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CONCEPTUALIZATION OF FINANCIAL SYSTEM SUSTAINABILITY

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Abstract. The paper aims at distinguishing the assumptions and component parts of financial system sustainability formation. Partly, sustainability of financial system can be expressed through the functions of financial system. Three financial subsystems are distinguished in the research: public finance, business finance and personal finance. The sustainable and efficient operation of each subsystem contributes to the sustainability of financial system as a whole. Also, sustainability of each of the subsystem can be measured by different indicators. In order to determine the strength of impact of various financial functions to the financial system such indicators as capital investments into financial and insurance activities, financial and insurance activities' value added, as well as value of production and purchase of goods and services by the financial companies is analysed. Finally, the scheme of financial system sustainability is presented. The key conclusion of the research states that the synergistic effect of sustainable development of three fields of finance influences the sustainable development of the whole financial system and even can spread its impact beyond the limits of financial system.

Keywords: sustainability, financial system, public finance, business finance, personal finance, fiscal sustainability

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JEL classification: G2, E6

1. Introduction

Current economic development uses resources of all types more quickly than natural processes can recover them (Getnet *et al.* 2014). Global economic systems while depleting resoures do not pay their full reproduction cost (Mercure, Salas 2012), social and economic gap between rich and poor is widening, and health and poverty problems become even more burning on the whole planet. These are only several biggest global problems that have raised a concern of scientific and academic community. In order to solve these problems, it is quite topical to discuss sustainability, sustainable development, universal sustainability and sustainability strategies of various sectors of economy. These strategies are implementen on different levels: on company level, on business sector level, in municipalities, on country and global levels (Volkery *et al.* 2006; Mačiulis, Tvaronavičienė 2013; Raudeliūnienė *et al.* 2014; Tvarovaničienė 2014; Vasiliūnaitė 2014).

In the last two decades, the concept of sustainable development has made a steep career as a political and ethical guideline for dealing with the planet's ecological and social crisis. The concept, globally inaugurated in 1987 by the World Commission on Environment and Development (so-called Brundtland Commission) is, however, not a brain-child of the modern environmental movement (World Commission ... 1987). As a matter of fact, 'sustainable development' entered the global stage during the 1992 'Earth Summit' in Rio de Janeiro. The

United Nations presented it as their strategic concept for sharing – and indeed saving – the future of the 'blue planet'. It promised to become the key-word for describing a new balance between the use and the preservation of nature's potentials and resources (Grober 2007).

Sustainable development is indeed a very broad field. Scientific researches related to it are broad, as well. Moreover, this topic is not new, however, probably, it is not enough developed and filled with real content, even with regard to scientific researches. But it is clear that further the concept of sustainable development becomes more topical not only theoretically, but also practically, no matter how difficult it would be to implement it. Sustainable development is like a process containing public and private actions in various fields, but not a closed phenomena. Thus it is rather difficult to speak about scientific researches on sustainable development in general as about general paradigm, as opposed to the separate fields, especially if we want to measure or compare something.

Also, researches appear stating that it is not advisable to limit to the three components of sustainable development – social, ecologic and economical sustainability, and that it is necessary to broaden this concept including other components (Rutkauskas 2012; Rutkauskas, Stasytytė 2012; Rutkauskas *et al.* 2014) or fill the present components with new uncommon systems (Ashford, Hall 2011; Tunčikienė *et al.* 2013;).

This paper analyses one non-traditional component of sustainability – the financial sustainability, and it will be investigated from the point of view of financial system. Analysis of financial sustainability is often limited to public finance sustainability, and sometimes also financial sustainability on a company level is distinguished. Further, public finance sustainability is frequently substituted with the term fiscal sustainability, describing the latter as the possibility of a government (country) to retain the current level of expenditure and taxes in long enough period at the same time not raising the increase in government liabilities, the threat for solvency of the planned expenditures and avoiding bankruptcy. The term of solvency is often stressed in defining fiscal sustainability. More particularly, sustainability of financial policy can be defined as a possibility of government to perform and continue the current policy not changing the provision of public services, taxation and avoiding the continuous increase of public debt to GDP ratio. There is no doubt that the issues discovered in a state-level perception of financial sustainability are of high importance. However, the perception of this term should not be limited only to public finance sustainability. A holistic point of view is needed where financial sustainability would be perceived as a power of financial system allowing to supply financial resources to three parts of financial system: the business, the public sector and individuals. Only the mentioned proposition allows to speak about efficient operation of a country as a whole and make relevant solutions with regard to the interests of all economic subjects.

The aim of this paper is on the basis of scientific researches on sustainability and financial sustainability to determione the contents and structure of financial system sustainability, tightly linking financial sustainability to the implementation of functions of country financial and insurance activity. The object of research is country financial system. While performing the research such methods as critical analysis of scientific literature, generalization, systemic analysis and graphical presentation of data have been used.

2. Importance of finance functions on financial sustainability

The function of country financial system is to guarantee effective functioning of country financial market with regard to the adjustment of economic interest of all subjects. This function is more or less supplemented all economic activities in the field of finance and insurance. The viable insurance market, efficient system of pension funds, profitable activities of holding companies – all contributes to the efficient financial market of a country. However, key fields probably are the central banking and other monetary intermediation, because central bank and efficient network of commercial banks are the main elements of sustainable financial system activity.

The function of business finance subsystem is to reveal for the business the possibilities of using the human and material resources, possessed by the country, by creating maximum profit and conforming to legal acts and regulations. By analysing business finance and distinguishing their functions one can make an assumption that

activities, tasks and processes, taking place in an organization and related to finance, are the business finance functions. Each of the finance activities originate from organizational activities and focus on the production and use of information to meet the following purposes:
1. Accounting: to record the financial consequences of organisational activities.
2. Compliance: to meet the requirements of governmental and other regulatory bodies.
3. Management and control: to produce and use financial and related information to inform, monitor and instigate operational actions to meet organisational objectives.
4. Strategy and risk: to inform and influence from a financial perspective the development and implementation of strategy, and to manage risk.
5. Funding: to inform and engage with investors and funders, both current and potential, to obtain and maintain the necessary financial resources for the organisation.

These five interdependent activities constitute the finance function in an organisation (ICEW 2011).

By analysing the impact of financial activities on business finance function it is worth noting that as in a case of the whole country financial system functions', every field influences to a certain extent the efficiency of business finance function. Commercial banks, providing many services for business, provide a technical possibility for the business to use the financial resources possessed by the country. They do this by providing leasing, factoring, insurance and other services.

The function of public finance subsystem is to implement the measures stated in the country legal acts and government resolutions applying the fiscal policy. Here the biggest role is given to the central banking. In turn, decisions made by the central bank influence the activity of commercial banks, and commercial banks incorporate various changes and regulations into their services and products. This is why many financial activities also include the element of public finances.

The individual finance subsystem is like an institution to retain and develop human capital. It requires responsibility and intelligence of every individual or household. Here such fields of finance are participating as insurance, accumulation of pension funds, leasing and other monetary intermediation – all that is important for the individual users of financial resources. However, the efficiency of these activities' application depends on the implementation of the functions pertaining to country financial system in a broader sense.

3. The concept and types of financial sustainability

In scientific literature financial sustainability most often is used separately in the context of public finance or business finance, not searching for their interrelationship. Personal (individual) finance sustainability is getting insufficient attention, even though the representatives of this field of finance are the users of many financial products and services. Public finance sustainability is often identified with fiscal sustainability (Kia 2008; Byrne *et al.* 2011; Doi *et al.* 2011; Chen 2014; Miyazaki 2014). Further several definitions of fiscal sustainability will be presented.

Fiscal sustainability is an ability of a government (country) to retain the current level of expenses and taxes in a long-term period not increasing the government liabilities, not raising the threat of solvency of the planned expenses and avoiding bankruptcy. The concept of financial (fiscal) sustainability is related with the concept of solvency. **Solvency** is an ability of government to repay its debt liabilities not getting into the insolvency (bankruptcy) status (Burnside 2003). Fiscal sustainability can also be defined as an ability of the government to perform a set of the planned strategies retaining solvency for an unlimited time period (Burnside 2003).

Sustainable fiscal policy is a policy that can be employed by the government for a long time without interfering the models of taxation and expenses (Krejdl 2006). A stable level of taxes is an important condition for financial sustainability (Ballasone, Franco 2000). Sustainable fiscal policy is also a policy ensuring that debt to GDP ratio reverts to the initial level or at least does not increase (Blanchard *et al.* 1990).

Sustainability of fiscal policy is an ability of the government to perform and continue in the future the current policy without changing the provision of public services and avoiding the continuous increase in debt to GDP ratio (Fiscal Sustainability Report 2012).

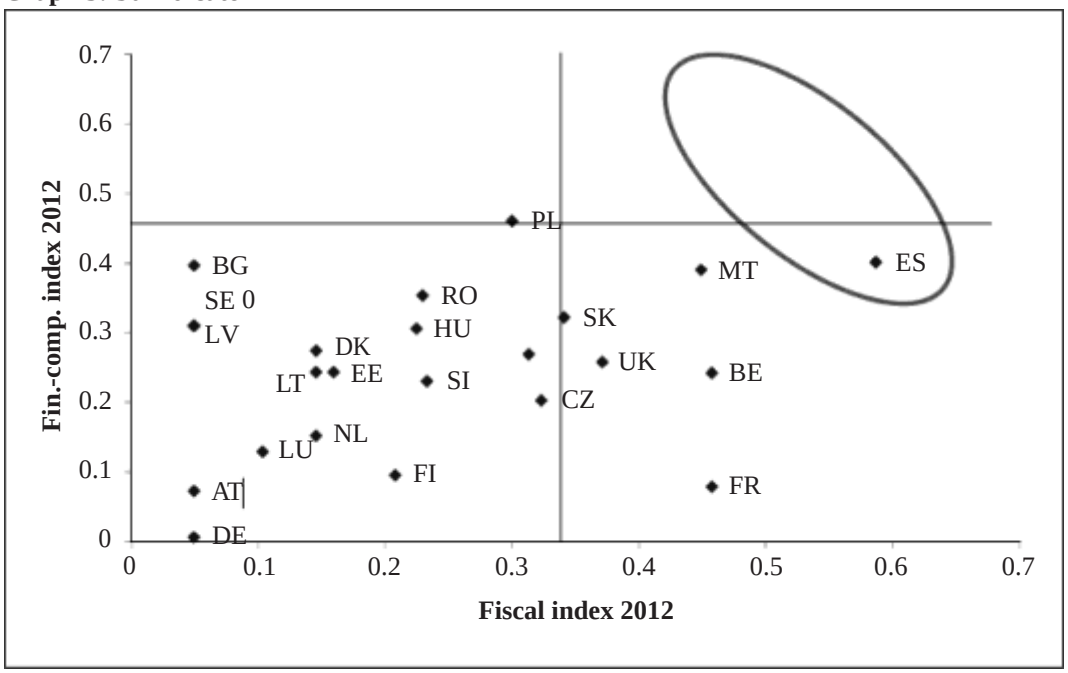
Indicators of fiscal (public finance) sustainability (according Fiscal Sustainability Report 2012 and Public Finance Sustainability):

- S0 – "early detection of fiscal stress", intended to assess short-term fiscal challenges;
- S1 – "debt compliance risk", indended to assess medium-term fiscal challenges;
- S2 – "ageing-induced fiscal risks", intended to assess long-term fiscal challenges.

S0, the short-term sustainability indicator, reveals the shorter-term (one-year horizon) risks for fiscal stress stemming from the fiscal as well as the macro-financial and competitiveness sides of the economy.

Components of S0 indicator – fiscal indicators (balance, % of GDP; gross debt, % of GDP; change in gross debt, % of GDP; short-term government debt, % of GDP, etc.) and macro-financial as well as competitiveness indicators (net savings of households, % of GDP; private sector debt, % of GDP; construction, % value added; current account, % of GDP; real GDP growth, etc.) (Figure 1).

Graph 3: S0 indicator



Source: Commission services.

Fig.1. European countries according S0 indicator

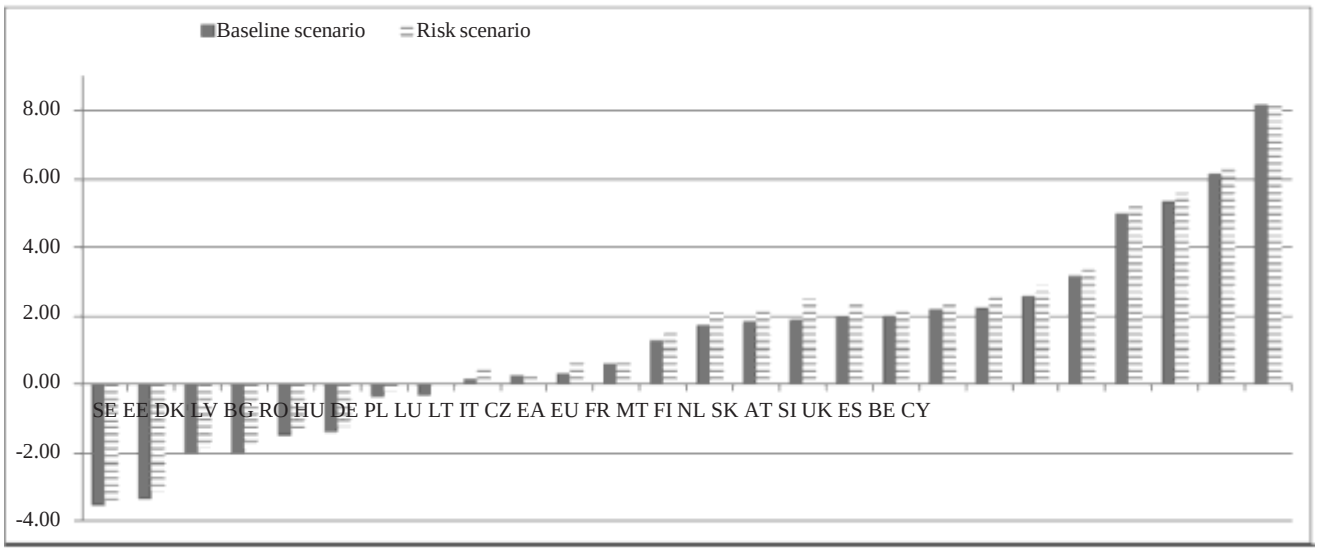
Source: Public Finance Sustainability (http://ec.europa.eu/europe2020/pdf/themes/03_public_finance_sustainability.pdf)

S1, the medium-term sustainability indicator, shows the extent of the required budget corrections in order to continuously adjust the structural primary balance until 2020, to retain it during the decade and to bring the debt-to-GDP ratio to 60% of GDP by 2030.

- If S1 < 0, then country risk is treated as low;
- If 0 < S1 < 3, then country risk is treated as medium, the requirement for balance adjustment – up to 0,5 p.p. of GDP per year until 2020.
- If S1 > 3, then country risk is treated as high, the requirement for balance adjustment – more than 0,5 p.p. of GDP per year until 2020.

S2, the long-term sustainability ratio, shows the required extent for balance adjustment ensuring that the debt-to-GDP ratio is not on an ever-increasing path. The indicator covers the issues of projected revenues and taxes gap, related with pension, healthcare and other age-related expenditure (Fgure 2, Figure 3).

Graph 4.1: **The S1 indicator**

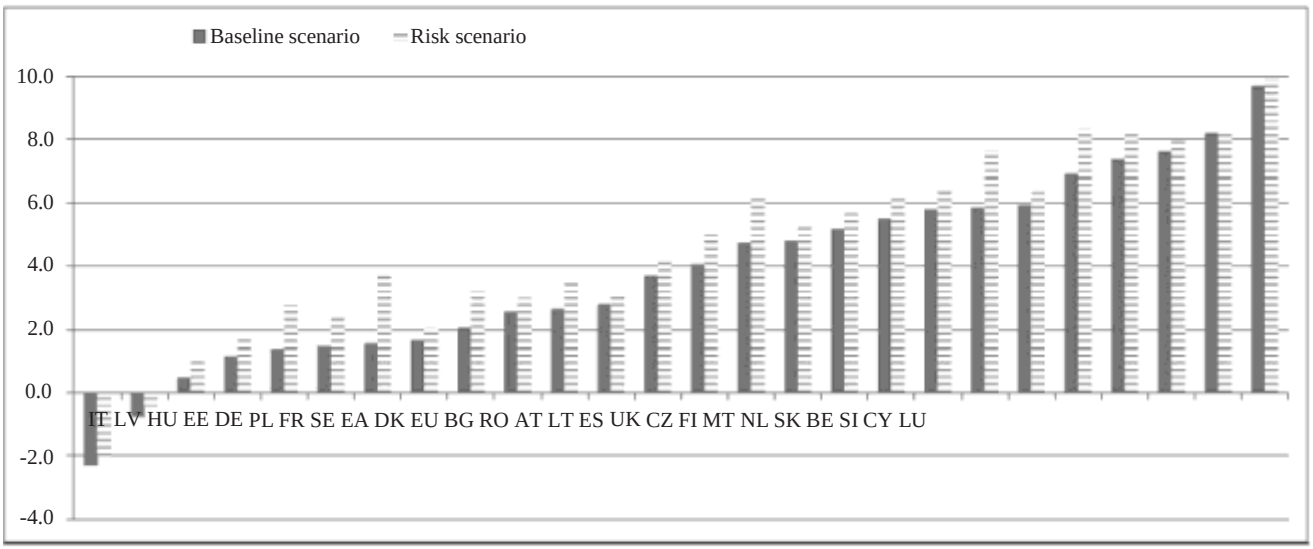


Values ranked in increasing order of the baseline scenario.
Source: Commission services.

Fig.2. S1 indicator of European countries

Source: Public Finance Sustainability (http://ec.europa.eu/europe2020/pdf/themes/03_public_finance_sustainability.pdf)

Graph 4.2: **The S2 indicator**



Values ranked in increasing order of the baseline scenario.
Source: Commission services.

Fig.3. S2 indicator of European countries

Source: Public Finance Sustainability (http://ec.europa.eu/europe2020/pdf/themes/03_public_finance_sustainability.pdf)

Considering the business finance sustainability, Patricia Leon (2001) distinguishes three types of indicators of corporate finance sustainability which, in turn, are composed of the more detailed component indicators:
1. Indicators of strategic vision and leadership (strategic planning, board effectiveness, strategic financial planning).
2. Indicators of income-generating capability (fundraising and development plan, diversification and funding sources, generation of unrestricted income).
3. Indicators of financial administration capability (indirect cost recovery rate, accounting systems, external financial reporting, internal financial reporting, external oversight (audits), cash flows).

Sustainability of financial system can be expressed through the efficient and timely implementation with lowest cost to public functions of financial system as distinguished by Robert Merton and Zvi Bodie (1995):
1. To provide ways of clearing and settling payments to facilitate trade.
2. To provide a mechanism for the pooling of resources and for the subdividing of shares in various enterprises.
3. To provide ways to transfer economic resources through time, across borders, and among industries.
4. To provide ways of managing risk.
5. To provide price information to help coordinate decentralized decision-making in various sectors of the economy.
6. To provide ways of dealing with the incentive problems created when one party to a transaction has information that theh other party does not or when one party acts as an agent of another.

Summarizing the above thoughts, it can be stated that sustainability of financial system is the power of country financial system enabling with desired guarantee to supply the business, public sector and citizens with financial resources under functioning market conditions and guarantee financial resources required to implement the international liabilities. Also, necessarily three types of financial sustainability can be distinguished: business, public and household, as well as the fourth – the sustainability of country financial system, – which is mainly related with adequate operation of economy based on efficiently allocated financial flows. In turn, for the economy to act efficiently the proper implementation of functions of the three distinguished financial subsystems is needed that should be oriented towards sustainability. Thus sustainability of country financial system in a certain sense covers the sustainability objectives of the three financial subsystems.

Further, in pursuance of the above presented ideology, the functions of sustainable financial system (Rutkauskas, Navickas 2013) according every field of finance will be revealed:
1. To guarantee the efficient functioning of country market with regard to coordination of economic interests of all subjects (sustainability of country financial system).
2. To reveal for the business the possibilities to use the possessed human, material and financial resources while creating the maximum value added (sustainability of business finance subsystem).
3. To create an efficient mechanism for reallocation of purchasing power while implementing the country fiscal policy and other legal instruments (sustainability of public finance subsystem).
4. To rehabilitate and develop the human capital, as well as strengthen responsibility and intelligence of every individual or household through the more efficient management of personal finance (sustainability of personal finance subsystem).

The following measurement indicators of sustainable development of financial system can be applied:
- The integral index of financial sustainability;
- The index of fiscal policy sustainability;
- The index of business finance competitiveness;
- The index of social welfare differentiation (Rutkauskas, Navickas 2013).

Every index is attributed to the respective subsystem in the financial system. Determination of their component parts should be performed using the classification of financial and insurance activity, as well as by processing the statistical information about the created value added, production value, consumed goods and services in the field of financial and insurance activity, as well about the material investment into this field.

4. Analysis of general statistical data of financial system

In order to determine what financial activities mostly influence the financial activity of business, public and individuals, it is worth analysing the general statistics of financial system that is systematized according to the classes of financial and insurance activity from the Statistical Classification of Economic Activities (EVRK 2). The statistics will cover the capital investments into financial and insurance activities, financial and insurance activities' value added, as well as value of production and purchase of goods and services by the companies operating in the mentioned sector. These indicators show what classes of activity most actively operate and create the maximum amount of value added.

The general amount of capital investment into the financial and insurance activity (the sum of investments in all the classes) is shown in Figure 4. The highest investment rate was noticed in 2007, in the period of growing economy – even 230,4 mln. LTL. Further investments diminished and in recent years became stable.

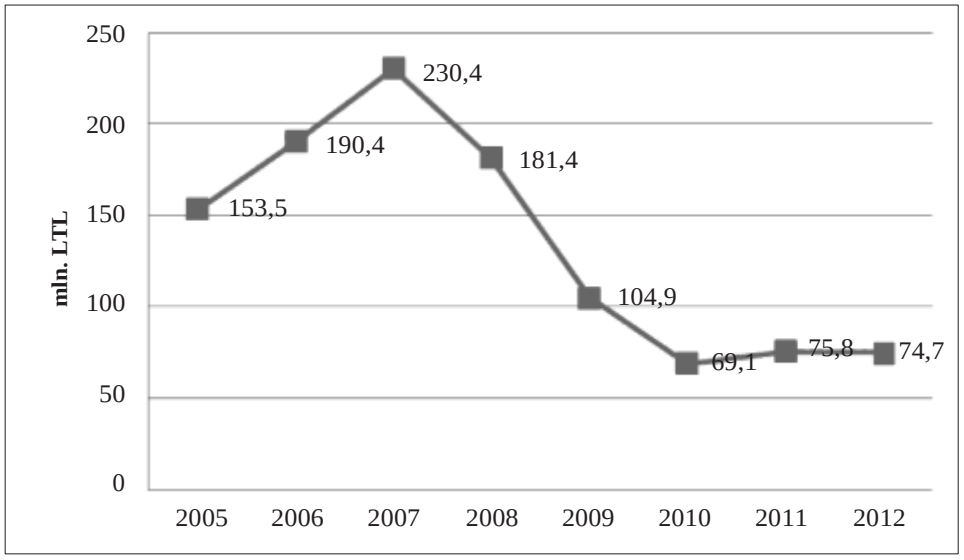


Fig. 4. Capital investments into financial and insurance activity, current prices, mln. LTL

Source: Statistics Lithuania (http://osp.stat.gov.lt/)

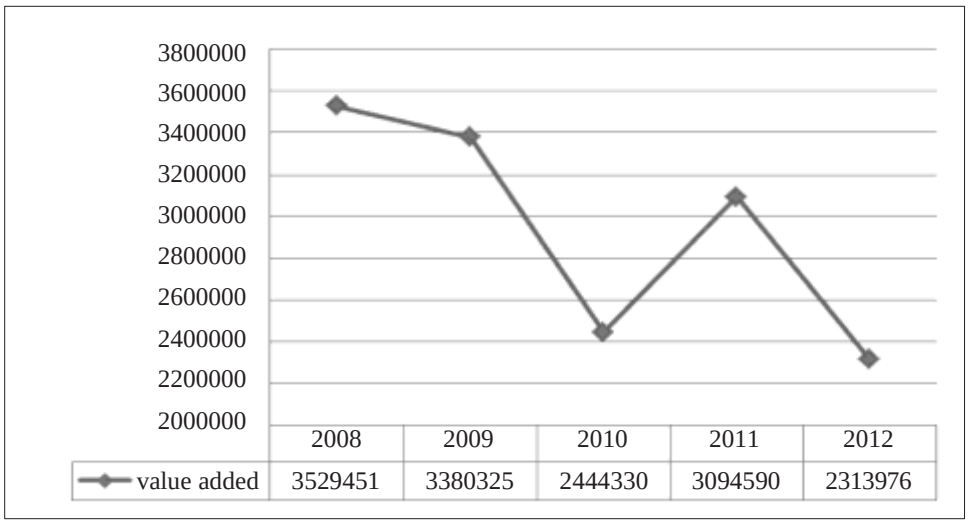


Fig. 5. Value added of the financial and insurance activity companies (including sole proprietorships) in current prices

Source: Statistics Lithuania (http://osp.stat.gov.lt/)

The value added created by the financial and insurance companies in 2008-2012 years period was fluctuating (Figure 5). After the high level reached in 2008 it dropped to 2444330 thous. LTL in 2010. In 2011 the value added increased, while in 2012 there was a drop in value again. The highest value added in 2012 was created by the class of other monetary intermediation, i.e. commercial banks (Figure 6).The value added of the holding companies in the same year was negative (-5496 thous. LTL). This was the first year when a negative value was noticed in this class of activity. In 2011 the value added of holding companies' activity accounted for 17379 thous. LTL.

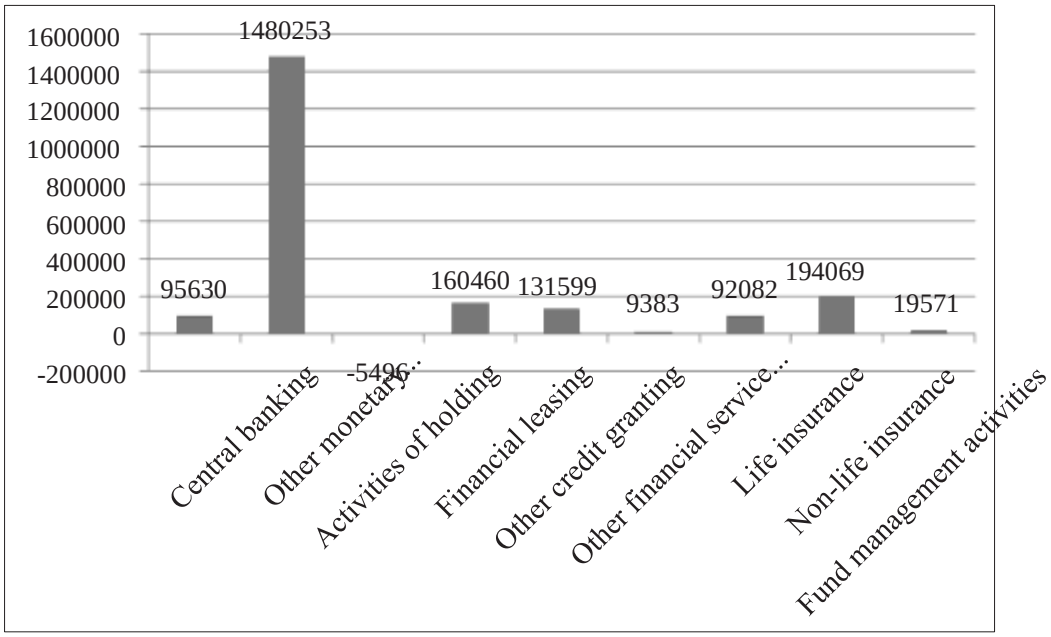


Fig.6. Value added of the separate classes of financial and insurance activity in current prices in 2012, thous. LTL

Source: Statistics Lithuania (http://osp.stat.gov.lt/)

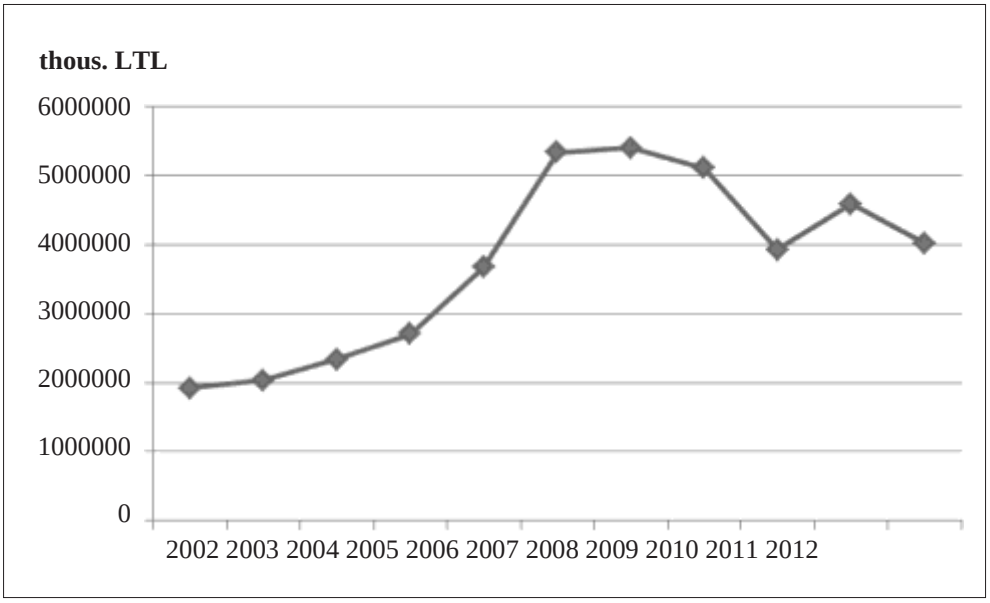


Fig.7. The value of production of companies performing the financial and insurance activity, 2012, thous. LTL

Source: Statistics Lithuania (http://osp.stat.gov.lt/)

Table 1. Value of production and purchase of goods and services by the companies operating in the financial and insurance sector, 2012, thous. LTL

	Value of production, thous. LTL.	Purchase of goods and services, thous. LTL
Central banking	134 490	38 860
Other monetary intermediation	2 520 946	1 040 693
Activities of holding companies	-3 688	1 808
Activities of trusts and funds	16 680	16 680
Financial leasing	210 343	49 883
Other credit granting	214 244	82 645
Other financial service activities (factoring)	23 341	13 958
Life insurance	166 211	74 129
Non-life insurance	398 579	204 510
Pension funding	53 019	53 019
Activities of insurance agents and brokers	121 274	55 357
Fund management activities	56 417	36 846

Source: Statistics Lithuania (http://osp.stat.gov.lt/)

The value of production of the companies performing financial and insurance activity was continuously increasing from 2002 to 2009; later it slightly dropped (Figure 7). The highest value of production was in a sector of other monetary intermediation, the next was non-life insurance. These classes of financial activity also purchased the biggest amount of goods and services (Table 1). After analysing statistical data of financial and insurance activity, a conclusion can be made that the class of financial intermediation, i.e. the sector of commercial banks created the major part of the value added. Also, its value of production and value of consumed goods and services is also the highest. The ratios of other classes are considerably lower.

5. The formation of financial system sustainability

After analysing the statistical data of different classes of the financial and insurance activity, it can be notices that some of them create bigger value added, others lower, but in any case every class contributes to the sustainability and proper functioning of each of the three subsystems and of the whole financial system. Also, it can be said that the instruments encouraging the sustainability of public finance, business finance and personal finance are interrelated (Figure 8). Instruments influencing the sustainability of public finance partly participate in forming the business and individual finance sustainability. Some means impacting the business finance sector sustainability encourage also the personal finance and public finance sustainability. In turn, personal finance sustainability is closely related with business and public sector finance sustainable development.

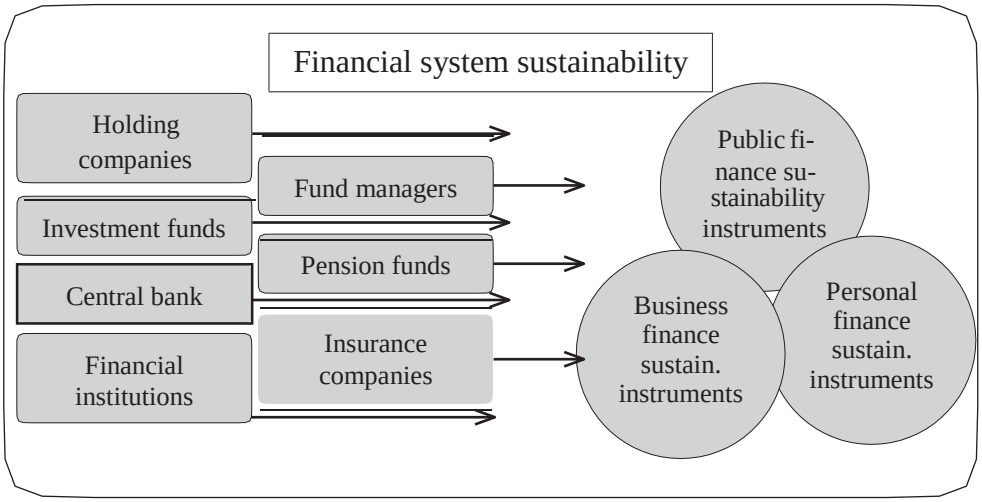


Fig.8. The formation of financial system sustainability

Source: developed by the author

The synergistic effect of sustainable development of three fields of finance, that is determined by country financial and other subjects, influences the sustainable development of the whole financial system and even can spread its impact beyond the limits of financial system. This happens because rational allocation of financial resources is undoubtedly important in every economic activity. Thus the sustainable development strategy of financial system can be visually presented in Figure 8. Technical implementation of this strategy requires the adequate legal basis, technological instruments, and human resources. The precise description of the effect of each component on sustainable development of financial system is beyond the scope of the performed research.

Conclusions

The function of country financial system is to guarantee effective functioning of country financial market with regard to the adjustment of economic interest of all subjects. Sustainability of financial system can be expressed through the efficient and timely implementation with lowest cost to public functions of financial system.

Sustainability of financial system is the power of country financial system enabling with desired guarantee to supply the business, public sector and citizens with financial resources under functioning market conditions and guarantee financial resources required to implement the international liabilities. Necessarily three types of financial sustainability can be distinguished: business, public and household, as well as the fourth – the sustainability of country financial system, – which is mainly related with adequate operation of economy based on efficiently allocated financial flows. Public finance sustainability is often identified with fiscal sustainability.

Capital investments into financial and insurance activities, financial and insurance activities' value added, as well as value of production and purchase of goods and services by the companies operating in the mentioned sector can explicitly show the effectiveness and sustainability trend of the financial system.

After analysing statistical data of financial and insurance activity, a conclusion can be made that the class of financial intermediation, i.e. the sector of commercial banks created the major part of the value added. Also, its value of production and value of consumed goods and services is also the highest. However, every class of financial and insurance activity contributes to the sustainability and proper functioning of each of the three subsystems and of the whole financial system.

The synergistic effect of sustainable development of three fields of finance, that is determined by country financial and other subjects, influences the sustainable development of the whole financial system and even can spread its impact beyond the limits of financial system.

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