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Structure of the US investment company industry over the period 2000 to 2017: substitution analysis

Introduction

Over the last several years the investment company industry has undergone deep transformation in the majority of the most advanced economies, including the United States. Traditional investment companies, structured as mutual funds, have lost their market share to the companies offering investment solutions within the category of exchange-traded funds (ETFs). Exchange-traded funds may be considered as more innovative in comparison to traditional investment companies (i.e. mutual funds or similar) – their main distinctive features are listing and trading in their units on the stock exchanges as well as unique creation and redemption mechanism. US investment company industry is the largest in the world in terms of the value of key indicator, i.e. managed assets, and may be considered as the reference market, indicating some trends that may in the future take place in other countries. This topic is thus of relevance not only for the researchers who focus on the US financial sector but also for the ones interested in the developments in other regions, e.g. in Europe.

This paper is designed to present the in-depth insights into the changes in the structure of the US investment company industry and to determine whether the traditional investment companies (mutual funds; other similar companies were omitted due to their much lower importance) have lost their market share due to the growth of the innovative companies (ETFs); supplementary aim is the prediction of future changes in the structure of the US industry. Logistic substitution model is applied in order to reach these aims; it is based on the three parameter logistic function, modified to conduct the analysis of the financial sector. Key parameters of the logistic curve are estimated, showing the rate of the substitution. It is the first study to empirically verify the occurrence and intensity of substitution between mutual funds and ETFs in the US investment company industry with the detailed analysis for various groups of funds (classified according to their exposure).

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This paper consists of four sections. First section outlines the key theoretical issues linked and brief literature review. Section two presents the methodology of the research and data sources. Third section is empirical and comprises two parts: preliminary evidence on the US investment company industry, followed by the discussion of the results of the analysis conducted by deploying logistic substitution models. Final section includes the conclusions.

This research was supported by a grant from the CERGE-EI Foundation under a program of the Global Development Network 2016. Title of the research project: "Reshaping financial systems – identifying the role of ICT in diffusion of financial innovations. Recent evidence from European countries". The article is also the result of scientific project no. 2015/19/D/HS4/00399 financed by the National Science Centre of Poland. Supported by the Foundation for Polish Science (FNP).

1. Overview of main categories of investment companies. Literature review

The Investment Company Institute (ICI), the national association of the investment companies domiciled in the United States, distinguishes four groups of investment companies in this country: mutual funds, closed-end funds, exchange-traded funds (ETFs) and unit investment trusts [Investment Company Institute, 2017, p. 9]. Due to their relatively much higher importance (measured e.g. in terms of assets), presented discussion will focus on differences between mutual funds and ETFs which constitute the vast majority of the US investment company industry.

Mutual funds are the dominant category of investment companies in most countries, including the United States (in many, especially less developed economies, they are the only category available). Mutual funds are investment companies in which managers buy a portfolio of assets and manage them according to the stated financial objective. The key attribute of mutual funds is their readiness to buy back previously issued shares at their current net asset value (therefore those shares are labeled 'redeemable securities'). One subcategory of mutual funds are index funds, i.e. funds in which managers are obliged to track the performance of a selected market index (similar to the most popular ETFs).

Exchange-traded funds are the newest category of investment companies – first ETF, tracking the S&P 500 index, was launched on the US market in 1993 [Deville, 2008, p. 4–6]. ETFs are considered to be hybrid investment companies [Deutsche Bank, 2015, p. 100]. ETFs are legally and structurally similar to mutual funds yet their units (shares) are listed and traded on stock exchanges, like shares of closed-end funds [International Monetary

Fund, 2011, p. 68]. However, detailed mechanisms of ETFs differ significantly from those applied by other categories of investment companies.

It should be noted that for many years ETFs were substitutes only for index mutual funds as they were passive investing tools, tracking selected indexes. However, in the last few years the category of ETFs has become much more diversified and includes also semi-passive or active ETFs. Therefore, it is more adequate to analyze the substitution between mutual funds and ETFs by the category of tracked assets (i.e. including all types of mutual funds), and not limit the analysis to index funds.

Table 1. Key attributes of mutual funds and ETFs: comparison

Attribute	Mutual funds	ETFs
Distribution channels	bank offices and similar	mostly brokers
Creation/redemption of units	conducted by the fund or related entities	conducted through transactions between authorized participants and funds
Valuation of units	net asset value determined by the fund	net asset value determined by the fund; market price depends on demand and supply
Costs for investors	depend on, for instance, distribution and management fees	mostly costs of stock transactions – usually lower than in mutual funds

Source: Author's compilation based on [Abner, 2016, p. 282–283; Agapova, 2011, p. 323–330; Deutsche Bank, 2010, p. 20; ICI, 2017, p. 58–63; International Monetary Fund, 2011, p. 68–69; Lechman, Marszk, 2015, p. 355–361].

In contrast with mutual funds ETFs give their users access to innovative features – they were the main cause of their rapidly growing popularity (see table 1). Apart from the different distribution channels (ETFs are available mostly through brokers), the key feature of ETFs is the unique creation and redemption process. In the United States, in almost all cases, shares of ETFs are created and redeemed with the intermediation of authorized participants. In case of creation, authorized participant exchanges a basket of securities (it may also include other assets) for a large number of ETF's units. Redemption occurs in the reverse direction. Both creation and redemption occur on the primary ETF market, whereas secondary ETF market covers the transactions between investors, market participants and other entities (they are conducted through the stock exchanges). Activity of authorized participants ensures that deviations of the market prices of the ETF's units from their net asset values are limited.

One of the main benefits of ETFs *versus* mutual funds is lower costs of ETFs for investors (due to, for example, different distribution channels). Other relative advantages include, among other, higher accessibility (possibility to purchase even one unit in order to gain access to a large number of investment strategies), higher transparency (due to more frequent publication of their portfolio's composition) and possibility to use derivatives (mostly futures) based on their units [Cameron, 2015, p. 7–16; Hill et al., 2015, p. 2–23].

Development of the ETF market may also be considered in the perspective of the substantial change taking place in the investment industry, known as the rise of passive investing (its sustainability remains, though, still to be seen). It may be briefly described as the increased popularity of investment products tracking returns of selected benchmarks (i.e. passive) instead of the ones which attempt to achieve better performance (i.e. active). Theoretical and empirical background for this preference has been described in numerous publications over the last several years (among most prominent [Fama, French, 2010, p. 1915–1947; Samuleson, 1974, p. 17–19; Sharpe, 1991, p. 7–9; Sharpe, 2013, p. 34–41]).

Most publications, which cover the topic of mutual funds and ETFs, focus on the potential benefits for investors, i.e. analyze them using micro approach. The topic of substitution between these investment companies (i.e. with reference to the whole market – macro approach) is described mostly in the theoretical literature (for details see the preceding discussion regarding the comparison of mutual funds *versus* ETFs). Attempts to verify this trend empirically are very scarce, mostly due to rather short history of ETFs and, consequently, lack of data (moreover, for most countries datasets with only annual observations can be constructed; United States is notable exception). According to the results obtained in the previous studies, between 2002 and 2012 ETFs have developed significantly in Mexico while mutual funds lost their market share – the development of the Mexican ETF market can be described with the logistic growth model [Marszk et al., 2017, p. 83–100]; similar results were reached in the study which covered a broader group of countries – Brazil, Mexico, Japan, South Korea and the United States [Lechman, Marszk, 2015, p. 355–376]. In contrast with the current study, annual observations were used for a shorter time period and no analysis of the changes within various types of funds was performed. According to one of the most comprehensive studies on the global ETF industry, the development of ETF markets could be observed in many advanced economies (in North America and Europe but also in Asia-Pacific) and some emerging economies (e.g. Mexico or China) [Hill et al., 2015, p. 160–180]. Apart from the scientific literature,

these results are confirmed in the reports published by Deutsche Bank or ETFGI [Deutsche Bank, 2017; ETFGI, 2017]. Another important topic is the impact of ETFs on the financial system – its evaluation is, though, still difficult due to the short history of the ETF markets yet some attempts have been made and their mixed results were published in several studies (for example [Amenc et al., 2017, p. 59–100; Ben-David et al., 2017, p. 169–189; Madhavan, Sobczyk, 2016, p. 1–17]). Role of ETFs during the 2008 global financial crisis was very limited due to their low assets in comparison to mutual funds at that time (see section 3).

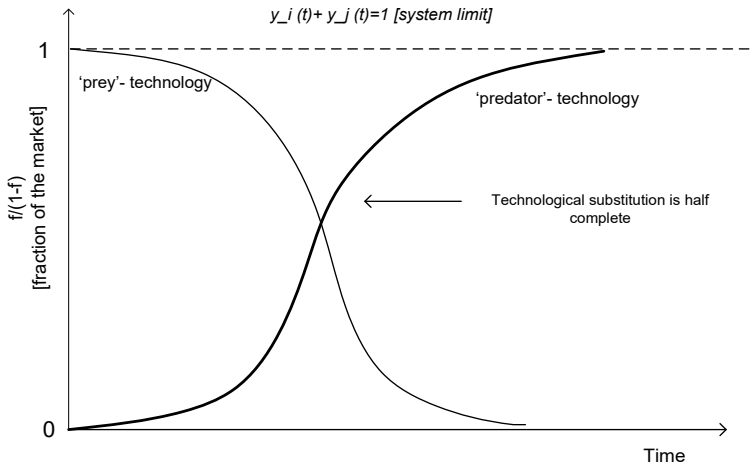
2. Methodological framework

2.1. Research methodology

Analysis starts with descriptive statistics but its main part is conducted by deploying logistic substitution model (LSM). Logistic substitution model (also labeled technological substitution model due to its initial applications) was developed by Fisher and Pry [1972] and since then underwent various modifications. Despite its apparent simplicity, numerous studies have proven its applicability in comparison to other models which have been evaluated as too complex and inefficient in case of technology forecasts (see the discussion of the literature and revised model in Kucharavy and Guio [2011, p. 402–414]). The most significant difficulties and limitations include ambiguities regarding definitions of the key parameters or classifications of competing technologies and lack of formal analysis which would enable the assessment of the obtained fits, for instance with their estimation errors or confidence intervals (analysis of residuals is not possible due to software limitations).

According to the basic assumption of the model, the process of substitution is defined as a gradual replacement of 'old' technologies or products by 'new' ones, which resembles competition between 'old' and 'new' solutions. Another basic element of the model are three characteristic stages of changes in the market share: first, a logistic growth stage, when growth rates are slow; second, an exponential growth stage with a rapid growth of the market share of the 'new' technology or product; third, a saturation stage, when 'new' technology or product reaches its maximum market share. After the end of saturation stage, the 'new' product or technology may be gradually substituted by even more innovative solution [Marchetti, Nakicenovic, 1979, p. 1–8]. For graphical illustration see figure 1.

Figure 1. Theoretical specification of the substitution trajectory according to the logistic substitution model.



Source: [Lechman, 2015].

The logistic substitution model may be applied to analyze the substitution which takes place on financial markets (see for example [Marszk et al., 2017]). When two different products, which replace each other, are considered (in here: units of mutual funds and ETFs; both are labeled as investment products in many publications, e.g., Gastineau [2010] or Hill et al. [2015]), N_i represents the net assets of each product category. Share of product category i at time t can be stated as [Lechman, 2015, p. 47]:

$$f_i(t) = \frac{N_i(t)}{N} \tag{1}$$

The estimate of the time, when the saturation stage of one product category ends and the growth stage of the second category begins, may be determined by checking when [Meyer et al., 1999, p. 247–257]:

$$\frac{y_i''(t)}{y_i'(t)} \rightarrow \min \tag{2}$$

where $y_i(t)$ is the market share of product i according to Fisher-Pry transformation [Fisher, Pry, 1972, p. 75–88]:

$$y_i(t) = \frac{f_i(t)}{1 - f_i(t)} \tag{3}$$

Fisher-Pry transformation is performed in order to normalize the logistic curves, i.e. transform them into straight lines which allows comparisons of various curves and graphical evaluation of deviations of empirical lines from theoretical specifications.

Next step is fitting the curves to the growth or decline stage and estimation. In case of two products (one with growing market share and second with declining), after estimating y_i and y'_i, it is possible to estimate the two key parameters of the logistic curve using following equations [Meyer et al., 1999, p. 247–257]:

$$\Delta t_i = \frac{\ln(81)}{y_i'(t)} \tag{4}$$

and

$$T_{m_i} = \ln\left[\frac{\left(y_i(t) - \frac{\ln(81)}{\Delta t}\right)t}{\frac{\ln(81)}{\Delta t}}\right] \tag{5}$$

Δt_i (labeled 'specific duration') shows the time needed for the product i to increase its share in the combined market from 10% to 90%, and T_{m_i} represents 'mid-point', i.e. point in time when the substitution process is half complete which means that market shares of both products are equal to 50%. For calculations we use IIASA-LSM II statistical software which is the most widely utilized tool for the analysis of substitution (IIASA-LSM II applies non-linear least square method for estimations of the above-mentioned parameters).

2.2. Data sources

To achieve the defined research goal we use the dataset covering the key indicators of the US investment company industry, extracted from the databases and reports delivered by the Investment Company Institute (available commercially on demand). Time scope of the analysis (subject to data availability) is September, 2000 – March, 2017, and monthly observations are used (i.e. the total number of observations in the dataset is 199); projections are presented for periods ending in 2020 and 2022. Key indicator used in the analysis is the value of net assets (defined by ICI as market value of the fund's assets minus its liabilities). Two categories of investment companies considered in this research are mutual funds and ETFs; other types are omitted due to their negligible market share. Consequently, total US investment company industry is understood here as the sum of mutual funds and ETFs, and accordingly market share of mutual funds or ETFs is their share in the combined net assets. Apart from the general analysis of market share of mutual funds and ETFs, their shares in five subcategories, classified by ICI according to the type of managed assets, are also examined: domestic (i.e. US) equity, international equity, bond, hybrid, money market.

3. US investment company industry: structure, substitution, predictions

3.1. Preliminary evidence

US investment company industry has in the recent years changed very significantly, both in terms of structure and size measured in net assets (see table 2). Combined net assets of mutual funds and ETFs have grown between September, 2000 and March, 2017 from ca. 7,3 trillion USD to almost 20 trillion USD (i.e. they have almost tripled); the growth of assets in relation to the GDP has also been considerable yet smaller (by ca. 50% [World Bank, 2017]). The growth of the investment company industry was stable over the whole period and almost unaffected by various events in the US economy. The only significant decrease was observed in the late 2008 and early 2009, during the financial crisis. However, from the mid 2009 assets again grew rapidly.

At the beginning of the analyzed time period ETFs were marginal type of investment company, with less than 1% market share. In March, 2017 their market share increased to ca. 14%, the highest level noted in the history of the US market (see table 2 and figure 2). These results confirm the expansion of ETFs in the US investment company industry, boosted by their innovative features discussed in the previous section. Another reason were changes in the legal and regulatory environment from 2006 onwards, above all permissions granted by the Securities and Exchange Commission, which enabled launch and development of new types of funds – initially, all ETFs listed in the United States were passive funds. Some of the most important regulatory changes involved allowing fund providers to offer funds with modified relation to the benchmark such as inverse or leveraged ETFs (since 2006) as well as active ETFs (first attempts had been made in 2007).

Table 2. Summary statistics on net assets of investment companies in the United States between 2000 and 2017

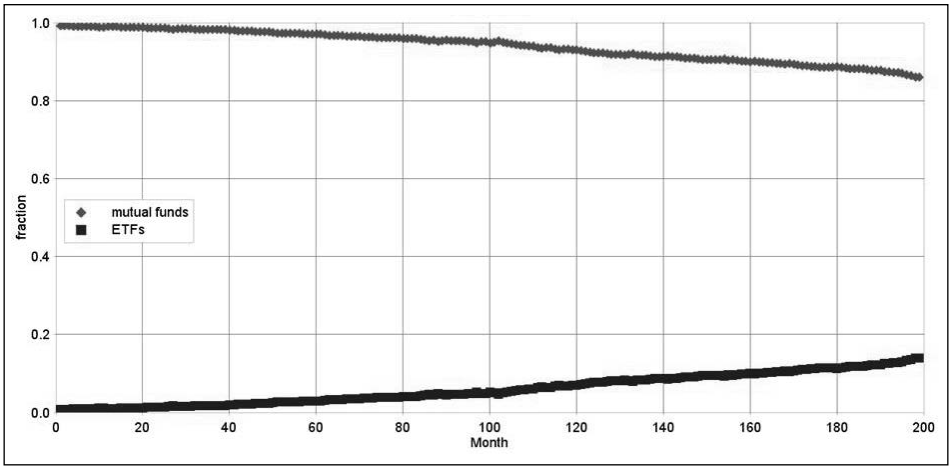
	Exchange-traded funds	Mutual funds	Total market
Value of net assets (in bln USD)			
IX 2000	49,7	7 268	7 318
III 2017	2 774	16 991	19 765
Minimum	49,7	6 057	6 139
Maximum	2 774	16 991	19 765
Total growth (%)	5 482	133,8	170
Market shares (in %)			
IX 2000	0,7	99,3	–
III 2017	14	86	–

	Exchange-traded funds	Mutual funds	Total market
Minimum	0,7	86	–
Maximum	14	99,3	–
Total growth (%)	1 967	–13,4	–
Value of net assets (in bln USD) by asset classes			
domestic equity	1 721	6 760	8 481
international equity	582	2 357	2 939
bond	465	3 776	4 241
hybrid	6	1 433	1 439
money market	–	2 664	2 664

Source: Author's calculations.

As of early 2017 the position of ETFs in the US investment company industry differs in various categories (see table 2). ETFs have reached the highest market share in the 'domestic equity' and 'international equity' category (in both cases share was at ca. 20%). Share of ETFs in the investment companies managing bonds and similar assets was slightly above 10%. ETFs were almost absent in two categories, 'hybrid' and 'money market' – only several funds were launched by the end of the considered time period. The underlying reason are the characteristics and applications of ETFs which are mostly passive funds (whereas hybrid or money-market funds are usually active or semi-active) and the mechanisms of ETFs which in some cases make development of e.g. money-market funds too costly.

Figure 2. Market shares of mutual funds and ETFs in the United States between 2000 and 2017 (shares in total net assets)



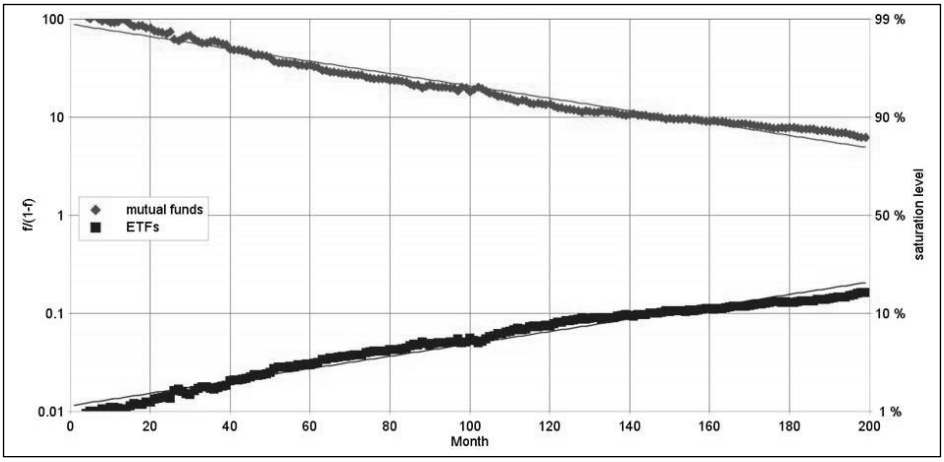
Month 1 = September, 2000. Month 199 = March, 2017.
Source: Author's calculations in IIASA-LSM II software.

3.2. Substitution analysis and predictions

Results of the preliminary analysis outlined in the section 3.1. indicate that over the period 2000–2017 substantial changes took place in the US investment company industry. Mutual funds have lost market shares while ETFs have become increasingly popular. In order to evaluate the exact trends we use the substitution framework discussed in the methodological section. We show the results based on historical market shares in total net assets as well as predictions up to February, 2020 (i.e. three years forward) and, in some cases, up to February, 2022 (i.e. five years forward). Selected lengths of the prediction periods do not seem excessive given the length of the available data set which is approximately 17 years and trajectory of the changes which closely resembles the logistic curve in most analyzed cases, as discussed below. Final paragraph of this section includes the numerical results of the estimations, i.e. values and interpretations of the two key parameters of the logistic substitution model. We assume, as proven by the preliminary analysis, that mutual funds are the 'old' (i.e. losing) products whereas ETFs are 'new' (i.e. winning) products.

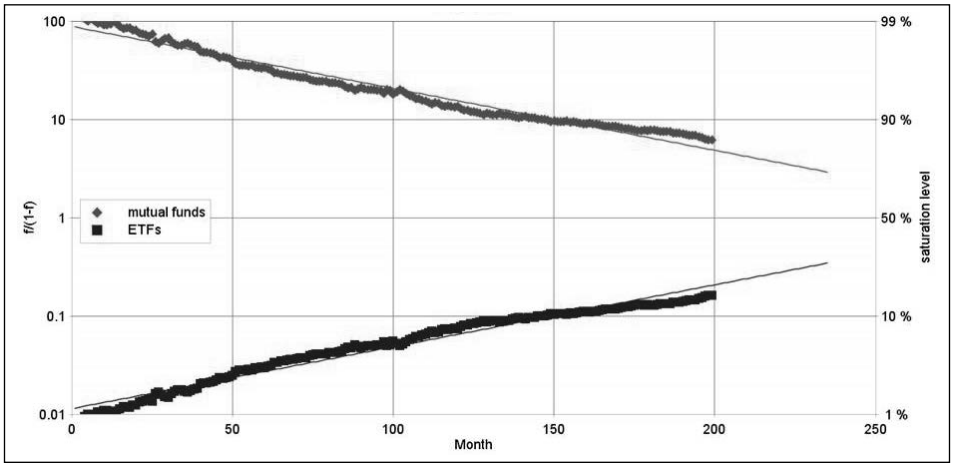
First part of the substitution analysis (see figures 3–5) is conducted for the whole investment company industry, i.e. all types of mutual funds and ETFs. Figure 3 shows that empirical and theoretical curves are close to each other, which proves that changes in market shares follow the logistic curve. It means, therefore, that the logistic growth model may be applied to analyze the substitution in the investment company industry. Mutual funds (as 'old' products) have been substituted by ETFs ('new' products). According to the predictions (see figures 4 and 5) this trend is expected to continue in the near future. Market share of ETFs is expected to grow quickly, reaching the level of ca. 30% by 2020 and 35% by 2022. However, mutual funds will still be the main group of investment companies over the next few years. They are expected to lose the dominant position around 2026. It should be stressed that in the assumed scenarios, changes in the structure of the investment company industry will follow the logistic substitution trajectory.

Figure 3. Market shares of mutual funds and ETFs in the United States between 2000 and 2017 (shares in total net assets). Fisher-Pry transformation



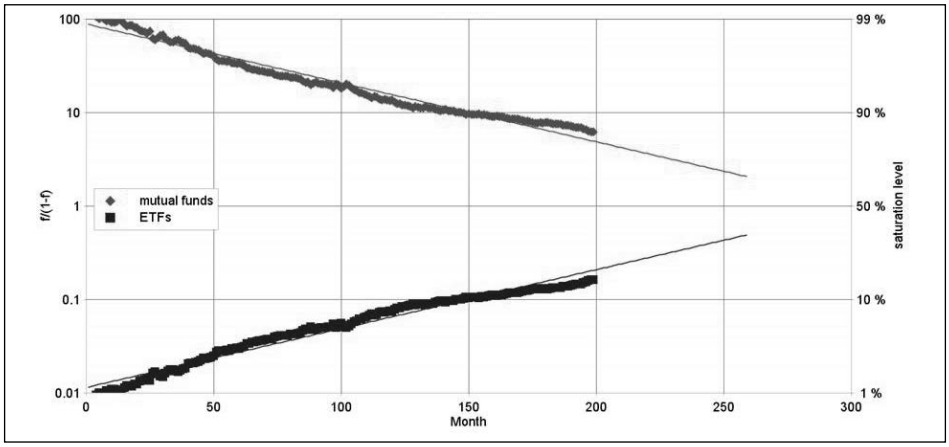
Month 1 = September, 2000. Month 199 = March, 2017.
Source: Author's estimations in IIASA-LSM II software.

Figure 4. Historical and predicted market shares of mutual funds and ETFs in the United States between 2000 and 2020 (shares in total net assets). Fisher-Pry transformation



Month 1 = September, 2000. Month 235 = February, 2020.
Source: Author's estimations in IIASA-LSM II software.

Figure 5. Historical and predicted market shares of mutual funds and ETFs in the United States between 2000 and 2022 (shares in total net assets). Fisher-Pry transformation



Month 1 = September, 2000. Month 259 = February, 2022.
Source: Author's estimations in IIASA-LSM II software.

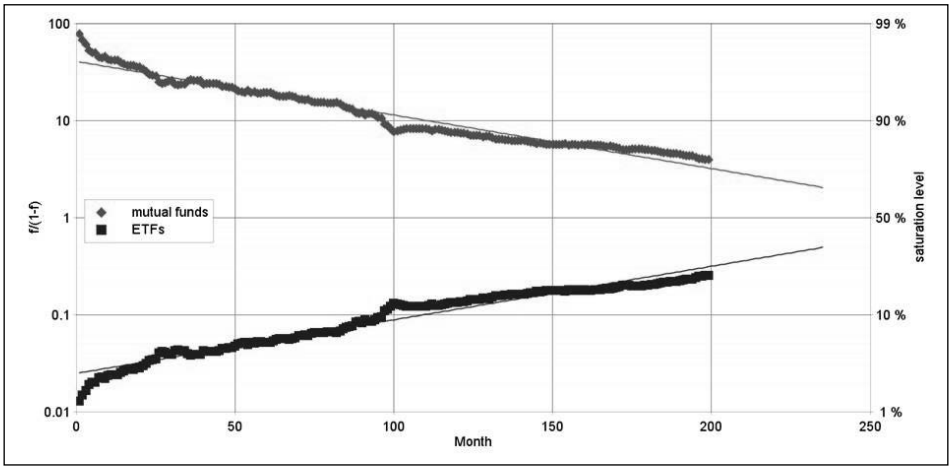
Results of the analysis for the largest category in the investment company industry, domestic equity, show that mutual funds have been to some extent substituted by ETFs (see figure 6); the trajectory of changes and their rate were similar to the ones observed in case of the whole market, discussed in the preceding paragraph. It may be noted, though, that the predictions for the period 2017–2020 indicate that by 2020 the market share of ETFs in this category will be a bit higher than in the whole market – the projected market share of ETFs in the domestic equity category is at ca. 35%. Relatively strong position of ETFs in this category can be explained by the longest history of such ETFs and their popularity – domestic equity ETFs constitute ca. 60% of the entire ETF market. However, reaching higher market shares may be difficult due to the strong competition from a large number of mutual funds. Slowdown in the expected growth of ETFs' market share is also proven by relatively highest value of the estimated specific duration (see table 3).

Table 3. Logistic substitution parameters

Parameter	Total market	Domestic equity	International equity	Bond
T_{mi} – midpoint	V 2026	XI 2024	III 2020	VI 2023
Δt_i – specific duration	302,9	345,8	228,9	201,5

Estimated values of midpoints were transformed from numbers of months into exact points in time (month and year).
Source: Author's estimations in IIASA-LSM II software.

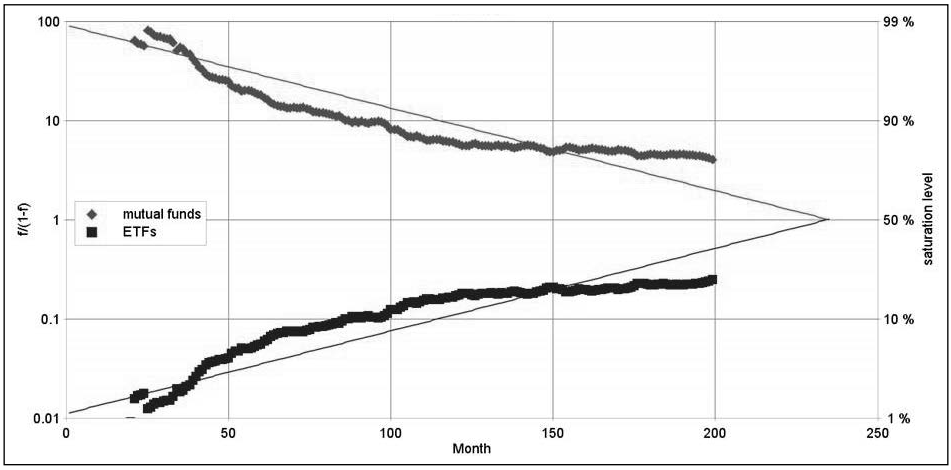
Figure 6. Historical and predicted market shares of mutual funds and ETFs in the United States between 2000 and 2020 (shares in total net assets). Fisher-Pry transformation. Domestic equity category



Month 1 = September, 2000. Month 235 = February, 2020.
Source: Author's estimations in IIASA-LSM II software.

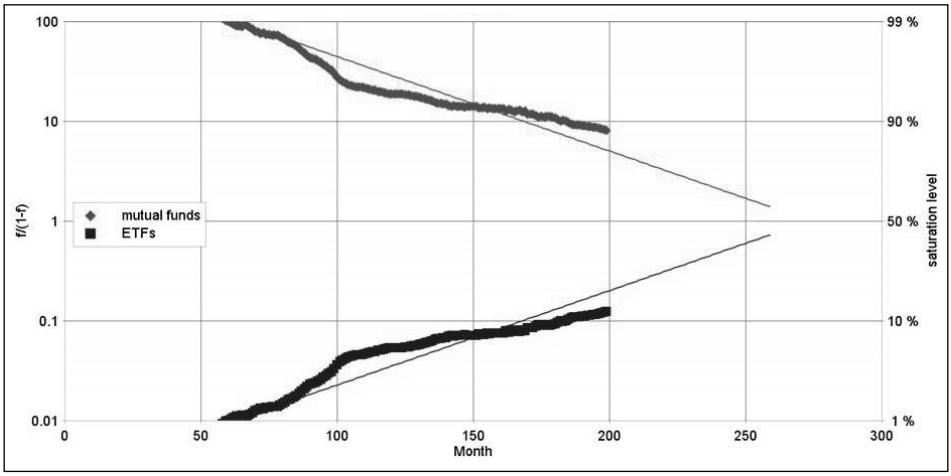
Substitution between mutual funds and ETFs in two next categories of investment companies – international equity and bond funds (see figures 7 and 8) has been more prevalent than for the entire market or domestic equity funds. Particularly significant trend could be observed for international equity. Market share of ETFs in this group in March, 2017 was similar to the market share of domestic equity ETFs in their category but the predictions show that by 2020 international equity are predicted to have the same share as 'old' products, i.e. mutual funds. Rapid development of international equity ETFs was caused by their diversity (ETFs offering access to almost all international equity markets have been launched) and ability to invest in assets located in countries otherwise difficult to access (e.g. for many years mainland China) at lower cost than in mutual funds [Hill et al., 2015, p.109–111]. It should be noted, though, that in case of the international equity category the empirical and theoretical curves to some degree deviate from each other, which proves that changes in market shares do not follow closely the logistic curve. It means that these results should be interpreted with caution – figure 7 shows that in the last few years of historical period the growth of market share of ETFs has slowed down (similar deviations have been observed for the bond category – see figure 8).

Figure 7. Historical and predicted market shares of mutual funds and ETFs in the United States between 2000 and 2020 (shares in total net assets). Fisher-Pry transformation. International equity category



Month 1 = September, 2000. Month 235 = February, 2020.
Source: Author's estimations in IIASA-LSM II software.

Figure 8. Historical and predicted market shares of mutual funds and ETFs in the United States between 2000 and 2022 (shares in total net assets). Fisher-Pry transformation. Bond category



Month 1 = September, 2000. Month 259 = February, 2022.
Source: Author's estimations in IIASA-LSM II software.

Market share of bond ETFs in March, 2017 was much lower than of equity ETFs but it has been growing very quickly since 2007 (first such funds were launched in 2002 but initially both their net assets were very low). When we compare the changes in market share of ETFs in various categories,

we can see that bond ETFs have reached market share of 10% much faster than any other group of ETFs. Moreover, according to the substitution prediction they are expected to reach market share of slightly above 40% by 2020. This high dynamics of bond ETFs in the last years may be explained by referring to the general rules of diffusion of innovations. Innovative products initially gain market share slowly but after certain time, when market participants become more aware, their diffusion accelerates. Bond ETFs have to some extent skipped the first stage of diffusion as equity ETFs were already popular among investors when the actual development of bond ETFs began.

We do not conduct the substitution analysis for the hybrid and money-market funds due to the very low market share of ETFs. Mutual funds are still the dominant investment companies and no substitution has been observed.

More accurate analysis of the substitution, which supports the results presented in the preceding paragraphs, may be performed using the logistic substitution parameters (see table 3; for methodological discussion and limitations such as impossibility to estimate estimation errors see section 2.1). There is no formal procedure to verify their reliability but they may evaluated with regard to the time period and number of observations in the dataset (in here: 199) – values of parameters significantly exceeding the moment in time or length of the sample may be perceived as highly unrealistic.

According to estimated midpoints (points in time when market shares of mutual funds and ETFs are expected to be equal, i.e. of 50%), international equity ETFs are expected to reach 50% market share most quickly, in March, 2020, whereas for domestic equity ETFs the value of this parameter is much higher, meaning much more distant point in time – November, 2024. For bond ETFs estimated mid-point is also rather distant – June, 2023. Nevertheless, in case of bond ETFs the rate of growth in the market share of ETFs is most rapid as indicated by the lowest specific duration (estimated time needed for market share to grow from 10% to 90%), at ca. 202 months. Even though international equity ETFs are much closer to reaching 50% market share than bond ETFs, their growth is a bit slower as suggested by higher specific duration. The highest specific duration for domestic equity ETFs suggests that in this category ETFs are very far from dominating and saturating the market – the value of ca. 346 months is extremely high and shows that their further growth is uncertain.

For the total market estimated midpoint is more distant than in case of any discussed category which is caused by inclusion of hybrid and money market funds (in these categories ETFs are almost absent).

These results show that ETFs are projected to have strong position in some parts of the market but in the upcoming years mutual funds will still dominate the industry at large. This may be changed by the rapid development of ETFs in the hybrid and money market categories but as of mid 2017 there are no signs of such trend.

Conclusions

During the first several years of the 21st century, US investment company industry has changed very deeply. Despite the considerable increase in the net assets of mutual funds, the growth of the competing investment companies – ETFs has been even more significant. In 2000 ETFs were an almost unknown group of investment companies, with marginal market share. Seventeen years later, in 2017, they are contestant for mutual funds, at least in some parts of the market.

When the structure of the investment company industry is considered, results of the analysis show that ETFs linked with the equity markets have gained more popularity and won higher market share than ETFs based on bonds – the explanation is rather simple: equity ETFs have been present much longer than their bond counterparts. International equity ETFs have expanded most quickly and are expected to win substantial market share (the highest among all categories considered) – they have been used by US investors to gain cheap access to foreign markets. However, the observed and predicted growth in the market share of bond ETFs is even more rapid than of equity ETFs due to their later launch and adoption of large group of users.

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Structure of the US investment company industry over the period 2000 to 2017: substitution analysis (Summary)

Over the last years the investment company industry has undergone deep transformation in the majority of the most advanced economies, including the United States. Traditional investment companies, such as mutual funds, have lost their market share to innovative exchange-traded funds (ETFs). The main distinctive features of ETFs are listing and trading in their units on the stock exchanges as well as lower costs for investors. The aim of this paper is to present the in-depth insights into the changes in the structure of the US investment company industry and to determine whether the mutual funds have lost their market share due to the growth of ETFs; supplementary aim is the prediction of future changes. In the major In the major part of the empirical research logistic substitution model is applied, modified to conduct the analysis of changes on the financial markets. Key parameters of the logistic curve are estimated, showing the rate of the substitution. It is the first study to empirically verify the occurrence and intensity of substitution between mutual funds and ETFs in the US investment company industry with the detailed analysis for various groups of funds (classified according to their exposure). Results of the analysis prove that between 2000 and 2017 ETFs have increased their market share and this trend is expected to continue in the future. ETFs linked with the equity markets have won higher market share than ETFs based on bonds. International equity ETFs are projected to win the highest market share among all categories considered.

Keywords

exchange-traded funds, mutual funds, financial innovations, United States, substitution