УДК 339.92

HOME BIAS AS A KEY BEHAVIORAL DEVIATION OF PORTFOLIO INVESTORS DECISIONS

СХИЛЬНІСТЬ ДО ІНВЕСТУВАННЯ НА ЛОКАЛЬНИХ РИНКАХ ЯК КЛЮЧОВЕ ПОВЕДІНКОВЕ ВІДХИЛЕННЯ РІШЕНЬ ПОРТФЕЛЬНИХ ІНВЕСТОРІВ

СКЛОННОСТЬ К ИНВЕСТИРОВАНИЮ НА ЛОКАЛЬНЫХ РЫНКАХ КАК КЛЮЧЕВОЕ ПОВЕДЕНЧЕСКОЕ ОТКЛОНЕНИЕ РЕШЕНИЙ ПОРТФЕЛЬНЫХ ИНВЕСТОРОВ

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Abstract. *The comparative analysis of the main approaches to the reasons for the home bias is explored. The main factors of home bias are identified. The reasons for the existence of home bias are determined on the basis of systematization of the existing discourse. The main stages of the evolution of approaches to determining the reasons for home bias are identified. It was found that the most promising approach is the behaviourist approach, as well as the institutional approach and the transaction costs approach. The historical and current dynamics of the home bias in the investment portfolios of different countries is studied. A comparative analysis of the home bias for different groups of countries according to their level of economic development is carried out. It was found that developed countries have the lowest share of local market assets in the portfolio. The evolution of approaches to the home bias has been studied. The main scientific publications on the issue of home bias in the historical perspective are analysed and systematized. The main quantitative dimensions of the expression of home bias are highlighted. The main forms of quantitative expression of home bias, which received relative expression in the form of indices, are studied. The qualitative and quantitative composition of modern investment portfolios of the countries with the largest shares in the world market capitalization is studied and analysed. It has been found that there are countries with traditionally low and high levels of international diversification, such as China and Luxembourg, respectively.*

Key words: *home bias, behaviorism, investment portfolio, international diversification, institutionalism, transaction costs.*

Анотація. *Досліджено та проведено порівняльний аналіз основних підходів до визначення причин схильності до інвестування на місцевих ринках. Ідентифіковано основні фактори схильності до інвестування на місцевих ринках. Визначено передумови існування схильності до інвестування на місцевих ринках на основі систематизації наявного дискурсу. Виявлено основні етапи еволюції підходів до визначення причин існування схильності до інвестування на місцевих ринках. Виявлено, що найбільш перспективним напрямом є бігевіористський підхід, а також інституційний підхід та підхід трансакційних витрат. Досліджено історичну та сучасну динаміку рівня схильності до інвестування на місцевих ринках у інвестиційних портфелях різних країн. Проведено порівняльний аналіз схильності до інвестування на місцевих ринках акцій і облігацій для різних груп країн за їх рівнем економічного розвитку. Виявлено, що розвинуті країни мають найнижчу частку активів місцевого ринку у портфелі. Досліджено еволюцію підходів до визначення схильності до інвестування на місцевих ринках. Проаналізовано та систематизовано основні наукові публікації з проблематики схильності до інвестування на місцевих ринках у історичній перспективі. Виокремлено основні кількісні виміри вираження схильності до інвестування на місцевих ринках. Досліджено основні форми кількісного вираження схильності до інвестування на місцевих ринка, які отримали відносне вираження у формі індексів. Досліджено та проаналізовано якісний та кількісний склад сучасних інвестиційних портфелів країн з найбільшими частками у світовій ринковій капіталізації. Виявлено, що існують країни з традиційно низьким та високим рівнем міжнародної диверсифікації, як, наприклад, Китай та Люксембург, відповідно.*

Ключові слова: *схильність до інвестування на локальних (місцевих) ринках, бігевіоризм, інвестиційний портфель, міжнародна диверсифікація, інституціоналізм, трансакційні витрати.*

Аннотация. *Исследованы основные подходы к определению причин склонности к инвестированию на местных рынках и проведён их сравнительный анализ. Идентифицированы основные факторы предрасположенности к инвестированию на местных рынках. Определены предпосылки к существованию склонности к инвестированию на местных рынках на основе систематизации имеющегося дискурса. Выявлены основные этапы эволюции подходов к определению причин существования склонности к инвестированию на местных рынках. Выявлено, что наиболее перспективным направлением является бихевиористский подход, а также институциональный подход и подход трансакционных издержек. Исследована историческая и современная динамика уровня склонности к инвестированию на местных рынках в инвестиционных портфелях разных стран. Проведён сравнительный анализ склонности к инвестированию на местных рынках акций и облигаций для различных групп стран по их уровню экономического развития. Выявлено, что развитые страны имеют самую низкую долю активов местного рынка в портфеле. Исследована эволюция подходов к определению склонности к инвестированию на местных рынках. Проанализированы и систематизированы основные научные публикации по проблематике склонности к инвестированию на местных рынках в исторической перспективе. Выделены основные количественные измерения выражение склонности к инвестированию на местных рынках. Исследованы основные формы количественного выражения склонности к инвестированию на местных рынка, которые получили относительное выражение в форме индексов. Исследованы и проанализированы качественный и количественный состав современных инвестиционных портфелей стран с крупнейшими долями в мировой рыночной капитализации. Выявлено, что существуют страны с традиционно низким и высоким уровнем международной диверсификации, как, например, Китай и Люксембург, соответственно.*

Ключевые слова: *склонность к инвестированию на локальных (местных) рынках, бихевиоризм, инвестиционный портфель, международная диверсификация, институционализм, трансакционные издержки.*

Introduction. The modern portfolio theory of international investments has a long history of development, during which it has been transformed and improved, expanded and deepened many times. Today the theory is characterized by the complexity of its epistemological structure and multidisciplinary approach to its research. In the theory of investments, the behaviour of an investor in making investment decisions is characterized as rational. However, empirical research and long-term record of portfolio investments do not confirm this assumption. In modern discourse, behavioural theories that oppose the concepts of rationality have received considerable empirical evidence. On the other hand, the behavioural approach to portfolio investments examines the irrational nature of the investment process and the behavioural deviations in portfolio investors' investment decisions.

One of the behavioural deviations in behavioural theory is the home bias. The theory of international portfolio investments clearly defines and substantiates the benefits of international diversification of the investment portfolio. However, investors do not enjoy the benefits of international diversification to the extent that traditional theories suggest. Despite the steady, moderate increase in the level of international diversification, local market financial instruments make up a significant share of modern investment portfolios. Despite the profound research, scientists have not been able to definitively identify and justify the reasons for the home bias.

The purpose of the research is to determine the place of home bias in the modern system of knowledge about international portfolio investments and the prerequisites for the existence of home bias through the systematization of existing scientific discourse. Identify the main stages in the evolution of approaches to determining the reasons for the home bias. To reveal the key features of the home bias. Identify the features of modern dynamics of home bias based on the systematization of modern empirical research. Identify special features of the home bias at the present stage of development. Identify the main ways of the interaction between the home bias with other components of existing knowledge based on the study of its main features and shortcomings.

Recent literature review. The topic of home bias has been in focus of the following researchers and scientists such as B. Solnik [2, 8], H. Levy [6], F. Grauer [7], P. Sercu [9, 32], K. French and J. Poterba [11], N. Coeurdacier [13, 26], L. Tesar [12, 20], T. Dvořák [18], C. Daude and M. Fratzscher [19], M. Fidora [24], I. Cooper and E. Kaplanis [25], F. Bransch [30], R. Vanpee [32], K. Ardalan [33], B. Florentsen [34], D. Schumacher [38], S. McDowell [41] etc.

Research results. The three main characteristics of the investment portfolio are risk, return and investor's risk tolerance. If the investor's risk tolerance is an individual feature, then the risk and return indicators can be selected and adjusted using different methods. One of the most important achievements of the theory of investment management was the theory of international diversification, the main provisions of which were formulated by the French scientist B. Solnik [2]. The theory is that investors benefit from international portfolio diversification because it can significantly reduce risks and increase returns.

However, investors do not always adhere to the theory of international diversification. The actual composition of investment portfolios often contradicts the provisions of investment management and contains a significant share of local market financial instruments. This behaviour deviation is called «home bias». Here are some of the suggested definitions of this term. K. Chan suggests the following definition: «a state in which investors do not use the opportunities of international diversification, because they allocate a relatively large part of their capital to local market instruments» [3]. M. Lin defines this phenomenon as «suboptimal behaviour in making investment decisions, which leads to economic inefficiency in the market» [4]. M. Levis, in turn, gives the following definition: «the tendency for investors to rely on investments in local markets, without making full use of international diversification» [5]. In our opinion, any of the suggested definitions reflects the essence of a particular deviation.

The home bias has attracted the attention of leading scholars and researchers in the field of international finance. In the early 1970s, H. Levy and M. Sarnat first noticed that the share of foreign assets in the portfolio of American investors is lower than predicted in portfolio theory [6]. In 1986, I. Cooper and E. Kaplanis questioned the assumptions of the models on international diversification by F. Grauer [7], B. Solnik [8], P. Sercu [9], pointing out that empirical studies of investment portfolios show their different quality composition [10]. I. Cooper and E. Kaplanis noted that within the existing models of diversification it is impossible to explain the phenomenon of home bias [10]. Researchers have suggested that such investor behaviour is caused, firstly, by differences in expected returns and, secondly, by differences in the regulation of cross-border capital flows [10].

Scientists K. French and J. Poterba noted that most investors in the stock market kept almost all their capital in stocks in local markets [11]. Japanese investors, for example, invested only 1.9 % in foreign equities, American investors invested 6.2 %, and British investors held 18 % of their portfolio in foreign equities. The researchers concluded that the main reason for the low level of international diversification was not institutional constraints on the capital market, but independent decisions of investors [11].

In 1992, other scholars L. Tesar and I. Werner investigated the level of international diversification in the securities markets [12]. They found that the level of international diversification for the portfolio of stocks and bonds for Canada was 3.6 %, Germany – 10.3 %, Japan – 16.8 %, the United Kingdom – 33.3 %, the United States – 4.0 % [12]. Researchers have suggested that in such portfolios, investment decisions are made not only for reasons of diversification [12].

Currently, there is no reasonable quantitative expression of the home bias in financial mathematics. It is important to note that the home bias has been relatively expressed in the form of an index. Here are the following two formulas [13, 14]. Firstly, the Index of Home Bias in Equities.

$$HBE = 1 - \frac{Share\ of\ foreign\ equities\ in\ the\ country's\ i\ stock\ portfolio}{Share\ of\ foreign\ equities\ in\ the\ global\ stock\ portfolio}, \quad (1.1)$$

Secondly, the Index of Home Bias in Bonds.

$$HBB = 1 - \frac{Share\ of\ foreign\ bonds\ in\ the\ country's\ i\ bonds\ portfolio}{Share\ of\ foreign\ bonds\ in\ the\ global\ bonds\ portfolio}, \quad (1.2)$$

The index is zero when the share of foreign assets in the country's portfolio is equal to their corresponding share in the world portfolio. This indicator takes a positive value when the portfolio is dominated by the share of local market assets. If the portfolio consists exclusively of local market assets, the figure is 1.

Figure 1 presents a graphical expression of the level of home bias for groups of countries at different levels of economic development. The vertical axis shows the aggregate Index of home bias for stock and bond markets ranging from 0 to 1.

It can be noted from Figure 1 that the lowest level of home bias is observed in developed countries. Until 2009, there was a downward trend, but after the global financial crisis of 2007-2009, the share of local market assets in the portfolio increased again. Only since 2013 has there been an increase in the level of international diversification. Developing countries in the Asian region follow the trends of developed countries but remain at a slightly lower level in terms of international diversification. Developing countries in Central and Eastern Europe, Africa and Latin America are showing a gradual decline in the index, but still have a high share of local assets in the portfolio.

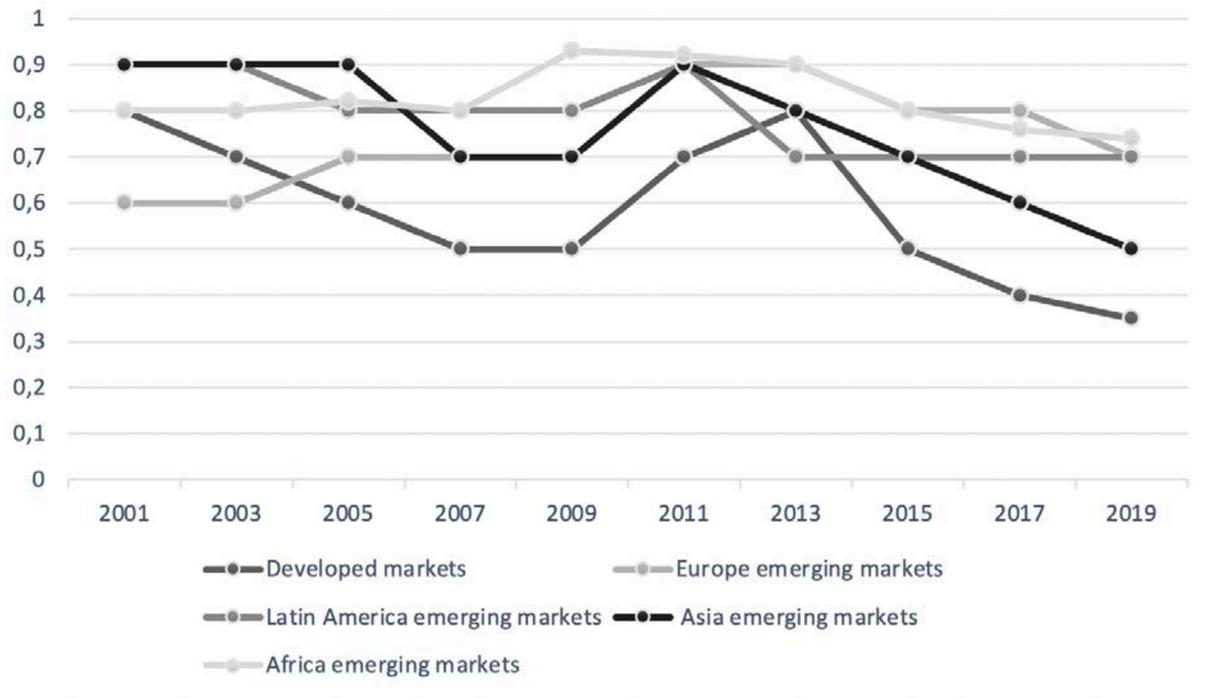

Рис. 1. Home bias for stock and bond markets

Source: authors' calculations based on the [15].

Table 1 provides data on the shares of market's average portfolios in the assets of foreign and local markets. Markets are in descending order from the largest share of local market assets in the portfolio to the smallest. The first two places are occupied by China and Japan, markets with traditionally low levels of international diversification due to a number of institutional and behavioural factors. The United States ranks third, due to the largest number of investment funds in the world, so it makes no sense for investors to invest in foreign funds. Markets that have the status of international financial centres, such as Luxembourg, Switzerland, and Ireland traditionally have a low share of local market assets, as they are the embodiment of the benefits of international portfolio diversification.

Table 1

Shares of portfolios of countries in the assets of foreign and local markets as of 2020

Country	The country's share in world market capitalization, %	Average number of investment funds	Share of portfolio in foreign assets, %	Share of portfolio in local market assets, %
China	4.0	900	2.9	97.1
Japan	7.9	740	3.8	96.2
The USA	48.4	7000	14.3	85.7
France	3.4	1400	37.7	62.3
The United Kingdom	8.1	2300	48.7	51.3
Germany	3.7	4500	65.3	34.7
Canada	2.7	1300	69.8	30.2

The Netherlands	1.4	230	72.6	27.4
Luxembourg	0.3	350	86.9	13.1
Switzerland	2.7	700	89.8	10.2
Ireland	0.29	800	97.5	2.5

Source: authors' calculations based on the [15].

Despite numerous studies, the question of the reasons for the existence of home bias still remains open. Scientists have not been able to reach a consensus on the main factor influencing the decision to place a share of the portfolio in local market instruments. Most researchers of the home bias call the main reason for this deviation transaction and information costs, which are always present in imperfect capital markets and cause a high share of local market assets in the portfolio. Researchers such as A. Ahearne, W. Griever and F. Warnock [16], F. Kai and F. Warnock [17], T. Dvorak [18], C. Daude and M. Fratzscher [19] substantiate the significant role of information costs in forming the home bias.

In contrast to this group of scientists, some researchers disagree with the impact of transaction costs on portfolio composition. In 1995 L. Tesar and I. Werner concluded that significant cross-border capital flows and high rates of return on investment in foreign equity indicate that transaction costs were not the main reason for the high share of local assets in the portfolio [20].

Other researchers consider, in particular, the home bias in terms of behavioural theories. According to the behavioural approach, the reason for this behavioural feature is psychological factors, as investors perceive foreign markets as something unknown, unexplored, uncertain. This perception leads to the fact that the real preconditions for increasing the efficiency of investment portfolios due to their international diversification are ignored, and such investors prefer to invest in local markets. Local markets are psychologically close, safe, understandable, and comfortable for investors. The home bias is more inherent in private rather than institutional investors. The reason for this is the fact that institutional investors have a professional portfolio management staff. They are well acquainted with existing theories and approaches, much less driven by emotions. Private investors are more likely to be influenced by mental factors that are incorporated into their demand for investment strategies (portfolios). In this way, they deter institutional investors from investing abroad. Modern scientists have conducted many theoretical studies and empirical tests of this predisposition [21-23]. Of course, the behaviourist approach takes into account other important reasons, such as institutional barriers, taxes and transaction costs, the need to hedge the risk of purchasing power, real information asymmetry etc.

M. Fidora, M. Fratzscher and C. Thimann in the study conclude that about 20 % of fluctuations in the levels of local assets in the portfolios of different countries exist due to volatility in real exchange rates [24]. With real exchange rate volatility, the share of local assets will be higher for the portfolio of assets with lower volatility in local currency yields. Researchers point out that the share of local assets will be higher for the bond portfolio than for the stock portfolio because bond yields are less volatile than stock yields.

Another group of scientists approaches the study from the standpoint of the International Capital Asset Pricing Model (ICAPM), considering the possible role of risks. I. Cooper and E. Kaplanis in the article note that the hypothesis of the practicability of local investment for hedging against inflation is not confirmed [25]. In turn, N. Coeurdacier and P. Gourinchas confirm that the international bond portfolio hedges the investor from real exchange rate risks, and local stocks are able to diversify non-financial risks to returns [26].

The ECB study indicates that the home bias in euro area countries is much lower than previously thought [27]. The problem is the methodology of measuring the indicator. If the origin of the investment is taken as the country of origin of the investor, and not the place of registration of the investment fund, the rate of home bias is three times lower. This is due to the fact that investors in euro area countries invest most of their capital in funds registered in financial centres, such as Luxembourg and Ireland, which have a higher degree of international portfolio diversification than funds registered in other euro area countries [27]. D. Schoenmaker and T. Bosch point out that the introduction of the euro has reduced the home bias for bond portfolios, as a result of which investors have shifted their investments from domestic markets to euro area markets [28]. The authors argue that the country's membership in the economic integration group plays an important role in investment decisions [28].

In the paper by U. Bose, R. MacDonald and S. Tsoukas, the authors concluded that the level of education plays an important role in reducing the home bias, especially for developing countries compared to developed countries [29]. F. Bransch notes in his work that for the United States, the level of financial education of households also increases the share of local market assets in the portfolio [30]. Moreover, the advice of professional investment advisers does not influence household decisions on international diversification [30]. E. Te Chen in a study on the composition of the investment portfolio of socially responsible investment companies, concluded that in addition to the geographical factor, the home bias of portfolio investors is also influenced by the factor of ethical beliefs [31].

In 2007, P. Serku and R. Vanpee expressed the opinion that neither a purely institutional approach nor a behaviourist approach fully explains the phenomenon of home bias [32]. They found that the level of the home bias largely depends on the method of measurement [32]. In addition, researchers have indicated that there has been a steady, moderate trend of increasing portfolio diversification over the past 20 years [32]. K. Ardalan, studying the influence of various factors on investment decisions, concludes that no factor is unique in its influence on investor behaviour and indicates that the theoretical model, taking into account all empirically confirmed factors of influence will be extremely complex [33]. In Table 2, we tried to systematize the factors described in the main publications on the home bias.

Table 2

Factors influencing home bias

Institutional factors	Complementary services or benefits to local investment instruments; institutional and legal restrictions on foreign investment; restrictions on short sales; non-market sectors of the economy; degree of economic development; degree of development of the educational system; degree of development of capital markets; degree of investor protection; weak foreign trade relations; weak migration flows; other institutional barriers.
Behavioural factors	Investors' expectations regarding future returns on investments; fear of unknown; political and cultural barriers; absence of common language; other behavioural deviations.
Transaction factors	Information costs; real exchange rate risk; purchasing power parity risks; other currency risks; income tax on foreign investment; capital export tax; information asymmetry; other transaction costs.
Other factors	Lack of experience in assessing the benefits of international diversification; political risks; corporate governance practices; the need to hedge debt financial instruments; hedging against the risk of inflation; lack of education in the field of finance; problems of empirical testing.

Source: authors’ own research.

Difference in expectations and asymmetry of information. One of the most probable reasons for the home bias is the investor's behaviour and beliefs. For example, an overly optimistic attitude to the opportunities of the domestic market. Some investors believe that local market assets have higher returns and are better able to hedge against inflation risks. For the opposite reasons, investors have a negative attitude towards foreign markets. B. Florentsen, studying the decisions of portfolio investors, concluded that 14% of the home bias is due to asymmetries of information and the degree of familiarity with the market [34]. The researcher also claims that individual foreign investors who have recently moved to a new country have a lower share of local market assets in the portfolio, but this share increases with the length of stay in the country [34]. In addition, investors may treat foreign markets as riskier due to the lack of information about such markets, which encourages them to invest a significant part of investments in local market assets. Investors are willing to invest in financial assets about which they have enough information and, in general, know more. Any things unknown to the investor are perceived as potentially risky. M. Liao notes that the level of investment concentration and home bias are directly related to the availability of information [35]. So, if investors do not have enough information about a certain foreign market, they simply will not invest in it. Moreover, even if there is no exchange rate risk, investors will still view foreign assets as more risky than local market assets. Therefore, they prefer to construct an investment portfolio with a large share of local market assets. If an investor decides to invest in foreign market instruments, he will choose known MNEs, which preferably have a division in the country of origin, even if such MNEs have a higher level of risk and lower profitability than companies unknown to the investor. L. Ng explored the fact that the management of mutual funds prefers to invest in those companies that have offices in the investor's country, even if such the company is less well known [36]. S. Blank in his study finds confirmation that the shares of multinational companies with a high level of transnationalization provide a higher level of diversification for investors [37]. D. Schumacher in his study on the home bias in stock markets confirms that mutual funds prefer companies that are more represented in the local investor market [38]. Moreover, a study by J. Cornaggia and K. Cornaggia reveals that even information about investment products used by investors can also be distorted by the home bias [39]. Researchers have found that the credit rating of a security paper is influenced by the country of origin of the issuer and the credit analyst [39].

Non-tradable sector of the economy. The non-tradable sector of the economy accounts for about 60 % of total consumption. The presence of this form of consumption forces investors to invest a significant share of the portfolio in the assets of the local market. In this way, the investor hedges the risks associated with the non-tradable sector by investing in the local tradable sector. In other words, the investor sees that it is better to invest in local assets, as there is a negative correlation between the tradable and non-tradable sectors. However, the study of M. Baxter and U. Jermann does not confirm that the non-tradable sector of the economy is the cause of the home bias [40].

Inflation hedging. Another reason for the home bias is that investors thus protect themselves from inflation risks. However, there are no studies that directly confirm the close relationship between stock yields and inflation. To a greater extent, investors are trying to hedge the value of their assets, rather than general inflation. Because securities in local markets correlate with the value of the investor's assets, investors prefer to invest in local assets. However, this hypothesis is not empirically proven [25].

Transaction costs. Another possible explanation for the home bias is the cost of investing abroad. Such costs consist largely of taxes, such as capital gains tax or foreign investment income tax, and other transaction costs. S. McDowell, studying the impact of taxes on the share of local market instruments in the portfolio, concludes that the difference in tax rates explains from 7 % to 11 % of the level of home bias [41]. C. Sialm in his work on hedge fund portfolios shows that due to the home bias of fund of funds to invest in local hedge funds, their financial performance is better

[42]. However, the researcher points out that such behavioural deviation contributes to market segmentation and destabilizes the underlying hedge funds [42].

Control over the flow of capital. Although there has been significant liberalization of cross-border capital flows in recent decades, some countries still restrict foreign investment in equity and capital outflows. Thus, such a policy significantly affects the structure of the investment portfolio. When a state introduces control over the flow of capital, it creates obstacles for local or foreign investors to cross-border flow of capital, so the level of home bias in such countries will be higher.

The degree of development of financial markets. All other things being equal, investors tend to invest in countries with more developed capital markets, which have a higher level of liquidity and lower transaction costs. L. Ng concludes that «reducing the home bias in a given country can help reduce the level of segmentation and cost of capital» [43]. L. Ng notes that despite the policy of liberalization of capital flows in developing countries, the share of local assets in their investment portfolios remains quite high [43]. The author suggests that the competent authorities of developing countries encourage investors to invest in foreign assets and promote the benefits of international diversification among local investors.

Experience of working with a specific market. Another possible explanation for the home bias is that investors are less aware of foreign markets. When an investor does not have enough information, he faces significant information costs that deter him from foreign investment. Investors are more inclined to invest in securities of companies that have in common with the native language and cultural background of the investor, the so-called regional home bias. The geographical proximity of the foreign market also plays a significant role.

Protection of investors' rights. Investors are more inclined to invest in the markets of countries with developed legal systems. As a rule, in countries with developed financial markets there is a developed legal system. Investors take into account the following characteristics, such as type of legal system, rule of law, accounting and auditing standards, degree of protection of minority shareholders' rights, risks of expropriation, efficiency of the judicial system, etc.

Conclusions. The theory of international diversification is one of the most important foundations of international investment management. The benefits of international diversification, such as reducing portfolio risk and increasing its return, are beyond doubt among researchers. However, investors do not take full advantage of international diversification, as theory suggests. The actual composition of most investment portfolios contains a significant share of local market instruments. This contradiction is called home bias. Since the 1970s, researchers in the field of international finance have drawn attention to this deviation. They questioned the model of international diversification, but as a result of a large number of empirical tests found that the main reason for the low level of international diversification was not theoretical omissions, but independent decisions of investors. Although the share of local assets in the investment portfolio remains very high for some countries, scientists note a steady moderate trend towards increasing international portfolio diversification, which was interrupted by the global financial crisis of 2007-2009.

Despite the research, scientists have not been able to definitively answer the question of the reasons for the propensity to invest in local markets. Many different assumptions were substantiated, from transaction costs and real exchange rate risks to low levels of financial education. We tried to systematize the various factors of home bias and concluded that they should be grouped into four categories: (1) institutional factors, (2) behavioural factors, (3) transaction factors, and (4) other factors. We prefer to explain the reasons for the home bias by behavioral factors that are gaining more and more empirical support.

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