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Defining the Market Potential by Assessing Growth and Saturation in the Private Life and Pensions Industry

JEL Classification: *F23, G21, G22*

Keywords: *market growth and saturation, life and pensions products, Törnquist function, strategic decision making*

Abstract: *The aim of the article is define the market potential of the private life and pension industry in the Baltic region. The authors used the Törnquist function to develop the market growth and saturation approach. The research outcome is a cross-country comparison of market growth, saturation and its dynamics to support strategic decisions by financial companies.*

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Introduction

The assessment of market development potential is pivotal in supporting strategic decisions of financial companies regarding expansion of business outside domestic market. It should address a number of questions to be answered while market growth and saturation of a given industry in target country being one of the most important. Fair evaluation of demand growth and saturation in the financial services market provides a ground for consideration of business expansion decisions, as well as insights to choosing the appropriate market entry strategy. Despite the fact that financial services companies offer a wide variety of similar financial products, the demand growth and saturation assessment even of highly standardized ones constitutes a challenging tasks, because of such products being intangible compared to ordinary goods. Meanwhile, the importance of the problem is increasing because of the rising trend for financial services becoming traded more frequently.

Lack of dedicated methodology to measure the growth and saturation of the financial services market provoked the authors to develop a new innovative approach by elaborating methodology previously used to define saturation of markets for goods. The authors believed that the Törnquist income-to-demand function can be extended to assess the market growth dynamics of financial services and thus being appropriate for the purpose of the study. Furthermore, the authors also elaborated on such common insurance indicators as *penetration* and *density* to enable the market saturation assessment. The approach is employed for two groups of mutually close financial products which differ in terms of their providers – either a life insurance company or a private pension fund. The given financial products are commonly referred to as *private life and pensions products*.

As the research object is chosen, private life and pensions industry in the Baltic region countries – Estonia, Latvia, Lithuania, which possess immature markets, Poland, as well as Finland, which can be qualified as rather mature markets.

The research is conventionally divided into three parts, each of which constitutes a certain task to be consistently solved with the purpose of achieving the research objective – performing an assessment of the industry market potential:

- defining theoretical framework for factors affecting strategic decisions on expansions and, in a particular case, demand growth and saturation indicators, which can be used to assess the market potential in a country subject to market entry;

- theoretical reasoning for using the Törnquist function in defining the extent of demand growth, which leads to the saturation of financial services, and further elaboration of the given income-to-demand function for private life and pensions products;
- defining market growth, saturation and dynamics in the private life and pensions products of the given countries and developing cross-country comparison of the market potential based on these findings to support strategic decisions by financial companies.

Methodology of the Research

The methods used in the empirical part of the report are econometric analysis, including the analysis of regression, as well as economic analysis, including the main trend analysis, development indicators, relative and absolute indicators, and other methods.

Expansion of Financial Companies and Factors Affecting Such Strategic Decisions

Extensive argumentation in favour of financial companies to expand their operations overseas is presented in the literature on the subject. Javidan and House (2002) argued that the problem of expansion by financial companies overseas evolved along with the increasing saturation in domestic markets. Corporations started to face increasingly the global business environment also because of lucrative growth opportunities in foreign markets. The vast majority of such opportunities emerged in fast growing economies. For example, Mollet (2004) concluded that China becoming a member of the World Trade Organization in 2001 triggered a series of expansion activities by financial companies. According to the research by the Financial Express (2010), India is considered to be another main overseas spot for foreign financial companies. Banks including Credit Suisse, Goldman Sachs, Morgan Stanley, ICBC and National Bank of Australia lined up to entry the Indian financial services market. Banincova (2012) came to the conclusion that since late 1990 and between 2000-2005, Central and Eastern Europe countries, including three Baltic States, also recorded increased inflows of foreign direct investments in the financial sector. The main underlying reasons were considered to be expected profitability and traditionally strong trade relations. According to the research by the European Central Bank (2005), many of these banks considered this strategically important region

to be their first step towards expansion to such countries of Eastern Europe like Ukraine and Russia. The recent study by the European Investment Bank (2013) reveals that foreign banks operating in the Eastern Europe and Turkey expect a rise of credit demand, continued tight international supply conditions and somewhat easier domestic supply conditions. Ferguson (2008) summarized the above-mentioned findings and concluded that the financial services industry is the one having a long history, being already mature and thus facing a need for continuous expansion to grow.

Many researchers agree that the decision of internationalization and entering a new “foreign” market is perhaps the most important in the internationalisation of the firm (Reid, Rosson 1987; Douglas, Craig 1992, Ellis 2000). Koch (2001) presented a model of the new market selection and market entry mode decision, commenting that “comprehensive in-depth studies of the market/market entry mode selection processes have been rare”. It has been argued that the decision as to which market to enter comes before the choice of market entry method (Ball, McCulloch 1993; Connolly 1987; Cundiff, Hilger 1984; Root 1994). While these two decisions are closely related and are aspects of the same decisions, they are nevertheless separate decisions (Papadopoulos, Jansen 1994). Root (1994) has suggested that “preliminary screening should identify prospective target countries without regard to entry mode”. Russow and Okoroafo (1996) suggest that screening is the preliminary stage before in depth analysis as to whether or not to enter a specific country is undertaken.

Authors agree with the above mentioned opinions and believe that strategic actions in relation to the entry to new markets of financial services should be accompanied by the detailed assessment of indicators capturing the market potential.

Using market growth as a proxy for market attractiveness, Brouthers (2002) argues that market growth appears to be an important determinant of how resources can be committed in a country. Luo (2001, p. 452) suggests “industrial sales growth conditions in host market affect expected net returns and firm growth during international expansion. This, in turn, affects resource commitments, strategic orientations and entry mode decisions”. The authors consider that clarification regarding what is understood by “market growth” is needed. Market growth could be understood on the country level, represented as a growth of the national economy, as well as on the industry level. Industry is formed by the group of companies offering to the market products satisfying similar needs of customers (reference). Within national economy, there are industries which are on rapid growth stage, and others which are declining in spite of the market growth in general. The need to base targeting decisions on consumer – product

– based rather than national market characteristics had been recognized and stressed long time before newer interest in the cross- national approaches at the core of international market segmentation (e.g. Cavusgil 1985; Papadopolous 1987).

The notion of market potential as the most important stimulus of market entry receives strong support from researchers Nordstrom (1991), Yoshida (1987), Terpstra and Yu (1988), Morschett et al., (2010). Russow and Okoroafo (1996) also found market potential (size and growth) to be an important determinant of market entry. Literature review conducted by the authors revealed that there are a number of different market potential factors influencing strategic decisions regarding business expansion outside national markets. For instance, the review of Whitelock and Jobber (2004) highlighted five external factors that had high potential in explaining the decision to enter a new, non- domestic market for the first time: (1) the country environment; (2) psychic (or geographical) distance; (3) market based factors; (4) competition and (5) information and market knowledge.

Financial services market potential can be defined in various ways. Enz (2000) used a common approach to define the market potential for insurance products by linking insurance premiums to the gross domestic product (GDP) by assuming certain function of income elasticity of demand, which was proved to have the S-shaped curve. That provides a model for insurance penetration depending on a GDP per capita. In the more extensive research of 63 countries of the world, Beck and Webb (2002) found that life insurance penetration and density increase with the income level, while the demand elasticity is not being constant. Afterwards, Sinha (2005) on the example of India, China, Brazil, Argentina, Turkey, Mexico, South Korea and Taiwan proved that the relation between growth in income and demand for insurance is S-shaped. Liao et. al. (2009) argues that competitive advantage and thus a consequent expansion in the insurance market can be also obtained by designing products to meet opportunities derived from advanced understanding of customer demand. Kjosevski (2010), along with other researchers, attempted to measure the demand for life insurance by using common insurance metrics, like penetration and density, for the sample of 14 countries in Central and South- Eastern Europe. The research results, obtained from analyzing data for the time period from 1998 to 2010, show that higher GDP per capita, inflation, health expenditure, the level of education and the rule of law are the most robust predictors of the use of life insurance. For instance, the results suggest that a 1% increase in GDP per capita is associated with an increase of about 0,0168 percentage points in life insurance penetration. Similarly, one US dollar increase in income level of a person pushes life insurance density up by 11.56 US dol-

lar. Even though it should be noted that, according to its stated research methodology, the paper measures the life insurance density by using the GDP per capita rather than the personal income level. J. K Josevski came to the conclusion, that given Central and Southern and Eastern European countries constitute a highly potential region with dynamic and fast-growing insurance markets. However, common metrics, like insurance penetration and density, and thus researches mentioned above tend to provide findings which contribute to rather social and demographic economics studies. The strategic decision perspective of market growth and saturation as a proxy to the market potential may need different key indicators as input variables and therefore a new framework is to be developed.

Since there is no commonly accepted methodology of how to measure financial services market potential for strategic planning purposes, the authors decided to use the Törnquist function. The Törnquist approach provides the hyperbolic shape function for studying demand for various goods in relation to their price and importance in the consumption basket (Törnquist 1941). A number of researchers have used the Törnquist approach to conduct mathematical forecasting of market demand (Nicolae et al. 2010; Kubicova, Lušňakova 2010). Other researchers (Tinbergen 1951; Aitchison, Brown 1955; Stiglitz 1969; Blanciforti et al. 1981; Lypyavka, 2002) studied the Törnquist function or referred to it when performed a deep assessment of special demand-to-income functions. However, the approach so far has been used for goods only leaving the space to elaborate it to services as well (Kubicova, Lušňakova 2010; Saegusa 1960; Niitamo, 1968).

Theoretical Framework of the Research

Defining the form of each product group's functional dependence on the average income level provides valuable insights into consumers' perception of various types of goods and allows more precise modelling of consumer behaviour in solving the problems of determining market saturation (Fisk 1958). So far, this approach has been focused mainly on the commodity (or goods) market (Kubicova, Lušňakova 2010; Saegusa 1960; Niitamo 1968), dividing it into 3 main groups described by the following functions (1):

<i>Törnquist I</i>	<i>Törnquist II</i>	<i>Törnquist III</i>
<i>Function</i>	<i>Function</i>	<i>Function</i>
for strictly neces- sary goods	for everyday consumer goods	for luxury goods
$C_1 = \frac{m_1 V}{V + n_1}$	$C_2 = \frac{m_2 (V - p_2)}{V + n_2}$	$C_3 = \frac{m_3 (V - p_3)}{V + n_3}$

(1)

C – demand for the product (or product group) considered;
 V – income;
 m, n, p – econometric parameters.

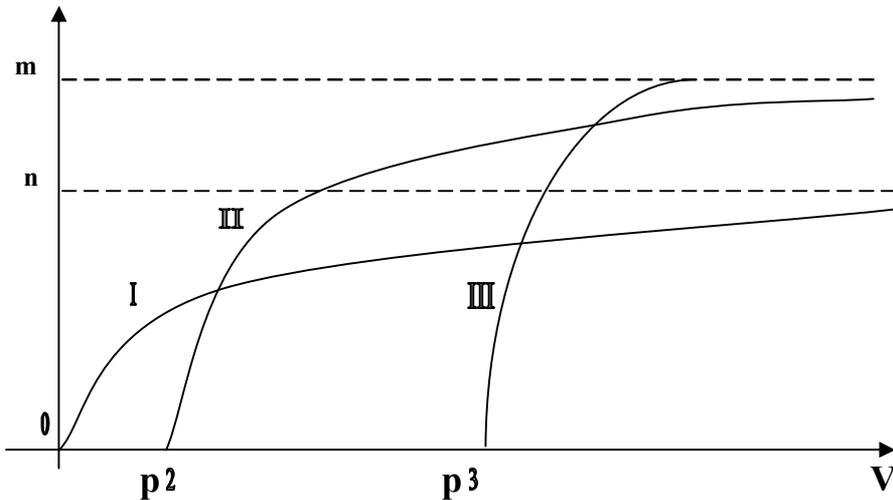
In the present research, the authors examine the possibility of using the concept of Törnquist for the purpose of determining the growth, which leads to saturation in the financial services market. This assumption is based on the aim of financial services- directly or indirectly contribute to satisfy certain customer needs (eg., for food, clothing, housing, jobs, business, security, passion for enrichment, etc.). The goods can be split into three main groups in terms of their necessity to customers, as demonstrated above, implying that financial services can also be subject to grouping in terms of necessity to customers in the context of the Törnquist functions. The authors believe that four groups of financial products can be distinguished from the perspective of their necessity to customers:

- incoming and outgoing cash transfers;
- capital accumulation and/or borrowing;
- capital preservation;
- capital growth.

Every group of financial products consists of a whole range of products, which may vary from generic to quite customised ones. For example, the third group can be represented by simple saving products, while the term deposit is one of the most typical, as it assumes interest income, i.e., partial or full preservation of capital. The division of financial products into different categories is needed, since the demand for certain financial services is driven by both the current financial situation and future expectations of customers. The prime necessity package of products includes ones, which provide incoming and outgoing cash transfers: current bank account and remote access to it (internet /phone banking), payment cards and others. These are basic financial products Along with the increase in customer's income, the growth of demand for such services gradually slows down,

approaching its long-term maximum value n (as stated in the Fig. 1). Graph of the Törnquist function reflecting the demand for these services is likely to be a concave curve I (see Fig. 1).

Figure 1. Törnquist function demand schedule, analyzed in the context of the needs in financial services



Source: Compiled by the authors based on American-Math '10 (Nicolae et al., pp. 631-632).

The saturation of these services is generally high (up to n), and depends on customers' preferences to use cash for settlements instead of wire transfers, which can be caused by insufficient access to general banking services.

On revenue $p2$ there appear customer's demand for safety of capital (safe storage, simple saving products and other similar products – a maximum of m), and by the large incomes starting with $p3$ – demand for capital growth (private pensions, investment funds, securities brokerage, trust arrangements and other investment services)¹. The demand for these services will be represented by the concave curve II and the convex curve III, respectively (see Fig. 1). In contrast to the luxury goods, for which

¹ Investment services may be requested by the client before deposit services. The reason for placing investment services in the third group of customer needs is justified with a bigger initial capital needed for investment products compared to initial capital for deposits and thus higher income level of a customer is assumed.

L. Törnquist shows a demand as a convex curve III, the demand for capital growth products is likely to depend on investment return expectations. In case of positive return expectations, the curve will have a similar shape as the one for the luxury good demand. Conversely, the curve is expected to demonstrate a steep drop in case of negative investment return expectations. Demand for capital borrowing products is largely driven by customers' expectations of their future financial situation, which also take into account their perception of global economic developments. If current income is not enough to satisfy the needs, but the future outlook is positive, then a customer uses borrowed capital, should such a possibility arise. This group of products provides access to funding, while sources ranging from credit cards and overdraft to mortgage loans.

Thus, the current financial situation and future expectations of customers affect demand for financial products, and thus contribute to the market saturation of certain financial products. For example, in case of growing income and positive expectations, the demand for capital preservation and growth products will be unsaturated as long as customer incomes start to fall and a gloomy outlook for the future arises.

The above-described theoretical justification of using Törnquist functions in the analysis of demand growth, leading to the saturation for financial products, has prompted the continuation of the study for a specific group of financial products. Private life and pension products were selected from the group of capital preservation and growth products, because of growing customers' needs for medium term and retirement savings worldwide. Typically, there are different providers of these products – life insurance companies and pension fund companies, while product features and goals being vastly similar.

In the case of goods or commodity markets, the Törnquist function relates an average income to a number of units sold. However, it is not obvious what can be considered to be the best proxy for a unit of product for the market of the studied financial products. Therefore, the authors propose certain *market growth parameters leading to the saturation* to be analyzed in the context of the average income of population as a replacement of a *product unit* of the Törnquist function for the purpose of the current research.

The market growth and saturation approach is developed to establish a model for assessment of the market potential for certain financial product or service, which can be used as one of considerations in well-grounded strategic decision making by financial companies. Firstly, it is necessary to reveal whether there is a pattern of relationship between average salary in a specific country and aggregate volume of a specific life and pension

product consumed. Secondly, the total market growth has to be split into speed of market growth and strength of market growth.

- *Speed of market growth* is defined as an increase in a number of customers of private pension funds or ones with life insurance in the given market over a chosen time period provided a given increase in the average salary.
- *Strength of market growth* is defined as an average contribution to private pension funds or life insurance premia in the given market over chosen time period provided the speed of market growth. Conventionally, increasing average contribution or life premium along with the market growth speed would mean high market growth strength, while decreasing average indicator will demonstrate low market growth strength. One can argue that the strength of market growth can be seen as a derivative of the insurance density, which is normally defined as an average insurance premium per capita.

The third step of the approach is supposed to define saturation indicators, which signal the pace of market saturation and can be used to support long-term strategic decisions. Similarly to the previously mentioned indicators, these ones are also customer and premium or contribution assessment oriented:

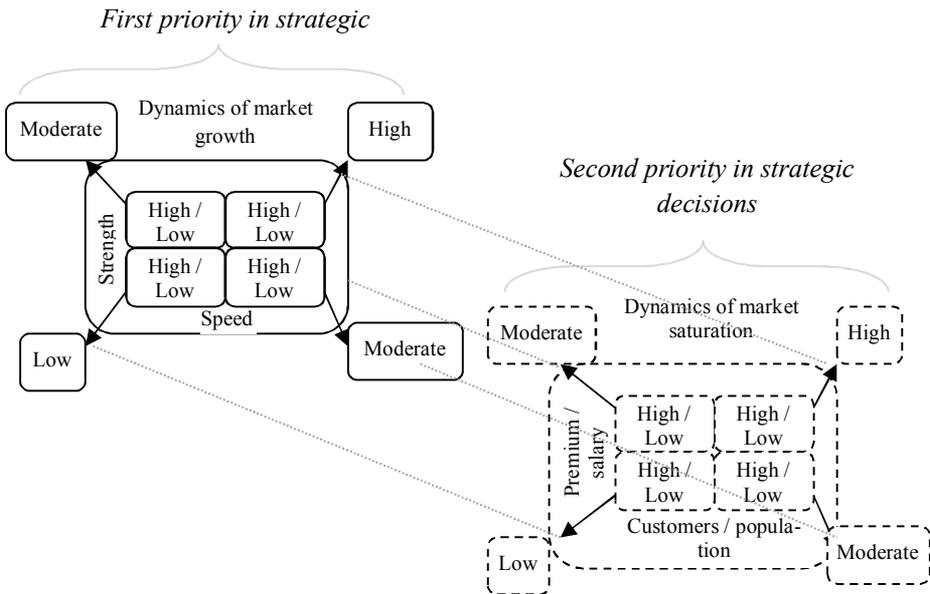
- *Premium-to-salary market saturation* is defined as the weight of a contribution or premium in an average salary of a country. One can argue that the premium-to-salary market saturation can be seen as a derivative of the insurance penetration, which is normally defined as percentage of total insurance premia in the gross domestic product.
- *Customers-to-population market saturation* is defined as a weight of a number of life or pension customers in the active population of a given country.

The dynamics of these indicators are subject to analysis in terms of their nature of change during the given period of time.

Mature markets, which do not exhibit the growth patterns which can be identified by the steps explained above, may require a further split into single products, which, most likely, will be in different stages of their life cycle, and should be separately analyzed from the product growth and saturation perspective. In this case, this will constitute a foundation to enter the specific niche of the market with certain product only.

The market growth and saturation approach is visualized in the Fig. 2. The table can serve as a comprehensive tool for relative comparisons of different alternative markets and thus support strategic decisions regarding new market entries or expansion on current markets.

Figure 2. The concept model for assessment of market growth and saturation dynamics for the given financial products



Source: Compiled by the authors.

In accordance with the Figure 2, market growth dynamics are assigned the primary role in the strategic decision making about market entry or expansion since indicators of such dynamics signal about absolute market developments. Market saturation dynamics can serve as a supplementary tool, pointing to the relative evolution of the product. Result interpretation is shown in Table 1.

Table 1. Dynamics of market growth and saturation: result interpretation

Indicators	Dynamics of market growth		Indicators	Dynamics of market saturation	
Speed↑ Strength↑	high	Favourable environment for entering or expansion in the market	Premium/salary↑ Customers/population↑	high	Product is in the growth stage, which lays out favourable foundation for the market share expansion.
Speed↑ Strength↓ or Speed↓ Strength↑	moderate	The strategic decision making will require a more detailed analysis of each of the parameters. The <i>speed</i> is of higher importance in taking decision regarding the market expansion compared to the <i>strength</i> . The rationale for this implication comprises a number of reasons while the pivotal one is that customer acquisition costs are generally lower in the growing market in terms of customers in contrast to a mature market where the growth can be rather achieved at the account of increasing customer contributions.	Premium/salary↑ Customers/population↓ or Premium/salary↓ Customers/population↑	moderate	Products growth stage is over. However, in order to find out reasons, a deep analysis of parameters has to be performed. For instance, a decrease of the relative weigh of premium or contribution in an average salary, along with the growth in a number of customers can signal about relative unsaturation of the market due to the fact that there are still some unreached niches of potential customers. Vice versa, a growing proportion of premium or contribution in an average salary, along with the decreasing number of customers, can signal the impact of a crisis on the product, for example. Moderate saturation dynamics would mean that the key role in strategic decision making should be given to market growth dynamics.
Speed↓ Strength↓	low	Not favourable environment for entering or expansion in the market.	Premium/salary↓ Customers/population↓	low	Taking strategic decisions to enter or expand in such a market environment requires specially thorough assessment of relevant additional factors impacting the given environment (inc. legislation, competition, tax regime, cultural perception etc.).

Source: Compiled by the authors.

Further practical research is intended to confirm the applicability of the above-described analytical approach for determining the market saturation of the two previously mentioned financial products.

Analysis and Result Discussion

Several Baltic region countries have been chosen for the research - Finland, Estonia, Latvia, Lithuania and Poland. Estonia, Latvia and Lithuania, being

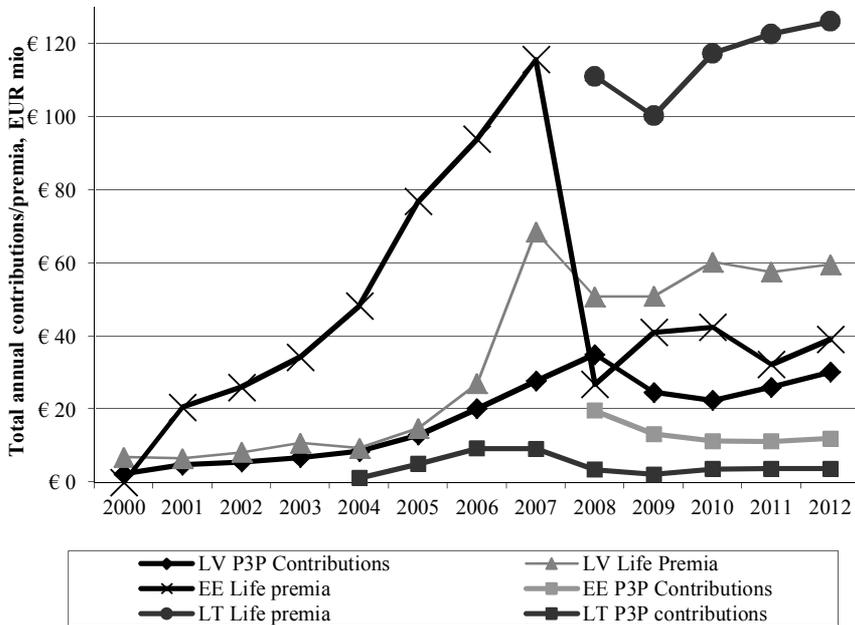
politically, economically and financially closely linked to each other, experienced a very rapid growth in 2000-2007, which was followed by a sharp contraction period afterwards and return to growth in the recent years. Meanwhile, Poland was the only EU country, which managed to avoid a technical recession during the recent financial crisis. Finland, being the final Baltic region country studied in this research, experienced a major fall in its national output and unemployment increase during the crisis of 2007-2009. According to Insurance Europe (2013), the Baltic countries possess one of the lowest insurance densities in Europe while Poland, still lagging behind the developed countries, enjoys one the highest life insurance densities in Eastern Europe. Finland is considered to be both the developed country and possess a very high insurance density. Detailed information on research periods and products in the selected countries is provided in the Table 2.

Table 2. Countries, products and time periods of the research

Country	Research period	
	Pension 3 rd Pillar	Life Insurance
Finland	Product n.a.	2000-2012
Estonia	2003-2012	2001-2012
Latvia	2000-2012	2000-2012
Lithuania	2004-2012	2008-2012
Poland	Data n.a.*	2003-2012

Source: Compiled by the authors.

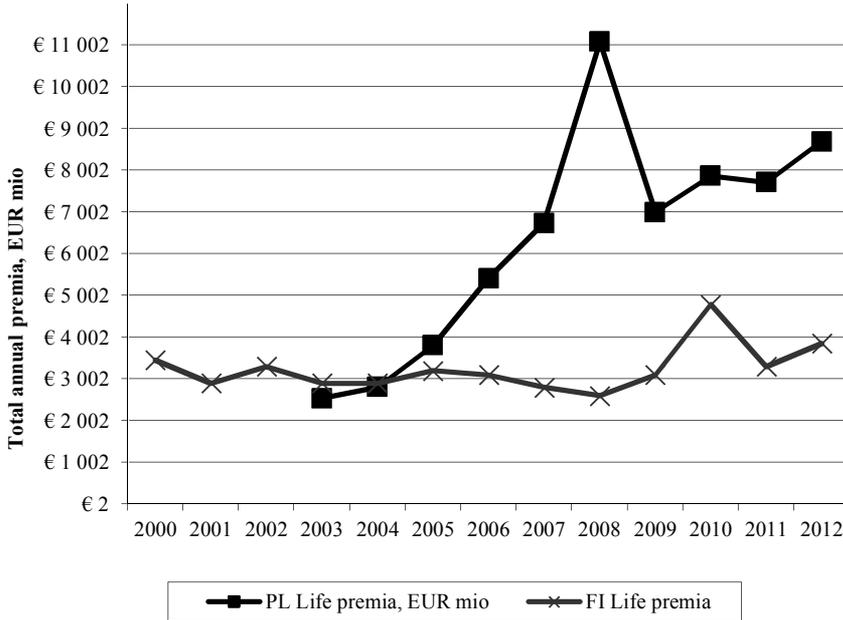
The main limitation of the report is a lack of certain statistical data valid for the research and national specifics of product offerings in the given countries. Specifically, it was not possible to obtain total numbers of life insurance customers in Finland and Latvia. Also, it was not possible for Poland to separate life products with pure risk for the analysis purposes because life products with pure risks are not directly comparable to savings-driven private life and pensions products. Additionally, separation of capital redemption products would also add value to the report because customers-to-population proportion takes into account only active population while capital redemption products are vastly used by retirees.

Figure 3. Private Life & Pensions Market in Baltic Countries: Estonia, Latvia, Lithuania

Source: Own calculations based on FCMC, Latvian Insurers Association, Bank of Lithuania, Financial Supervision Authority, SEB Wealth Management, Swedbank Investeerimisfondid AS, UAB DNB Asset Management, Finasta Asset Management.

The private life and pensions market of the Baltic countries, as expressed in annual gross written life premia and pension contributions, is shown on the Figure 3. Poland stands out with the biggest market in absolute terms with annual life volume exceeding eight billion euro. Finland occupies the second position with life premia nearly reaching four billion euro. Therefore private life and pensions products of these countries are shown in the Figure 4. Out of Baltic countries, Lithuania enjoys the biggest market with its annual life contributions exceeding 120 million euro. Estonian life market demonstrated outstanding performance in 2007, when its annual life premia reached 116 million euro. However, in contrast to the Lithuanian life market, these results have not been sustained. Latvia, in turn, can be proud of having the most harmonized market in terms of the least difference between annual life premia and pension contributions, while its total market of private life and pensions products still lagging behind Lithuania but being ahead of Estonia.

Figure 4. Private Life & Pensions Market in Finland and Poland



Source: Own calculations based on Federation of Finnish Financial Services, Polish Insurance Association.

Empirical evidence for demand of private life and pensions products and average salary

The Törnquist approach suggests revealing the relationship between the income and the total demand for the product. Empirical findings suggest that for Latvia and Poland there was a linear relationship found between the average salary in the country and the total amount of pension 3rd pillar contributions and life insurance premia, which are summarized in the Table 3.

The findings clearly illustrate that demand for life insurance in Latvia is more than twice salary-sensitive than the pension 3rd pillar. An incremental change of one euro in the average salary will cause the whole market to change by 55 thousand euro in case of pension 3rd pillar and 121 thousand euro in case of life insurance. In Poland, which is a much bigger and mature market, an incremental change of one euro in the average salary will cause a total change in the whole market of 19.5 million euro. Thus, it is possible to work out forecasts for developments in the Latvian and Polish markets of life and pension products provided that salary estimates are

available. Such forecasts can be used in the first stage of assessing the market growth potential in order to make a strategic decision about the entry to the market.

Table 3. Statistical findings for linear relationship between income and total demand for private life and pensions products (millions of euro)

Product	Parameter	Latvia	Poland
Life Insurance	Intercept	-22.046879	- 7 212.1
	Slope	0.12125	19.475
	Adj. R-squared	0.89	0.89
Private Pension Funds	Intercept	-7.587539	Data n.a.
	Slope	0.054954	
	Adj. R-squared	0.92	

Source: Compiled by the authors.

Speed and strength of market growth for private life and pensions products

Despite country specific differences, for all three Baltic countries there is a strong correlation found between a number of people involved in private life and pension savings and the average salary, which lays out a sound foundation for measuring the speed of market growth for different products in different countries. The findings are summarized in the Table 4.

Table 4. Statistical findings for relationship between income and a number of customers of private life and pensions products

Product	Parameter	Latvia	Lithuania	Estonia
Life Insurance	Intercept	Data n.a.*	Data n.a.*	769
	Slope			335.24
	Adj. R-squared			0.83
Private Pension Funds	Intercept	-32 738	-12 011	-50 577
	Slope	221.65	57.33	127.28
	Adj. R-squared	0.94	0.78	0.98

Source: Compiled by the authors. *Data are not available for at least eight years to run an OLS regression analysis.

The findings suggest that a one euro increase in an average salary will add 222 new active customers to pension 3rd pillar funds in Latvia. If compared to Estonia, one euro salary change will cause a 75% bigger impact on a number of pension 3rd pillar fund participants in Latvia than in Estonia. However, when compared to the number of life insurance customers depending on salary in Estonia, it is obvious that a total number of life customers is around 2,6 times more salary sensitive than a number of pension 3rd pillar participants in Estonia, and around 50% more salary sensitive than a number of active pension 3rd pillar fund participants in Latvia. In Lithuania, there is a very minor pension 3rd pillar demand sensitivity as measured to salary, because one additional euro creates only 54 new pension 3rd pillar customers. Life market in Poland did not demonstrate a similar relationship between the income and the number of customers. Moreover, the number of life customers in Poland in the given time period from 2003 till 2012 exhibits only volatility (i.e. the maximum drop from the period average is 13%, while the maximum increase is 8%) and does not demonstrate growth trends. Thus, the market is assumed to have non-existent growth in the context of the given model.

Finland can be seen as a special case because the total number of life customers is not available. However, it is possible to analyze the market growth dynamics of a single product- pension insurance. Statistical findings on the Finnish pension insurance are summarized in the Table 5.

Table 5. Statistical findings for a relationship between income and a number of customers of pension insurance in Finland

Product	Parameter	Value
Pension Insurance	Intercept	-522 042
	Slope	434.51
	Adj. R-squared	0.95

Source: Compiled by the authors.

However, to define the strength of market growth, it is necessary to analyze the development of an average life premium or pension fund contribution, both in absolute terms, providing the increase in the number of customers. The average contribution or premium for all studied products reveals neither increasing nor decreasing pattern, except for life products in Poland and pension insurance in Finland. Particularly, there is a strong positive relationship revealed between an average life or pension contribution and the average salary (adjusted R-squared is 0.91) in Poland for the

time period from 2003 till 2012, while the number of customers stayed nearly flat. Meanwhile, in the case of the fast-growing Finnish pension insurance, there is a strong negative correlation between the number of customers and the average premium (adjusted R-squared is 0,97), where an increase of one thousand customers causes a drop in an average contribution of 2.16 euro.

Customers-to-population and premium-to-income ratios as market saturation indicators

A proportion of private life and pensions customers to the active population in each country indicates the market saturation from customers perspective, as summarized in the Table 6.

Table 6. Proportion of private life and pensions customers to the active population in a country

Year	LV P3P	EE Life	EE P3P	LT Life	LT P3P	PL Life	FI Pens. Insurance
2008	0,10	0,33	0,07	0,22	0,01	0,54	0,28
2009	0,10	0,46	0,08	0,19	0,01	0,48	0,29
2010	0,08	0,45	0,08	0,20	0,01	0,52	0,30
2011	0,09	0,49	0,09	0,24	0,01	0,50	0,30
2012	0,10	0,48	0,08	0,24	0,02	0,47	0,31

Source: Own calculations based on World Databank and sources, mentioned under Fig.3and Fig.4.

The indicator is increasing for life and pensions products in Lithuania and pension insurance in Finland, while staying volatile for other countries. To sum up the analysis of the market saturation from the customers perspective, life insurance in Estonia is found to possess the highest market saturation in the Baltic countries, being followed by Poland. Even though, the life market of Poland in terms of a number of customers is considered to be already mature where absolute speed of saturation is nearly zero or can be even negative. Pension 3rd pillar funds in Lithuania have obtained the lowest score.

Regarding the premium-to-income market saturation measured as a proportion of annual life premium or pension contribution in the average salary, nearly for all products there are no clear growth or dilution patterns for the time period of 2008 to 2012, except for Finland and pension funds in

Estonia, where such a proportion is steadily coming down. The findings are summarized in the Table 7.

Table 7. Proportion of an average private life and pensions contribution to the average monthly salary in a country

Year	LV P3P	EE Life	EE P3P	LT Life	LT P3P	PL Life	FI Pens. Insurance
2008	0,50	0,14	0,45	0,44	0,283	1,26	0,36
2009	0,35	0,16	0,31	0,49	0,185	0,84	0,33
2010	0,36	0,17	0,27	0,55	0,295	0,83	0,29
2011	0,38	0,13	0,27	0,52	0,263	0,79	0,26
2012	0,39	0,15	0,27	0,51	0,232	0,91	0,23

Source: own calculations based on World Databank and sources, mentioned under Fig.3 and Fig.4.

The above-described market growth and saturation findings are included in the model for the assessment of market growth and saturation dynamics for private life and pensions products in the Baltic region countries for the past time period from 2010 to 2012, and as a forecast of the market growth and saturation for the future time period from 2013 till 2015 are provided in Figure 4. The market growth and saturation model for the period from 2010 till 2012 reveals that the life market of Poland was the most saturated (or mature) and less dynamic in all considered dimensions. Particularly, it did not experience a net customer increase, it had the highest average premium in absolute terms, and the Polish customers were investing the biggest share of their wallet into life insurance, while the proportion of customers having life insurance to the whole active population was marginally lagging behind the Estonian life numbers. As a matter of fact, all other markets except Lithuanian life and Finnish pension insurance, dropped in terms of a net increase of customers. To summarize the findings of the model for the time period from 2010 till 2012, this was a difficult time in terms of a number of customers for a majority of products. It explains quite well why the total volumes on the Figure 3 stayed nearly flat for this time period, indicating a strategic challenge to take a decision to enter or expand in the markets in the given time periods.

The same model was constructed for the time period of the year 2013 till 2015. The core salary assumptions are an annual increase of 3% for Estonia, Latvia and Lithuania and 1% increase for Finland and Poland. Assumptions are made rather for the purpose of the model illustration and do not necessarily precisely reflect economic fundamentals. The speed of

market growth in terms of a net customer increase was estimated by using the ordinary least square regressions when possible, and assuming average trend indicators when the liner regression did not provide strong explanatory power (adjusted R-squared at least 0.78). The customers-to-population market saturation, stated as a proportion of customers with private life and pensions products to active population of country was estimated by assuming average indicators. The strength of market growth, measured as an average contribution or premium, was estimated by assuming average indicators except Poland and Finland, where linear regressions hold. The premium-to-income market saturation measures as a proportion of an average premium or contribution to an average salary was estimated by assuming average indicators except Finland where a linear regression holds. The findings are visualized in the model for the time period of 2013-2015 of the Figure 4.

Figure 4. Growth and saturation dynamics of the private life and pensions market of Estonia, Latvia, Lithuania, Poland and Finland (2010-2012; 2013-2015)

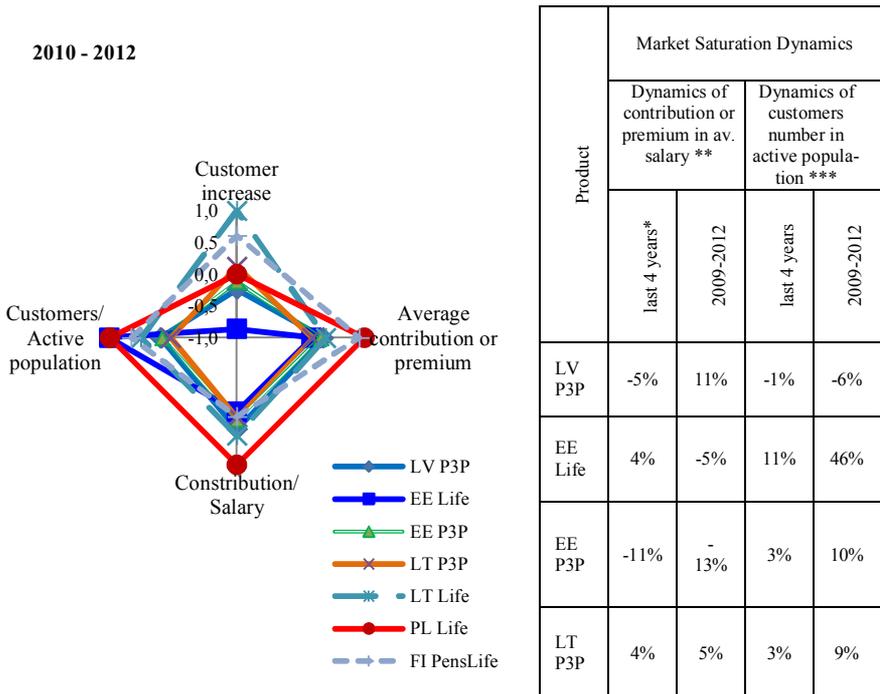
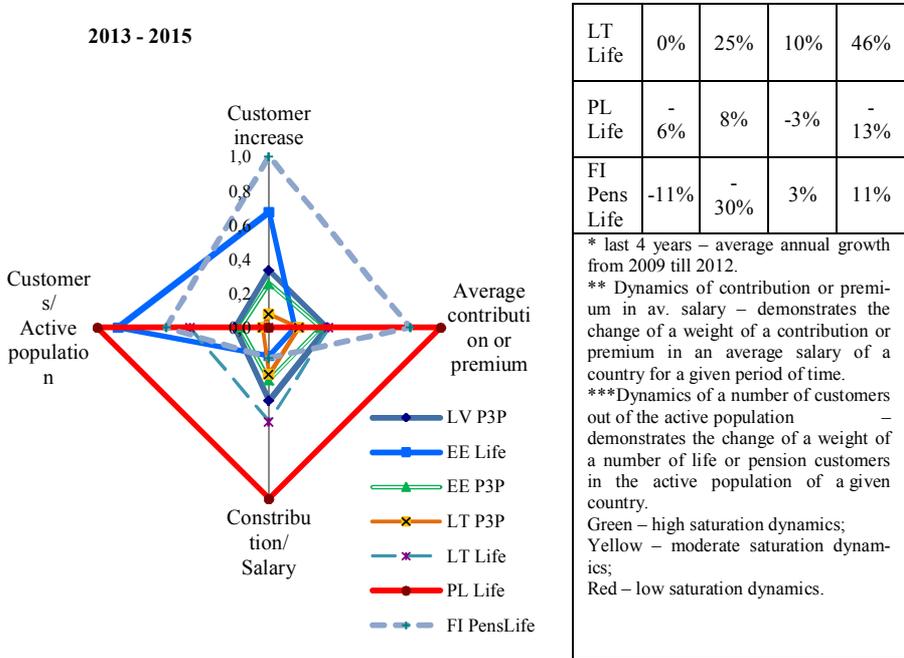


Figure 4 continued



Source: Compiled by the authors. Additional explanations: radar type diagram for the time period 2010-2012, which demonstrates the current state of market indicators of private life and pensions products while the diagram for 2013-2015 reveals the market saturation forecast based on the model.

The model suggests that the life market potential in Poland will be the most difficult to capture in terms of a number of new customers, which is estimated to be non-existent. The market itself is considered to be quite saturated (i.e. customers-to-active population proportion is 0.5) and its growth potential might come from an increase in an average premium, which is both at the highest relative (i.e. 0.91 out of average monthly salary) and absolute level though (euro 867 per annum). On the opposite side, the Finnish pension insurance market is expected to show the highest increase in the net number of customers (i.e. 42 th), followed by the Estonian life market (i.e. 28,5 th). The model also says that the Estonian life market has a potential for additional growth in both the average contribution in absolute terms (i.e. euro 130 per annum) and also as a proportion of an average monthly salary (i.e. 0.15). However, its further increase in terms of

a number of new customers can be limited, because it is already approaching the saturation level of Poland (i.e. 0.44 for EE Life vs. 0.50 for PL Life). The Latvian private pension funds in terms of the market potential should be marginally preferred to the Estonian pension funds, while Lithuanian pension 3rd pillar funds are estimated to demonstrate the least market growth (i.e. 3.2 th of new customers and no major changes in other indicators) in 2013-2015, which can be a good option for a very long-term strategic investment.

Conclusions

The market growth and saturation indicators, as well as their dynamics, have to be thoroughly assessed in strategic decision making by companies, including financial ones but not limited to, in relation to market entry and expansion issues. The current practice most often suggests using insurance penetration and density indicators to compare the level of saturation in different insurance markets, which can be further explained by a regression built up from a number of relevant economic variables. The drawback of such indicators and their constituting variables is social-economic anchoring and thus relatively weak contribution to the strategic business decision area. The authors propose to eliminate this drawback by adaptation of the income-to-demand functions of Törnquist to address the problems of the financial services market. Similarly to the market of ordinary goods, financial services can be also split into different groups in terms of customer need satisfaction ranging from the prime necessity products till the luxury ones. Specifically, these groups are (1) incoming and outgoing cash transfers; (2) capital accumulation and/or borrowing; (3) capital preservation; (4) capital growth. However, in contrast to the product unit, which is used in the case of a market for ordinary goods in relation to income according to the Törnquist function, the authors propose to use an average pension contribution or life premium as an indicator of strength, which can be seen as a derivative of the insurance density, and a customer increase as an indicator for speed of growth in the private life and pensions market. Market saturation is defined by the premium-to-salary proportion, which can be seen as a derivative of the insurance penetration, and by the customers-to-population proportion. The dynamics of these indicators are subject to analysis in terms of their nature of change during the given period of time. Market growth dynamics are assigned the primary role in the strategic decision making about market entry or expansion since indicators of such dynamics signal about absolute market developments. Market saturation dy-

namics can serve as a supplementary tool, pointing to the relative evolution of the product.

The approach is implemented in the private life and pensions market of the Baltic region countries – Estonia, Latvia, Lithuania, Poland and Finland. According to the results of the analysis, in the period of 2013 to 2015 the life market potential in Poland will be the most difficult to capture because a number of new customers is estimated to be non-existent. The market itself is considered to be quite saturated (i.e. customers-to-active population proportion is 0.5) and its growth potential might come from an increase in an average premium, which is both at the highest relative (i.e. 0.91 out of average monthly salary) and absolute level though (euro 867 per annum). On the opposite side, the Finnish pension insurance market is expected to show the highest increase in the net number of customers (i.e. 42 th), followed by the Estonian life market. The model also says that the Estonian life market has a potential for additional growth in both the average contribution in absolute terms (i.e. euro 130 per annum) and also as a proportion of an average monthly salary (i.e. 0.15). However, its further increase in terms of a number of new customers can be limited because it is already approaching saturation level of Poland (i.e. 0.44 for EE Life vs. 0.50 for PL Life). The Latvian private pension funds in terms of the market potential should be marginally preferred to the Estonian pension funds, while the Lithuanian pension 3rd pillar funds are estimated to demonstrate the least market growth (i.e. 3.2 th of new customers and no major changes in other indicators) in 2013-2015, which can be a good option for a very long-term strategic investment.

The proposals for further research include enhancement of the market growth and saturation approach by explaining its key indicators by more sophisticated econometric models and elaborating further the analysis of the dynamics of market growth and saturation indicators. Additionally, the market growth and saturation approach can be used also for defining the market potential for other financial products, for instance, non-life insurance.

References

- Aitchison J., Brown J.A.C. (1954), *A Synthesis of Engel Curve Theory*. “The Review of Economic Studies”, Vol. 22, No. 1, [DOI:10.1093/restud/rdt017](https://doi.org/10.1093/restud/rdt017).
- Ball D.A., McCulloch W.H. Jr. (1993), *International Business Introduction and Essentials*, 5th ed., Irwin, Homewood, IL.

- Banincova E. (2012), *Developments in Banking Sectors of Central and Eastern Europe and Three Baltic States After the Global Financial Crisis and European Debt Crisis*, "Kobe University Economic Review", Vol. 58.
- Bank of Lithuania. Insurance Activity Results 2008-2012. <www.lb.lt> (2013.04.10).
- Beck T., Webb I. (2002), *Economic, Demographic and Institutional Determinants of Life Insurance Consumption across Countries*, "The World Bank Economic Review", Vol. 17, No. 1, DOI:10.1093/wber/lhg011.
- Blanciforti L, Green R, Lane S. (1981), *Income and Expenditure for Relatively More versus Relatively Less Nutritious Food over the Life Cycle*, "American Journal of Agricultural Economics", Vol. 63, No. 2, <http://dx.doi.org/10.2307/1239561>.
- Brouthers K.D. (2002), *Institutional, cultural and transaction cost influences on entry mode choice and performance*, "Journal of International Business Studies", Vol. 33, No. 2, <http://dx.doi.org/10.1057/palgrave.jibs.8491013>.
- Cavusgil S.T. (1985), *Guidelines for export market research*, "Business Horizons", Vol. 28, No. 6, [http://dx.doi.org/10.1016/0007-6813\(85\)90082-5](http://dx.doi.org/10.1016/0007-6813(85)90082-5).
- Connolly S.G. (1987), *Finding, Entering and Succeeding in a Foreign Market*, Prentice-Hall, Englewood Cliffs, NJ.
- Cundiff E.W., Hilger M.T. (1984), *Marketing in International Environment*, Prentice Hall and Hilger, Englewood Cliffs, NJ.
- Douglas S.P., Craig C.S. (1992), *Advances in international marketing*, "International Journal of Research in Marketing", Vol. 9, [http://dx.doi.org/10.1016/0167-8116\(92\)90002-3](http://dx.doi.org/10.1016/0167-8116(92)90002-3).
- Ellis P. (2000), *Social ties and foreign market entry*, "Journal of International Business Studies", Vol. 31 No. 3, <http://dx.doi.org/10.1057/palgrave.jibs.8490916>
- Enz R. (2000), *The S-Curve Relation Between Per-Capital Income and Insurance Penetration*, "The Geneva Papers on Risk and Insurance", Vol. 25, No. 3.
- European Central Bank (2005), *Banking Structures in the New EU Memberstates*, January, 2005.
- European Investment Bank (2013), *Banking in Central and Eastern Europe and Turkey: Challenges and Opportunities*, January, 2013.
- FCMC. Insurance Market Indicators 2003-2012. <www.fktk.lv> (retrieved 2013.04.10).
- FCMC. Private Pension Fund Operations 2000-2012. <www.fktk.lv> (retrieved 2013.04.10).
- Federation of Finnish Financial Services, (2009). *Savings and Life Insurance in Finland*. <www.fkl.fi> (retrieved 2013.04.10).
- Federation of Finnish Financial Services, (2012). *Finnish Insurance in 2000-2012*. <www.fkl.fi> (retrieved 2013.04.10).
- Ferguson N. (2008), *The ascent of money: a financial history of the world*, The Penguin Press, New York.
- Financial Supervision Authority, *Life Insurance Contracts, Contractual Payments, Claims and Liabilities 2002-2012*. <www.fi.ee> (retrieved 2013.04.10).

- Finasta Asset Management (2013), *Annual reports 2004-2012*. <www.finasta.com> (retrieved 2013.05.15).
- Fisk P.R. (1958), *Maximum Likelihood Estimation of Törnquist Demand Equations*, "The Review of Economic Studies". Vol. 26, No. 1
- Insurance Europe (2013), *European Insurance in Figures*, Statistics Nr. 46, January, 2013, pp. 20-21.
- Javidan M., House R. (2002), *Leadership and cultures around the world: findings from GLOBE*. An introduction to the special issue. "Journal of World Business" Vol.37 No.1, [http://dx.doi.org/10.1016/S1090-9516\(01\)00068-2](http://dx.doi.org/10.1016/S1090-9516(01)00068-2).
- Kjosevski J. (2012), *The Determinants of Life Insurance Demand In Central and Southeastern Europe*, "International Journal of Economics and Finance", Vol. 4, No. 3, DOI: [10.5539/ijef.v4n3p237](https://doi.org/10.5539/ijef.v4n3p237).
- Koch A.J. (2001), *Selecting overseas markets and entry mode selection: developing the MEMS model*, "Marketing Intelligence and Planning", Vol. 19, No. 5.
- Kubicova L., Lušňakova Z., (2010), *Consumer foodstuffs demand and income standard development in the households of Slovakia*, "Acta Universitatis Agriculturae Mendelianae Brunensis", Vol. LVIII.
- Latvian Insurers Association. *Annual Reports on Gross Written Premia by Life Insurance Companies 2003-2012*. <www.laa.lv> (retrieved 2013.04.10).
- Liao S., Chen Y., Tseng Y. (2009), *Mining demand chain knowledge of life insurance market for new product development*, "Expert Systems with Applications" Vol. 36.
- Luo Y. (2001), *Determinants of entry in an emerging economy: a multilevel approach*, "Journal of Management Studies", Vol. 38, No. 3, DOI: [10.1111/1467-6486.00244](https://doi.org/10.1111/1467-6486.00244).
- Lypyavka N. (2002), *Does the current Ukrainian income tax affect social welfare?* Economic Education and Research Consortium, Kyiv-Mohyla Academy.
- Mollet A. (2004), *First Japanese cards launched in China*. Cards International.
- Nicolae et al. (2010), *Mathematical model for forecasting and estimating of market demand*. Recent advances in applied mathematics, <http://www.wseas.us/e-library/conferences/2010/Harvard/MATH/MATH-102.pdf>
- Niitamo O.E. (1968), *Alkoholijuomien kulutus ja hinnat (Consumption and Prices of Alcoholic Beverages)* "The Swedish Journal of Economics", Vol. 70, No. 3.
- Nordstrom K.A. (1991), *The Internationalism Process of the Firm: Searching FOR New Patterns and Explanations*, Institute of International Business, Stockholm.
- Papadopolous N. (1987), *Approaches to international market selection for small and medium size enterprises* [in:] Rosson P.J. and Reid, S. (eds), *Managing Export Entry and Expansion: Concepts and Practise*, Praeger, NewYork, NY.
- Papadopoulos N., Jansen D. (1994), *Country and method-of-entry selection for international expansion: international distributive arrangements revisited*, "Dimensions of International Business", Vol. 11.
- Polish Insurance Association (2013), *Life Insurance Market Statistics 2003-2012*, <http://www.piu.org.pl> (2013.04.23).

- Reid S.D., Rosson P.J. (1987), *Managing export entry and expansion: an overview* [in:] Rosson, P.J. and Reid, S.D. (eds), *Managing export and expansion: Concepts and Practise*, Praeger, NewYork, NY.
- Root F.R. (1994), *Entry Strategies for International markets*, Lexington Books, Lexington, MA.
- Russow L.C., Okoroafo S.C. (1996), *On the way towards developing a global screening model*, "International Marketing Review", Vol. 13 No 1, [DOI: 10.1108/02651339610111344](https://doi.org/10.1108/02651339610111344).
- Saegusa Y. (1960), *Fitting of Tornqvist's demand function*, "Nogyosogokenkyu Quarterly J. of agr. Economy", Vol. 14, No. 2.
- SEB Wealth Management (2013), *Annual reports 2004-2012*, <http://www.seb.lt/pow/wcp/seblt.asp?lang=en&website=TAB4> (2013.05.15).
- Sinha T. (2005), *The Indian Insurance Industry: Challenges and Prospects*, unpan1.un.org/intradoc/groups/public/documents/apcity/unpan025798.pdf (2013.04.23).
- Stiglitz J.E. (1969), *A note on behaviour towards risk with many commodities*. Yale University: No. 262.
- Swedbank Investeerimisfondid AS (2013), *Annual reports 2008-2012*, <https://www.swedbank.ee/private/investor/funds/funds/hai?language=ENG> (2013.05.15)
- Terpstra V., Yu C.M. (1988), *Determinants of foreign investment of US advertising agencies*, "Journal of International Business Studies", Vol. 19, No. 1, <http://dx.doi.org/10.1057/palgrave.jibs.8490373>.
- The Financial Express (2010), *18 Foreign banks line up at RBI for India foray*. August, 12, 2010, http://www.thefinancialexpress-bd.com/more.php?news_id=108798&date=2010-08-12 (2013.04.10).
- Tinbergen J.(1951), *Econometrics*, Routledge, New York.
- Törnquist L. (1941), *Review of Work by H. Wold*, "Ekonomick Tidshrift", No. 43(1941).
- UAB DNB Asset Management (2013), *Annual reports 2004-2012*. <https://www.dnb.lt/lt/investiciju-valdymas/pensiju-fondai/type-1/1> (2013.05.1).
- Whitlock J., Jobber D. (2004), *An evaluation of external factors in the decision of UK industrial firms to enter a new non-domestic market: an explanatory study*, "European Journal of Marketing", Vol. 38, No. 11/12, [DOI:10.1108/03090560410560182](https://doi.org/10.1108/03090560410560182).
- World Databank, (2013), *Population, Working age population, Average salary*, <http://databank.worldbank.org/data/home.aspx> (2013.04.10).
- Yoshida M. (1987), *Macro-micro analysis of Japanese manufacturing investments in the United States*, "Management International Review", Vol. 27, No. 4.