are more risky or not depends on a number of factors – in most cases they in fact seem to pose a relatively bigger threat to their users and financial systems. However, in spite of the concerns raised in some publications, especially a few years ago, treating physical ETFs as almost totally safe as opposed to very risky synthetic ETFs is not correct – physical products can also be risky even though the risk factors are sometimes not clearly noticeable.

The most recent trends observed on the European ETFs market indicate that the size of the market, both in terms of the assets under management and number of listed funds, continues to grow, yet at a rate lower than a few years ago. An important observed transformation of the European ETFs market is the declining popularity of synthetic ETFs after their peak share in the total market in 2010 – even though the assets of synthetic funds continue to increase, the rate of growth of the physical ETFs is much higher. The most recent data from the first months of 2015, confirm this trend. There are no signs of the revival – taking into account the data on cash flows into these two categories, physical ETFs will probably remain a preferred option. The situation on the European ETF market in the upcoming years will be shaped by various factors, most of them in common with other investment funds or securities.

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