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PERFORMANCE OF FINANCIAL SECTORS IN BALTIC STATES

FINANSŲ SEKTORIAUS BALTIJOS ŠALYSE APIBŪDINIMAS

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Annotation

The purpose of this study is to examine economic growth impact on financial sector development in the Baltic States by investigating interrelation between indicators of these two economic areas.

Research is based on scientific literature and empirical analysis. Statistical data is collected mostly from World Bank database in the period between 1994-2009. Indicators like liquid liabilities to GDP and private credit to GDP ratio are used to measure the financial sector size and activity. Economic growth is analyzed throughout total production and factors which are suggested by three economic growth theories. Analysis of GDP is made by expenditure approach.

Statistical data showed positive financial sector development in Baltic States during the research period. Estonia had highest developed financial sector, then followed Latvia and Lithuania. The main reason for strongest financial performance in Estonia can be explained by highest export and import activity, financial capital accumulation and lowest real interest rates, unemployment and population. Financial sector development in Latvia was supported by high education expenditure and capital formation in the private sector. Lowest performance of financial activity in Lithuania can be justified by greatest unemployment, population and lowest financial capital attraction.

This work confirms Patrick's (1966) demand-following hypothesis which states that growing economy leads to increasing demand of financial services and so creates an expansion in the financial sector. Paper results disclose that financial sector development in Baltic States has been mostly depended on increasing total output, capital accumulation, productivity and low unemployment.

Based on the findings paper suggest that Baltic States should concentrate their actions on economical and political stability, attraction of FDI, growth of national savings, reduction of unemployment and support of innovative businesses.

Thesis consist of: 76 p. text, 31pictures, 8 tables and 81 bibliographical entries.

Keywords: Financial sector development, economic growth, capital accumulation, productivity, national savings, innovation

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Anotacija

Šių studijų tikslas yra ištirti ekonomikos augimo įtaką finansinio sektoriaus plėtrai Baltijos šalyse, nagrinėjant tarpusavio ryšį tarp šių dviejų ekonominiu sričių vystymosi rodiklių.

Tyrimas remiasi moksline literatūra ir empirine analize. Statistiniai duomenys yra surinkti daugiausiai iš Pasaulio Banko duomenų bazės 1994-2009 metų laikotarpyje. Indikatoriai kaip likvidžių įsipareigojimų santykis su BVP ir privačių kreditų santykis su BVP yra naudojami matuojant finansinio sektoriaus dydį ir aktyvumą. Ekonomikos augimas analizuojamas per bendrą produkciją ir indikatorius, kurie buvo pasiūlyti trijų ekonomikos augimo teorijų. BVP analizuojamas išlaidų metodu.

Statistiniai duomenys parodė pozityvų finansinio sektoriaus vystymąsi Baltijos šalyse tiriamajame laikotarpyje. Estija turėjo labiausiai išvystytą finansinį sektorių, po jos sekė Latvija ir galiausiai Lietuva. Stipri finansinė padėtis Estijoje gali būti paaiškinama dėl aukšto eksporto ir importo aktyvumo, finansinio kapitalo akumuliacijos ir žemos palūkanų normos, žemo nedarbo ir populiacijos. Finansinio sektoriaus plėtra Latvijoje buvo paremta didelėmis švietimo išlaidomis ir kapitalo formavimu privačiame sektoriuje. Silpnesnį finansinį sektorių Lietuvoje greičiausiai sąlygojo didžiausias nedarbas, populiacija, ir mažiausias finansinio kapitalo pritraukimas.

Šis darbas patvirtina Patricko (1966) paklausos-sekimo hipotezę, kuri teigia, kad ekonomikos augimas veda prie didėjančios finansinių paslaugų paklausos ir taip sukuria finansinio sektoriaus plėtrą. Darbo rezultatai atskleidžia, kad finansinio sektoriaus vystymasis Baltijos šalyse labiausiai priklausė nuo bendros produkcijos augimo, kapitalo pritraukimo, produktyvumo ir žemo nedarbo.

Remiantis atradimais šis darbas siūlo Baltijos šalims koncentruoti savo veiksmus į ekonominį ir politinį stabilumą, pritraukimą TUI, nacionalinių taupymų didinimą, bedarbystės mažinimą ir inovatyvaus verslo rėmimą.

Darbo apimtis – 76 p. teksto, 31 iliustracija, 8 lentelės ir 81 bibliografiniai šaltiniai.

Prasminiai žodžiai: Finansinio sektoriaus plėtra, ekonomikos augimas, kapitalo pritraukimas, produktyvumas, nacionaliniai taupymai, inovacija

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LIST OF ABBREVIATIONS

GDP - Gross domestic product

M3 - Liquid liabilities

PC - Private credit

FCE - Final consumption expenditure

GFC - Gross fixed capital formation

EXP - Exports of goods and services

IMP - Imports of goods and services

FDI - Foreign direct investments

INF - Inflation

LBP - Labor participation

UNM - Unemployment

POP - Population

EDC - Education

RIR - Real interest rate

INTRODUCTION

Baltic States are often considered sufficiently similar as a group. Historical experiences led to similarities in economical and political environment. Reforms, which started after independence, improvements in legislations, political stability, increasing private sector participation and inflow of foreign capital led to positive changes in Baltic economic situation. These improvements reflected in the financial sector which increased rapidly since 1994. Financial market was dominated by banks and mostly by foreign owned Scandinavian banks who stimulated development throughout foreign direct investments.

The main objective of this work is to identify the factors which had strongest impact on the financial sector development in the Baltic region and to expose positive and negative effects.

Analysis in this work starts with the critical approach to the causal relationship between economic growth and financial sector development. Theoretical literature indicates that this relation is a long debated issue among the researchers. Based on the Patrick's (1966) demand-following hypotheses investigation on how economic growth impacts financial sector development begins. To analyze this link the measurement of financial and economic indicators have been identified. Literature suggest that financial sector can be measured by size, efficiency and stability, access, institutions, regulations and other factors. To measure the size of financial sector in the Baltic States the liquid liabilities to GDP ratio was used while privet credit to GDP ratio measured activity of financial intermediation. Economic growth indicators was analyzed throughout the Gross Domestic Product and factors that were suggested by three economic growth theories like productivity, innovation, population and others. Analysis of GDP were made by expenditure approach.

Based on the literature review nine hypothesis have been created. Data were collected mostly from the World Bank database in three periods of time: 1994-2009 (16 years), 1998-2007 (10 years), 2000-2005 (5 years). Economic growth impact on the financial sector development in the Baltic States were explored by empirical analysis which investigated two features of the distribution namely description of the central tendency and the spread of data. This data between Baltic countries have been compared and correlation analysis was made. In the end results were exposed and conclusions were generalized.

Theories and literature overview concerning financial development and economic growth have been presented in Section 1. Section 2 described statistical data, presented variables and

made approach to financial and economic situation in the Baltic States. In Section 3 empirical research was made and data was analyzed by descriptive and correlation analysis. Findings and results have been raised in Section 4 and finally generalizing conclusions were disclosed.

1. FINANCIAL SECTOR DEVELOPMENT AND ECONOMIC GROWTH

This section analyzes theoretical literature and raises the hypothesis. Theoretical review confirms that relationship between financial development and economic growth is a long debated issue. Empirical and analytical literature expose that in addition to many other factors, the long-term economic growth and welfare of the country have connection to its degree of financial development. Financial development can be measured by different factors like size, efficiency and stability, access, regulations and other.

The link between financial development and economic growth can be moved back to Walter Bagehot (1873) and Joseph Schumpeter (1911) that raised the hypothesis about financial institution efficiency and impact on the investment. They underlined that "efficient financial institutions speed capital reallocation to sectors that are anticipated to grow faster and thus face better investment prospects" (Elias Papaioannou, 2007).

Joseph A. Schumpeter argued that financial development induces economic growth. He pointed out that through the services that financial intermediaries bring about, like mobilizing saving, managing risk, facilitating transactions or evaluating projects, technological and economic development is stimulated. Technological change is the key in Schumpeter's reasoning. Schumpeter explains technological development in his work Capitalism, Socialism and Democracy. Seymour Martin Lipset (1993) in Journal of Democracy cited Schumpeter: "The fundamental impulse that sets and keeps the capitalist engine in motion comes from the new consumers' goods, the new methods of production or transportation, the new markets, the new forms of industrial organization that capitalist enterprise creates" (Seymour Martin Lipset, 1993).

Lipset emphasized that Schumpeter's system is characterized by "creative destruction", this destruction appears when dominant nations or companies fail to respond quickly to innovations or economic crisis. Bagehot (1873) and Hicks (1969) argued that financial systems played a critical role in stimulating industrialization in England by providing the mobilization of capital. John Hicks (1969) pointed out that industrialization of England was possible because of the use of the financial system to mobilize productive financial capital. He also noticed that financial institutions might facilitate growth through capital formation and accumulation. From this point of view capital formation can be influenced by financial institutions through changing the savings rate or by reallocating savings among various capital producing technologies. Liquidity plays significant role here. The high-return projects involve a long-run commitment of

capital and savers are generally do not want to lose control of their savings for a long period. The task of financial institutions is to increase the liquidity of long-term investments so that more investment is expected in the high-return projects. According to Hicks the industrial revolution in England was mainly caused by the capital market improvements that moderated liquidity risk. The argument made by Bagehot, Hicks and also by Schumpeter (1912) was that well-functioning financial institutions increase technological innovation and so supporting entrepreneurs and companies with innovative products and production processes.

Levine (1997) argued that economic growth, capital accumulation and technological changes are stimulated by highly developed financial institutions and markets. Ross Levine (2004) in his paper Finance and Growth: Theory and evidence confirms through theoretical and empirical research that financial intermediaries and strong financial market positively affects long-term economic growth: " A growing body of empirical analyses, including firm-level studies, industry-level studies, individual country-studies, time-series studies, panel-investigations, and broad cross-country comparisons, demonstrate a strong positive link between the functioning of the financial system and long-run economic growth" (Ross Levine, 2004).

Goldsmith (1969) recognized relationship between financial and economic development and argued that financial structure is one of the most important factors on economic growth. Ronald McKinnon (1973) and Edward Shaw (1973) were the first who clarified the term of financial repression. They argued that economic growth and efficient capital allocation through well-functioning financial system is theoretically possible but historically, many countries, both developing and developed ones, have limited competition in the financial sector with government interventions and regulations. According to them a restricted financial sector do not promotes both saving and investment because the returns for investments are lower than what could be reached in free competitive market. In a system with repressive financial market, financial intermediaries do not function optimal and this is a reason why they fail to providing savings into investment efficiently and with that harms development and growth of the total economic system.

Some other literature like traditional neoclassical literature on economic growth would suggest that financing sector development is not important. Authors such as Robinson (1952) and Robert Lucas (1988), argued that financial systems don't matter for economic growth and financial development just follows or reflect anticipation of economic development. Lucas supports the view that the role of the financial system has been ‘badly over-stressed’. Other

theoretical papers arguing that the relationship between financial sector institutions and economic development is not significant. Joan Robinson (1952) states that financial institutions follow the developments in the real economic sector.

Other authors simply ignored the role of financial sector in development economics. Stern's (1984) review of development economics doesn't discuss the financial system at all. According to Dornbusch and Reynoso (1989), financial liberalization in the face of poor fiscal positions can be a major factor in accelerating inflation and instability. They concluded that "financial factors are important only when financial instability becomes a dominant force in the economy" (Katarzyna Burzynska, 2009).

However, most of the subsequent theoretical papers have shown that there is a positive relationship between the financial sector and the real economic sector. Today's question is not if financial development is an important factor for growth but rather what the causality is. Direction of causality between financial development and economic growth is crucial because it has particular different implications for development policy. On the other hand, this causal relationship remains unclear. Does financial development stimulates economic growth, or does economic growth promote financial development? Existent of the causality is not a new discovery. Debate about this relationship take us back to nineteenth century. Bagehot (1873), Schumpeter (1911) and Gurley-Shaw (1955) set these relations into action and the subject has been debated quite extensively in literature over recent years. The possible directions of causality between financial development and economic growth are noted by Patrick (1966). He raises to hypothesis namely supply-leading and demand-following hypothesis. The supply-leading hypothesis explains a causal relationship from financial development to economic growth i.e. creation of financial institutions and markets increases the supply of financial services and with that leads to real economic growth. Various theoretical and empirical papers on this issue have shown that financial development is important and causes economic growth. McKinnon (1973), King and Levine (1993), Neusser and Kugler (1998) and Levine, Loayza and Beck (2000). However, the demand-following hypothesis explains a causal relationship from economic growth to financial development. At this point of view, an increasing demand for financial services might create an expansion in the financial sector as the real economy grows. Both Gurley, Shaw (1967), Goldsmith (1969) and Jung (1986) support this hypothesis.

Beck, Demirguc-Kunt and Levine (2004) argues that developed financial system is necessary for economic development. According to Ayyagari, Demirguc-Kunt and V. Maksimovic (2006) finance can contribute to technological progress and innovation .

1.1. Functions of The Financial Sector

Development of financial systems can be a core factor in economic growth. But it still difficult to define and measure financial system development. To make this measurement we have to look at the functions, roles and participants of the system. There are few mane functions of the financial system that can contribute to the degree of depth and efficiency of the provision of financial services.

Firstly, it mobilize savings i.e. channel funds between end users of the system: from lenders to borrowers. Consequence of the intervention of financial institutions is that lending and borrowing have become easier. This is the main function of intermediaries. In addition transaction cost related to external finance for both households and companies are reduced Firms save money by not having to contact many potential lenders and simply going to one financial institution. Likewise, savers do not need to evaluate every borrower and just place money with financial institution.

Other function of financial system is resource allocation. Financial system allocates savings through deciding who can obtain loans. This is very important issue because financial resources is being used by governments for political purpose, to promote income redistribution and for social goals. At the same time financial institutions faces other problem namely asymmetric information between borrowers and lenders, and the inability of financial intermediaries to screen and monitor loans effectively.

Both Stiglitz (1989) and King and Levine (1992) argued that the core role of financial intermediaries is to choose between competing sectors, competing firms, competing investment projects of the economy. Because of this choice factor, strongly regulation of the financial sector can effect financial intermediaries decisions and can negative impact development of financial sector. Even in deregulated financial markets, financial institutions maintain a role in choosing between different conflicted demands because the allocation of savings on the basis of price is not always possible.

Other aspect is that intermediaries has opportunity to spread the risk through spreading investor's funds among many divers investment opportunities and with that can reduce the overall risk. This issue special important at the financial crisis. Risk allocation leads to reduction of uncertainty to investors and householders which in turn promotes savings. Jean-Pierre Landau, deputy governor of the Bank of France (2009) argued that increases in complexity was not the reason of diversity but market participants become more different in their legal status, investment strategies, and business objectives and this was the reason to increasing risk of measurement, management and total risk of investments.

Other but no less important factor for economic growth is liquidity. Financial institutions are directly linked with generating liquidity. Liquidity consists of financial resources like unrestricted cash reserves and different credits which can be accessed in a short period of time. The need for liquidity arises from the fact that daily cash inflow (income) seldom equals cash outflow (expenses). Liquidity is the amount of capital that is available for investment and spending. Most of the capital is credit rather than cash. That's because the large financial institutions that do most investments prefer using borrowed money. High liquidity means there is a lot of capital. That usually happens when interest rates are low, and so capital is easily available. Low interest rates mean credit is cheap, which reduces the risk of borrowing.

Financial institutions invest funds in long and short term projects. Like I mentioned before, short term investments generating liquidity. Funding of long term investments is one more function of financial intermediaries.

Other no less important function of financial institutions is creation of credit and guaranties of payments. There are various financial instruments like currency and demand deposits or credit cards. Credit creation is the multiple expansions of banks demand deposits. The single bank cannot create credit. It is the banking system as a whole which can expand loans by many times of its excess cash reserves. Further, when a loan is advanced to an individuals or a business concern, it is not given in cash. The bank opens a deposit account in the name of the borrower and allows him to draw upon the bank as and when required. The loan advanced becomes the gain of deposit by some other bank. Loans thus make deposits and deposits make loans.

Credit delivery leads to other role of financial institutions namely monitoring. Monitoring information is useful for resolving incentive problems between borrowers and lenders. An intermediary (such as a bank) is delegated the task of costly monitoring of loan contracts written

with firms who borrow from it. It has gross cost advantage in collecting this information because the alternative is either duplication of effort if each lender monitors directly, or a free-rider problem, in which case no lender monitors. Financial intermediation theories are generally based on some cost advantage for the intermediary. Schumpeter (1939) assigned such a "delegated monitoring" role to banks: "... the banker must not only know what the transaction is which he is asked to finance and how it is likely to turn out but he must also know the customer, his business and even his private habits, and get, by frequently "talking things over with him", a clear picture of the situation" (Douglas W. Diamond, 1984).

Economic theory indicates that the main role of financial markets and institutions is to minimize the costs of information and transactions. As the consequence, saving rates, investment decisions, technological innovation, and long-run growth rates depend crucially on the level of financial development.

Significant part of the literature shows that financial systems can decrease the cost of acquiring information about firms and managers, and can lower the cost of completed transactions. Through providing more accurate information about production technologies and corporate control, financial sector development can increase resource allocation and accelerate growth. In the same way growth can be obtained by facilitating risk management, improving the liquidity of assets and reducing trading costs.

All these functions of financial institutions, mobilization and allocation of savings, reduction of risk and transaction costs, generation of liquidity and funding longtime investments, creation of credits, guaranties of payments and monitoring can be used as a guidelines in the research of financial intermediaries and financial system development.

1.2. Financial Sector Regulations

The functions of financial institutions like accumulation of capital, allocation of savings, reducing in transaction cost, monitoring, risk analysis and others acts as an aid measures to the business and economy and can lead to increasing economic activity. If financial intermediaries and financial structure is important to economic growth and financial development, why do some countries have growth-promoting financial systems while others do not and what is the state role in the economical development? What can government do to ensure well-functioning financial system?

Laws, regulation and supervision of financial sector has direct impact on the efficiency of financial intermediaries, markets and services. Economic theory proposes that a strong institutional environment can led to lower information and transaction costs.

Like I mentioned in the previous section many researchers like Ronald McKinnon (1973), Edward Shaw (1973), Both Stiglitz (1989), King and Levine (1992) argued that government interventions into financial sector and regulations of financial intermediaries have negative impact on the financial development.

Goldsmith (1969), McKinnon (1973) and Shaw (1973) analyzed financial repression. The studies showed the low performance of investment and weak growth in developing countries with the high interest rates, reserve requirements and quantitative restrictions in the credit allocation mechanism. These restrictions that were observed were sources of financial repression and the main consequences of this repression were low savings, credit rationing and low investment. Therefore these researches crates the term financial liberalization, which is the opposite side to financial repression. Financial liberalization is the expression of free financial market where intervention do not exist and where the independent market self determine the allocation of credits.

Detragiache, Gupta and Tressel (2005) underlines that political stability in the country is the foundation to economical development. They argued that for low income countries political instability and corruption have a detrimental effect on financial development. They writes: "Even if deep determinants of institutions and geographical factors are favorable to financial development, political instability may be a deterrent. Political turmoil may bring macroeconomic instability and a deterioration in business conditions. Civil strife and outright war can destroy capital and infrastructure. Expropriation may follow revolutions or coups d'etat. In addition, corruption may increase the cost of doing business and create uncertainty about property rights" (Enrica Detragiache, Poonam Gupta, Thierry Tressel, 2005).

Investigating the business environment for 80 developed and developing countries using firm level survey data, Ayyagari, Demirguc-Kunt and Maksimovic (2005) find out that political instability and crime are important obstacles to economic development: "We define an obstacle to be binding if it has a significant impact on firm growth. Our regression results indicate that only Finance, Crime and Political Instability emerge as the binding constraints with a direct impact on firm growth" (Meghana, Ayyagari, Asli Demirguc-Kunt, Vojislav Maksimovic, 2005).

A stable political system and well functioning financial systems requires fiscal discipline and stable macroeconomic policies. The two main instruments of fiscal policy are government expenditure and taxation. Government spending is fully funded by tax revenue. The budget outcome has an effect on economic activity. Changes in size, types of taxes and government spending can impact aggregate demand, speed of economic activity and so capital accumulation. Fiscal policy affect also the taxation of financial intermediaries and regulates the level and profitability of financial sector. Often large financing requirements of governments slow down private investments.

According to Demirguc-Kunt and Detragiache (1998 and 2005) finds evidence that countries with lower and more stable inflation rates maintains higher levels of financial sector development specially in banking and stock market. They also mention that high inflation and real interest rates are associated with higher probability of systemic banking crises. John Boyd and Bruce Champ (2003) argued that high inflation has negative effect on equity markets or banks. They found that stock market capitalization and trading have been smaller relative to the size of the overall economy in high inflation countries. The size of the banking sector is relative to the size of the overall economy is lower in high inflation environments. Economists generally agree that high inflation level and hyperinflation are caused by an exaggerated growth of the money supply. An increase in the general level of prices leads to decrease in the purchasing power of the currency.

Because of the inflation another role of the government is controlling money supply. Monetary authority (the Central Bank of the country) provides Monetary Policy and controls supply of the money through financial instruments like interbank interest rates (key interest rates).

Barth, Caprio and Levine, 2006 confirms that as long there have been banks, there have also been governments regulating them. Asli Demirguc-Kunt (2008) agrees that there is a role for government in the regulation and supervision of financial systems, the size of this involvement is an issue of active debate. He points out to extreme views approach like laissez-faire or invisible-hand approach and complete interventionist approach. In laissez-faire or invisible-hand approach there is no role for government in the financial system, and markets monitoring and supervising financial institutions. This approach has been criticized because of not paying attention to market failures and the reason lies in depositors, particularly small depositors, that often find it too costly

to be effective monitors. Other extreme approach is the complete interventionist. According to Stigler (1971) government regulation is interpreted as the solution to market failures. From this point of view, strong supervisors are expected to ensure stability of the financial system and guide banks and other financial institutions through regulation and supervision.

1.3. Measurement of Financial Sector

Analyzing financial sector development it is necessary to identify a financial indicators that could reflect financial situation in the countries. According to David Lynch (1996) financial sector development is a tool to generate economic efficiency by national governments and multinational agencies, like the International Monetary Fund and development banks. Due to that a well-defined set of measures of financial development is required for effective policy formulation, implementation, and evaluation. Many literature sources suggest that financial development can be measured by a number of factors like depth, size, access, openness and efficiency of financial system. These indicators can be measured by examining the performance and activities of the financial markets and financial institutions.

Beck and Levine (2002) suggest that financial market activity can be measured by the turnover ratio. Patrick Honohan (2003) states that empirical cross-country models shows that, financial depth and average GDP growth represent useful information for the measurement of financial sector and economic growth but neither is comprehensive or fully satisfactory. Exploring financial system development Demirguc-Kunt and Levine (1996) used market capitalization to GDP ratio to identify financial sector development. According to Menzie D. Chinn and Hiro Ito (2007) it is extremely difficult to measure the extent of capital account controls or financial openness. Many measures exist to describe the extent and intensity of financial openness but such measures fail to capture fully the complexity of real-world capital controls.

The traditional measures of financial sector are based on monetary and credit aggregates. Money supply ratio and privet credit ratio were used of many researches that studied on financial development and economic growth. King and Levine (1993) used the ratio of liquid liabilities or M3 money supply to GDP to measure the size of financial intermediaries. For measuring of activity they used ratio of credit to private sector to GDP. Maswana (2006) used three indicators

to explore the development of the financial sector namely liquid liabilities, credit expenditure to the private sector by banks and total credit extended to the entire economy.

1.4. Measurement of Economic Growth

There are many factors that can affect economic growth. Economic activity can be divided into short-time economic changes and long-time economic growth. The short-time economic growth is defined as business cycle that expresses over the period of month or years. The business cycle moves up and down and creates fluctuations in the long-run trend in economic growth.

The main measurement of country's total wealth is growth domestic product which is a measure of the value of all of the goods and services produced in a country in a given time period - usually a year. GDP can be calculated by expenditure, income or value of output approach. Expenditure approach explains aggregate value in the country through factors like private consumption (householders personal consumption i.e. expenditures on goods and services), investment (firms that make investments), government spending (government purchases of goods and services) and net exports. Relationship can be explained by following equation:

$$Y = C + I + G + (X - M) \qquad (1)$$

Where GDP (Y) is the sum of consumption (C), investment (I), government spending (G) and net exports (X-M), where X is exports and M is imports. Equation above shows that size of the economy depends on the consumption of householders and government so called financial consumption expenditure. There have been many discussions among the researches whether final consumption influence economic growth. Some empirical studies consider consumption expenditure as a dependable factor of income others studies showed relationship between final consumption and economic development.

Empirical studies and theoretical literature states that there is strong relationship between economic growth and capital accumulation. Capital formation is most important to developing countries because these are less equipped with capital in relation to the population and natural resources. Therefore society doesn't reach its full productivity in relation to desires of immediate consumption. Capital formation consist of physical capital like buildings, plants, equipments,

machines and others various forms of real capital that can greatly increase the efficiency and productivity. In addition to material capital, capital formation can also include investments in skills, education and health. In this paper gross domestic fixed investments or gross fixed capital formation will be used to measure investment in the economy.

Empirical literature that explores exports and imports impacts on the economies is based on the main hypothesis that exports leads to economic growth and imports has opposite effect. Economists was trying to research economic growth through market openness. The net exports or balance of trade shows difference between monetary value of exports and imports. Positive growth when the country exports more than imports refers to trade surplus while negative balance, when import monetary value is higher than exports, is determined as trade deficit.

The differences in GDP between the countries are enormous and sometimes it can be difficult to understand this inequality. Economist Jan Pen (1971) published an article where he illustrated economic inequality in a very dramatic way: "Let's imagine that every working American walking by in an hour-long parade. Let us also assume that everyone's height is proportional to his or her salary. The first ones to pass, those underemployed working at odd jobs, are only an inch high. Next the spectators would see the fully employed making minimum wage, but they would be only a foot high. For the rest of the first half hour, the parade goers would observe most of America's skilled workers, and they would still be only about three feet tall. Only after 45 minutes would the spectators begin to see people as tall as they are - those in the upper class. During the last six minutes rich Americans in our economic parade would be shooting up in height at an astounding rate. This is because nearly half the money made in America goes to a mere 10 percent of the population. Doctors and lawyers would be at least 20 feet tall, and CEOs and top financial managers would be looming above us from 100 to 500 feet. Finally, the America's billionaires would be marching by in shoes whose soles are hundreds of feet thick" (Nick Gier, 2006). This illustrates how income are shared between countries. Just the small part of the countries have very high GDP rate and a very large part have middle or low income rate. Exchange rate is an issue when we what to compare income among different countries. The aid for this propose is conversion factor purchasing power parity (PPP). PPP rate shows how much money would be needed to purchase the same goods and services in two different countries.

Using the GDP to measure the country's wealth over time can make conceptual and practical problems. Fluctuations of the price level is the main issue when we want to exam income within a single country over time. Because of the inflation total GDP can give file picture of the country's economy. Some countries have high total GDP because have many people. But this is not mean that wealth of living is high. This is the many reason why GDP per capita rate is more natural measure. King and Levine (1993) used per capita GDP rate when they presented cross-country evidence with Schumpeter's view that financial system promotes economic growth. They analyzed economic growth of 80 countries in the period of 1960 to 1989 and argued that various measures of the level of financial development are strongly associated with real per capita GDP growth.

1.5. Factors That Affect Economic Growth

Theoretical literature expose causal connection between financial development and economic growth. The causality among long-term growth and financial sector are hard to uncover because of the many factors that interacts with each other. Researching long-term growth impact on financial sector it is necessary to analyze economic growth reasons. Trying to disclose these impact factors it could be helpful to look at the economic growth theories that contain some fundamental theoretical background to the process of economic growth. Three basic theories have different approaches to the economic growth issues. Classical growth theory explains long-term growth through population explosion, neoclassical growth theory through labor, capital and technology and new growth theory through humans desires and increasing productivity.

Classical growth theory refers to the view that population growth is determined by the level of income per person. This theory was suggested by Adam Smith (1776) and David Ricardo (1817). Adam Smith explains population growth as the consequence of wages. According to Smith the productive capacity, itself, allowed for growth and improving and increasing capital led to "the wealth of nations". Smith claimed also that the manufacturing was central to the entire economy. David Ricardo argumentations was that trade is a benefit to a country. He argued that comparative advantage is the core factor to economical growth. He claimed that the country should specialize in producing and exporting only those goods and services which it can produce more efficiently (at lower opportunity costs) then other countries and other goods and services it should import. The classical theory of population growth argues that economic growth will end

because of an increasing population and limited resources. Classical growth economists like Adam Smith, David Ricardo, Thomas Malthus and John Sturart Mill believed that temporary economic increases per person would cause a population explosion that would consequently decrease economic growth. Malthus (1798) called attention to the disparity among the rate of population growth and the slower increase in the food supply. He argued against the view that a nation's resources was determined by the size of its population.

When the classical economists were analyzing population growth, a population explosion was under way. The population growth was influenced by economic factors like increasing in job opportunities and wages. Impact on population growth had also decrease in death that was consequence of medical development.

Neoclassical theory suggest that real GDP per person indicates growth because technological changes stimulates savings and investment. Technological changes is the core factor that cause economical growth. Some literature suggest that technological development comes from factor accumulation and innovation that causes the technological frontier to move outwards. Innovation is necessary for an economy that have sustained growth for a long period of time. A. Schumpeter (1947) argued that competition in new technologies leads to economical development and growth: "The first thing to go is the traditional conception of the modus operandi of competition. Economists are at long last emerging from the stage in which price competition was all they saw. As soon as quality competition and sales effort are admitted into the sacred precincts of theory, the price variable is ousted from its dominant position. However, it is still competition within a rigid pattern of invariant conditions, methods of production and forms of industrial organization in particular, that practically monopolizes attention. But in capitalist reality as distinguished from its textbook picture, it is not that kind of competition which counts but the competition from the new commodity, the new technology, the new source of supply, the new type of organization (the largest-scale unit of control for instance) – competition which commands a decisive cost or quality advantage and which strikes not at the margins of the profits and the outputs of the existing firms but at their foundations and their very lives. This kind of competition is as much more effective than the other as a bombardment is in comparison with forcing a door, and so much more important that it becomes a matter of comparative indifference whether competition in the ordinary sense functions more or less promptly; the powerful lever that in the long run expands output and brings down prices is in any

case made of other stuff" (William R. Drexel, 2004). His idea of “creative destruction” through competition in new technologies is a process of constant replacement of old production methods and goods with better procedures, commodities, and services by invention and innovation. And financial intermediaries enable this technological innovation.

Other factors that explains long-term growth in neoclassical growth theory are productivity, capital accumulation (savings and investment) and population growth. Roy F. Harrod (1939) and Evsey Domar (1946) developed independently the Harrord-Domar model that explained economic growth in terms of the level of saving and productivity of capital. The neoclassical model was the extension of Harrord-Domar model that included new factor - productivity growth. Neoclassical growth model is also known as the Solow or Solow-Swan growth model and it was developed by Robert Solow (1956) and T.W. Swan (1956). They both independently developed quit simple growth models. Solow published “A Contribution to the Theory of Economic Growth” in the February 1956 and Trevor Swan published “Economic Growth and Capital Accumulation”, in December 1956. Solow began with the production function of the Cobb-Douglas. Cobb-Douglas form was proposed by Knut Wicksell (1851 - 1926) and it was developed and tested against statistical evidence by Ch. Cobb and P. Douglas. The Cobb-Douglas production function is often used to analyze the supply-side performance and measurement of a country’s productive potential. In 1928 Charles Cobb and Paul Douglas published a study in which they modeled the growth of the American economy during the period 1899 - 1922. They used a simplified view of the economy in which production output was determined by the amount of labor involved and the amount of capital invested. The following production function shows output dependence on capital and labor:

$$Y = F(K; L) \qquad (2)$$

Production (quantity of output) symbolized by Y, capital symbolized by K and labor symbolized by L. The following Cobb-Douglas production function shows that production or output quantity is depending on productivity also:

$$F(K; L) = AK^{\propto}L^{1-\propto} \qquad (3)$$

Productivity for given quantities of capital and labor is symbolized by A. Country with bigger A will produce more output. The parameter $\propto$ is output elasticity of labor and capital. It has value between 0 and 1 and determines exactly how capital and labor combine to produce output. This value is constant determined. For instance if $\propto = 0{,}10$, a 1% increase in labor would lead to approximately a 0.10% increase in output. Expression of Cobb-Douglas function per worker terms shows that output or production per worker is depending on productivity and capital per worker:

$$y = Ak^{\propto} \qquad (4)$$

In other words Cobb-Douglas function tells that countries which have increasing population or labor force should increase capital accumulation in order to maintain the existing economic level or to increase long-term growth. Before analyzing neoclassical Solow growth model it is quite important to mention steady state level of the model. This level refers to national economy and shows the stable size of population and consumption. Herman E. Daly (2008) in his work "A Steady-State Economy" defines a steady state as a system that permits qualitative development but not aggregate quantitative growth. He underlines that economies must have more concentration on qualitative development and less on quantitative growth: "... a steady state - a system that permits qualitative development but not aggregate quantitative growth. Growth is more of the same stuff; development is the same amount of better stuff (or at least different stuff).. Economists have focused too much on the economy's circulatory system and have neglected to study its digestive tract. Throughput growth means pushing more of the same food through an ever larger digestive tract; development means eating better food and digesting it more thoroughly. Clearly the economy must conform to the rules of a steady state - seek qualitative development, but stop aggregate quantitative growth. GDP increase conflates these two very different things" (Herman E. Daly, 2008).

According to the Solow (1956) the steady state occurs when investment equals depreciation and the economy reaches equilibrium, which can occur during a growth period. The model shows that investments will support capital per worker growth. As long population increasing slower then national savings so capital accumulation and investment contribute to economic growth. Robert Solow (1997) explains how population growth can impact social

welfare: "...one has to suppose that the social norm favoring work over welfare is weaker the larger the fraction of the population on welfare" (Robert M. Solow, 1997). This model can be used to understand why some countries grow faster than others. These differences can be explained by capital/labor ratio. The country with the higher welfare must have the bigger capital/labor ration than the poor country. For the poor country to increase welfare it is necessary to improve the level of capital employed per worker. To increase capital in the country means to increase national savings i.e. household savings and government savings.

This relationship between aggregate output and expenditure shows that savings depending on private consumption, government expenditure and net export and are equal to investments. Household savings is aggregate income (Y) minus net taxes (T) and minus private consumption:

$$S1 = (Y - T) - C \qquad (5)$$

Government savings is net taxes (T) minus government expenditure (G):

$$S2 = T - G \qquad (6)$$

When the country has positive government savings i.e. net taxes are higher than government spending, government has budget surplus and this surplus is additional sours to investments. When the country has negative government savings i.e. net taxes are lower than government spending, government has budget deficit. The following equation illustrates national savings dependence on aggregate output:

$$\text{National savings} = S1 + S2 = I \qquad (7)$$

Even if the national savings is equal investments in the practice they can have different trends. The main reason is that investments can be financing by borrowed financial assets. It can happen that country has negative national investments but positive investments at the same time.

$$\text{Investment Expenditure} = \text{National savings} + \text{Financial assets inflow} \qquad (8)$$

Neoclassical model also explains the distribution of foreign direct investments (FDI). There is an tendency for capital to flow from the rich countries to the poor countries because of the diminishing marginal product (MPK) of capital. If one unit of capital would be moved from the rich to poor country it would give up some small amount of output in the rich country but gain a much larger amount of output in the poor country. In the neoclassical model of growth there is an economic incentive for convergence of the capital/labor ratios across countries. FDI provides an inflow of foreign capital, funds and in addition it leads to increasing of skills, technology, and job opportunities. Inward FDI can lead to higher productivity through increased capital, which in turn can give high living standards. In the literature resources there are many different views of FDI impact on economic growth. Robert E. Lipsey (2002) in his rapport Home and Host Country Effects of FDI argued that FDI leads to faster economic growth for host country through productivity effects and the development of new products in host country. The main factor for productivity and development is transfer of knowledge from home country to host country: "One effect of foreign entry that is widely accepted is the introduction of new industries or products to the host- country economy and the tighter linking of the host country to the world trading system. The contribution of the foreign- owned firms is mainly of knowledge, particularly knowledge of demand in the world market, and knowledge about how the host country can find a place in the worldwide allocation of intermediate steps in the path of production that can be geographically separated. Through both productivity effects and the development of new (to the host country) products, inward direct investment is associated with faster economic growth" (Robert E. Lipsey, 2002).

Jadviga Ciburiene (2010) examines the factors that attracts FDI in the host country and the stage of country economic development level. She explains that countries attractiveness lying in education, development on R&D, economic relations with other countries and the level of integration in the global market. In addition to these argumentations Jadviga argued that benefits of FDI can also have negative consequences on economic growth for host country, because profits, dividends and salaries can be returned to parent companies in the foreign countries. Manuela Tvaronaviciene (2007) and Virginija Grybaite (2007) tested different levels of penetration of foreign capital into certain economic activities. They concluded that literature recourses mostly shows positive FDI effect on the economic growth but some scientists indicate negative effects to: "...most countries and governments tend to attract FDI because of emphasis

on positive aspects of FDI. FDI usually is treated as additional source of capital and generator of new job places. Spillovers of new technologies are supposed to be undisputable and increase of exports is seen as natural consequence. Nevertheless, some scientists point out plausible negative effects of FDI: the repatriation of profits; crowding out of domestic companies; adding up to inflation rate and increase of negative trade balance" (Manuela Tvaronavicienė, Virginija Grybaite, 2007). In addition to theoretical research Manuela and Virginija made analysis on how FDI effects economic growth in Lithuania and concluded that higher FDI activity leads to higher GDP per enterprise. Gordon H. Hanson (2001) argues that there is weak evidence that FDI generates positive effects for host economies. Foreign direct investment received increasing attention in the world economy during the last three decades. The role of FDI plays significant role on the globalization. There is increasing interest on FDI by both policy makers and academic researchers. Most argued that FDI improves the general welfare of the population by providing employment opportunities, increasing R&D, accumulating knowledge and capital, helping to adopt new methods of production and enhancing productivity by bringing more competition into the economy. Through these factors FDI accelerates economic growth. Nevertheless some researches means that there is weak evidence that FDI generates positive long-term growth. Others states that FDI can led to increasing of inflation and negative trade balance and with that can give negative effect on the country's economy.

Neoclassical theory of savings is based on the idea that savings depends on real interest rate that saves want to achieve. If real interest rate increase, saving is positive and the supply of capital increases. If real interest rate is decreasing saving is negative and supply of capital decreases. Neoclassical growth theory explains economic growth through capital accumulation (savings), labor and technology. The theory states that when a new technology becomes available, the labor and capital have to be adjusted to maintain growth equilibrium.

To analyze which factors cause technological changes we have to look at the new growth theory. New growth theory on economic growth is based on the idea that technological changes comes from the choices that people make. New growth theory was analyzed in both closed and open economies and has more international orientation. According to the Grossman and Helpman (1994) countries like never before trade with each another, communicate with each another and learn from each another. They approaching to the view of comparative advantage in technological and labor force context in international market: "It may be that the high technology

products manufactured in one country can be improved as readily by research labs in a foreign country as they can by labs located nearby. This would describe a situation where technological spillovers-implicit in firms' abilities to base their research efforts on the existing state of the art-are fully international in scope. When researchers worldwide draw on a common knowledge base, the history of technological advance in any one country has no bearing on the long-run pattern of international trade. The country that has the greater relative abundance of skilled labor will specialize relatively in the most human capital-intensive activity-namely industrial research. Even if this country initially produces few knowledge-intensive products, it will, over time, win more than its share of the technology races. In the long run, the human capital-rich country will come to acquire leading positions in relatively many of the hightechnology industries and will export these goods in exchange for the laborintensive product of the traditional manufacturing sector. In short, relative factor endowments will determine the long-run pattern of trade" (Gene M. Grossman; Elhanan Helpman, 1994).

The new growth theory explains economic growth by factors like ideas that results from choices and actions and ideas that bring profits, and competition that destroys profits. Ideas can be explained by searching of new ways to increase technology and profits. Competition is reducing profits, so to increase the profits it is necessary to seek out either lower-cost methods of production or new and better products that can give higher profits. Development of new and better products leads to technological growth and innovation. The core factor for technological growth that underline Joseph Corthright (2001) is that economic growth and technological development results from new knowledge. The knowledge increasing returns and increasing returns drives growth: "Knowledge has different properties than other economic goods (being non-rival, and partly excludable). The ability to grow the economy by increasing knowledge rather than labor or capital creates opportunities for nearly boundless growth. Markets fail to produce enough knowledge because innovators cannot capture all of the gains associated with creating new knowledge. And because knowledge can be infinitely reused at zero marginal cost, firms who use knowledge in production can earn quasi-monopoly profits. All forms of knowledge, from big science to better ways to sew a shirt exhibit these properties and contribute to growth" (Joseph Cortright, 2001).

According to Romer (1993) there are more ways to arrange the objects of the physical world by using knowledge. He underlines that increases in standards of living can lead to

findings of more valuable projects and arrangements. Romer emphasize the importance of innovation. Describing economic growth, he puts behind macroeconomic indicators like savings, investments, taxes, spending and he raise the idea that value added in the economy depends on new discoveries from a fixed set of natural resources. Joel Kurtzman interwied Paul Romer in 2008 on the knowledge impact on the economic growth. Romer explains that knowledge is input factor to the production that do not leads to diminishing returns and from this aspect, knowledge is opposite factor to the physical capital. "The physical world is characterized by diminishing returns. Diminishing returns are the result of the scarcity of physical objects. One of the most important differences between objects and ideas " . . . is that ideas are not scarce and the process of discovery in the realm of ideas does not suffer from diminishing returns" (Joel Kurtzman, 2008).

Other factors that were not mentioned in the economic theories above but which have effect on the economic growth are privatization, global migration and crime. Privatization is especially important for the developing countries with the large public sector. It is a process of transferring assets and functions from public sector (the state or government) to the private sector (privet business that operating for profit purpose). Privatization has been adopted by many different countries and political systems. It has spread to many regions of the world. This process can effect fundamental structural changes by formalizing and establishing property rights, which directly create strong privet and individual incentives. A free market economy depends on well-defined property rights in which individuals can make own decisions. According to Hernando de Soto (1996) property rights has directly effect on productivity and at the same time to economic growth: "Modern market economies generate growth because widespread, formal property rights permit massive, low-cost exchange, thus fostering specialization and greater productivity. Without formal property, a modern market economy cannot exist" (Hernando de Soto, 1994).

Another aspect of privatization can be found in the Coase Theorem. Ronald Coase (1960) proposes that the private sector is effective in solving the problem of externalities through costless bargaining, driven by individual incentives. The Coase Theorem explains that individual parties will directly or indirectly take part in a cost-benefit analysis, which will eventually result in the most efficient solution. In the paper Problem of Social Cost Coase (1960) listed some points why social sector can be cost inefficient: "It is clear that the government has powers which

might enable it to get some things done at a lower cost than could a private organization (or at any rate one without special governmental powers). But the governmental administrative machine is not itself costless. It can, in fact, on occasion be extremely costly. Furthermore, there is no reason to suppose that the restrictive and zoning regulations, made by a fallible administration subject to political pressures and operating without any competitive check, will necessarily always be those which increase the efficiency with which the economic system operates. Furthermore, such general regulations which must apply to a wide variety of cases will be enforced in some cases in which they are clearly inappropriate. From these considerations it follows that direct governmental regulation will not necessarily give better results than leaving the problem to be solved by the market or the firm. But equally there is no reason why, on occasion, such governmental administrative regulation should not lead to an improvement in economic efficiency. This would seem particularly likely when, as is normally the case with the smoke nuisance, a large number of people are involved and in which therefore the costs of handling the problem through the market or the firm may be high" (Ronald H. Coase, 1960).

There are many theoretical economic benefits that have relationship to the process of privatization. One of the main reasons why countries are interested in privatization is because they want to reduce the size of the existing government that is usually too large and overextended, consisting of unnecessary layers of bureaucracy. Theoretical and empirical literature suggests that countries that achieved a faster expansion of the private sector were able to attain more rapid economic growth.

The international migration of labor is an important component of economic development, growth and globalization. According to J. Edward Taylor (2006) international migration produces benefits and the most tangible of these are remittances, the income that migrants send home. The flow of international migrant remittances have increased more rapidly than the number of international migrants. He concludes that migration affects economic development: "Migration is neither a panacea for economic development nor the opposite. It is unquestionably an integral part of income growth in all countries, and international migration is an important component of migration in many less developed countries. Economic development and underdevelopment shape migration. Migration, in turn, shapes development. The critical question for LDC governments is how to design policies that can enhance the potential for migration to contribute

to economic development in migrant-sending regions - that is, how to use migration as a development tool" (J. Edward Taylor, 2006).

Gordon H. Hanson (2012) in his article Immigration and Economic Growth explains impact of immigration on the United States economy. He claims that immigration moves workers from countries where they are less productive to countries where they are more productive. He argued immigration of high-skilled labor accelerates the rate of productivity growth and immigration of low-skilled labor improves the efficiency of the labor market. Cat Moody (2006) concludes that migration has significant impacts on labor productivity and labor utilization. He argued that migration provide opportunities: "it may be more helpful to think about migration as an opportunity to increase GDP per capita growth, rather than as a threat that needs to be managed. It has been shown that improving participation and employment rates is likely to have a positive effect on overall GDP per capita" (Cat Moody, 2006).

According to Niranjan Roy (2006) and Avijit Debnath (2006) migration can, in certain circumstances, have negative effects on locally workers with comparable skills, the evidence suggests that these effects are generally small and may be entirely absent. Most of the literature shows that migration has positive effect on the economic growth even if there can be some negative effects.

Other factors like crime and corruption have significant effects on entire society. According to Claudio Detotto (2006) and Edoardo Otranto (2006) crime imposes great costs to the public and private actors, such as stolen and damaged goods, lost lives, security spending, pain and suffering. Crime acts like a tax on the entire economy: it discourages domestic and foreign direct investments, reduces the competitiveness of firms, and reallocates resources, creating uncertainty and inefficiency. They confirmed that crime negatively impacts the economic performance. Salvatore Capasso (2004) argued that the level of criminal activity in the economy has a strong impact on the level of production and economic activity.

1.6. Approach to The Hypothesis

Theoretical literature refers to different views of the financial sector development and economic growth. Walter Bagehot (1873), Joseph Schumpeter (1911), Hicks (1969), Goldsmith (1969), McKinnon (1973), King (1993), Levine (1997), Neusser and Kugler (1998), Loayza and Beck (2000) have been working on analysis to identify how different functions of financial sector

like capital reallocation, investments, control of risk management, facilitation of transactions, innovation impacts economic growth. While Bagehot (1873), Schumpeter (1911), Gurley-Shaw (1955) have analyzed causal relationship between finance and total economy.

Patrick (1966) put forward supply-leading and demand-following hypothesis. According to supply-leading hypothesis financial sector impacts economic growth, while demand-following hypothesis raised the assumption that economic growth impacts financial sector development. McKinnon (1973), King (1993), Levine (1993 and 2000), Neusser (1998), Kugler (1998), Loayza (2000), Beck (2000) supported supply-leading hypothesis, while Both Gurley (1967), Shaw (1967), Goldsmith (1969) and Jung (1986) supported demand-following hypothesis. Other researches like Robinson (1952), Robert Lucas (1988), Stern's (1984) argued that financial system is not important for economic growth and that financial development follows or reflects anticipation of economic development. According to Dornbusch (1989) and Reynoso (1989) financial liberalization accelerates inflation and instability and that financial factors are important only when financial instability becomes a dominant force in the economy. The mathematical expenditure approach has shown that production in the country depends on consumption and government expenditures, investments and net exports. David Ricardo (1817) argued that exports and imports have positive relation with economic growth.

Based on this literature review the assumption that total economic growth of the country positive impacts country's financial sector development can be raised. The mathematical equation of the countries aggregate output by expenditure approach can refer to the other assumption that production components like final consumption expenditure, gross fixed capital formation, exports and imports of goods and services has positive relationship with financial sector development. Because of the causality I am making the assumption that inflation leads to financial instability and have negative impacts on the total sector.

Goldsmith (1969), Ronald McKinnon (1973), Edward Shaw (1973), Both Stiglitz (1989), King (1992), Levine (1992) supported the view that government regulations and interventions has negative effect on the economic development. According to Goldsmith (1969), McKinnon (1973) and Shaw (1973) government intervention leads to lower capital accumulation, investments and high interest rate. According to Demirguc-Kunt and Detragiache (1998 and 2005) stable inflation rates maintains higher levels of financial sector development. High inflation and real interest rates are associated with higher probability of systemic banking crises.

This leads to the hypothesis that increasing real interest rates leads to decreasing financial development.

Classical growth theory explains economical growth through population. According to this theory increasing population has negative effect on economic growth. From this point of view population growth has negative impact on the financial sector development.

Neoclassical growth theory argued that economic growth appears by three driving forces: labor, capital and technology. The theory states that by varying the amounts of labor and capital in the production function, an equilibrium state can be accomplished. When a new technology becomes available, the labor and capital need to be adjusted to maintain growth equilibrium. Cobb and Douglas (1928) and Solow (1956) showed economic growth dependence on the capital accumulation. Solow (1956) through Cobb-Douglas production function analyzed countries productivity that depends on capital per worker. He proved that countries which have increasing population or labor force should increase capital accumulation in order to maintain the existing economic level or to improve long-term growth. Solow through steady state model explained that if population increasing slower than national savings so capital accumulation and investments contribute to economic growth. Neoclassical model also explains the distribution of foreign direct investments. Capital flows from the rich countries to the poor countries because of the diminishing marginal product (MPK) of capital. MPK stimulates FDI growth and the reason for this is that countries which holds big parts of capital are unable to maintain productivity because of limited labor force. This factor has also approach to comparative advantage. According to Robert E. Lipsey (2002), Manuela Tvaronaviciene (2007) and Virginija Grybaite (2007) FDI improves economic growth in host country and leads to increasing capital accumulation, productivity and exports. It contributes to development of new products, technologies, creation of new jobs and transfers the knowledge from home country to host country. Manuela Tvaronaviciene (2007), Virginija Grybaite (2007) and Jadviga Ciburiene (2010) underlines that FDI can also have negative effects like returning of profits, dividends, salaries to the home country and increasing inflation. According to Gordon H. Hanson (2001) there are weak evidence that FDI generates positive effects for host economies. This literature approach generates to assumptions. The first one is that national savings and FDI have positive effect on the financial sector development. The second is that high labor participation and low unemployment leads to increasing economic growth and financial sector development.

The main idea of new growth theory is that economic growth depends on innovation. Grossman and Helpman (1994) argued that comparative advantage of technology and labor force in international market plays the significant role. According to Romer (1993) and Joseph Corthright (2001) economic growth and technological development results from new knowledge. The other hypothesis appears from this theory namely that expenditure to education should lead to increasing innovation and must have positive relationship to financial sector development.

Hernando de Soto (1996) and Coase (1960) analyzed privatization effects. Hernando de Soto (1996) argued that property rights has directly effect on productivity and at the same time to economic growth, while Coase (1960) indicated that social sector can be cost inefficient. These views point out to the following assumption that gross capital formation in the privet sector has positive effects on the countries aggregate output and on the countries financial development.

Based on the literature reviews it is expected that the results of this analysis will be consistent with the following hypotheses:

H1. Aggregate output in the country leads to increasing economic activity and has positive effects on financial sector development.

H2. If increasing economic activity has positive effect on financial sector so components of the total output in the country (final consumption expenditure, gross fixed capital formation, exports and imports of goods and services) have also positive relationship with financial sector development.

H3. Instability in the country has negative effects on the economic growth. Because high inflation creates instability it has negative effects on the financial sector development.

H4. Government regulation creates inefficiency. One of the regulation tools in the country is monetary policy that regulates economic activity through money supply and interest rates. This fact expose the assumption that increasing real interest rates damps economic growth and have negative effects on financial development.

H5. Because of the limited resources in the country population growth leads to lower recourses per capita. Therefore increasing population negative affects economic growth and financial sector development.

H6. Economic growth depends on the productivity in the country while physical and financial capital accumulation impacts productivity. This fact refers to the following hypothesis:

- Greater decrease in unemployment and higher labor participation leads to increasing of economic activity. This gives the reason to assume that high labor participation and low unemployment stimulates economic activity and financial sector development.
- Increasing in national savings and FDI have positive effects on productivity and financial sector development in the country.

H7. Productivity also depends on innovation and innovation has directly relation with knowledge and education. This leads to the assumption that education expenditures impacts innovation and have positive effects on the economic activity and financial sector development.

H8. Privatization refers to smaller and more efficient public sector. Therefore increasing privet sector positive impacts countries' economies. This gives the reason to assume that gross capital formation in the privet sector has positive relation with the financial sector development.

H9. One of the main functions of financial institutions is mobilization and allocation of savings, generation of liquidity and funding longtime investments. This creates the assumption that capital accumulation has strongest effects on financial sector development.

2. REVIEW OF DATA AND VARIABLES IN BALTIC STATES

2.1. Data and Variables

In this part of the work factors that affects financial sector development and link between the financial sector development and economic growth in the Baltic States were analyzed. The annual data from the period 1998 - 2007 were collected mostly from The World Bank database.

The theoretical literature of financial development states that financial system influence economic growth by accumulation, mobilization and allocation of savings, generation of liquidity and funding longtime investments, reducing transaction and information costs, improving information acquisition by firms and by improving firm decisions and risk sharing. In this research financial sector development was measured by to indicators: Liquid liabilities (M3) to GDP and Private Credit to GDP.

The first variable Liquid Liabilities or M3 money supply to GDP ratio, was used by Sylviane Guillaumont Jeanneney and Kangni Kpodar (2008), Beck, Levine and Loayza (1999). Liquid liabilities measuring overall size of financial sector and consist of currency and deposits in the central bank (M0), plus transferable deposits and electronic currency (M1), plus time and savings deposits, foreign currency transferable deposits, certificates of deposit, and securities repurchase agreements (M2), plus travelers checks, foreign currency time deposits, commercial paper, and shares of mutual funds or market funds held by residents. Researchers like Gelb (1989) or King and Levine (1993) used also liquid liabilities (M3) in their research.

The Private Credit to GDP ratio is the measure of the activity of financial intermediaries in one of its main function: channeling savings to investors. Private credits were used by Sylviane Guillaumont Jeanneney and Kangni Kpodar (2008) in their research.

The following variables were used in the analysis: GDP growth, GDP per capita growth, final consumption expenditure, net national savings, gross fixed capital formation, exports of goods and services, imports of goods and services, foreign direct investments, labor participation rate, unemployment, total population, education expenditure, gross fixed capital formation in private sector, inflation, real interest rate, deposit interest rate.

The first analyzed variable is growth domestic product. It shows country's total wealth and measures the value of all goods and services produced in a country in a given time period - usually a year. Annual and per capita rates of GDP were used to show how total economies in the

Baltic countries have changed in the last two decades and what kind effects it had on the financial sector development.

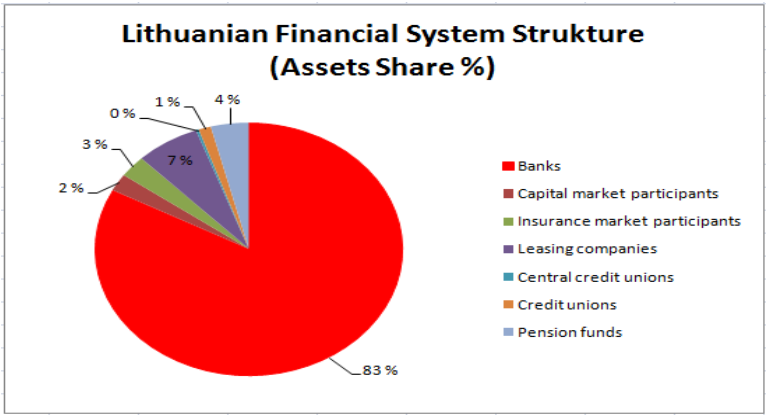
Final consumption expenditure is the sum of household final consumption that is sum of private consumption and government final consumption. National savings is important factor in the national economy because it gives freedom to investments. National savings consist of private savings and public savings. Gross fixed capital formation or gross domestic fixed investment consist of land improvements, plant, machinery, different equipment purchases, commercial and industrial buildings etc. Investment includes all purchases on goods that are not consumed but are used for future production. Imports of goods and services represents the value of all goods and market services that are received from the rest of the world. Exports of goods and services represents the value of all goods and services produced to the rest of the world. Foreign direct investments are the net inflows of investment from a abroad. It is long-term capital, and short-term capital investments from foreign companies. Total population consist of all residents that have legal status or citizenship (except for refugees not permanently settled in the country of asylum) who are generally considered as a part of the population of the country of origin. Unemployment presents the share of the labor force that doesn't participate in the labor market but is available for work and seeking employment. Education expenditure is operating expenditures in education, including wages, salaries and excluding capital investments in buildings and equipment. Gross fixed capital formation in private sector refers to the private sector investments. Capital formation in private sector reflects to changes in privet and public equity and can be related to privatization. This indicator were used to identify how privatization can affect financial sector development. Inflation shows annual increase in price level in the country and is measured by the consumer price index. It presents the cost that consumer have of acquiring a basket of goods and services. Real interest rate is the lending interest rate that is adjusted for inflation as measured by the GDP deflator.

2.2. Financial Sector Development in The Baltic States

Financial system in the Baltic States has gone through major changes over the last decade but the structure remains almost the same as the decade ago. Financial sector market in all three Baltic countries is dominated by banks. The figure 1 shows that more than 80% of financial

sector in Lithuania belongs to banking sector. In 2010 banks had hold 83% of the total financial assets and the other financial institutions just 17%.

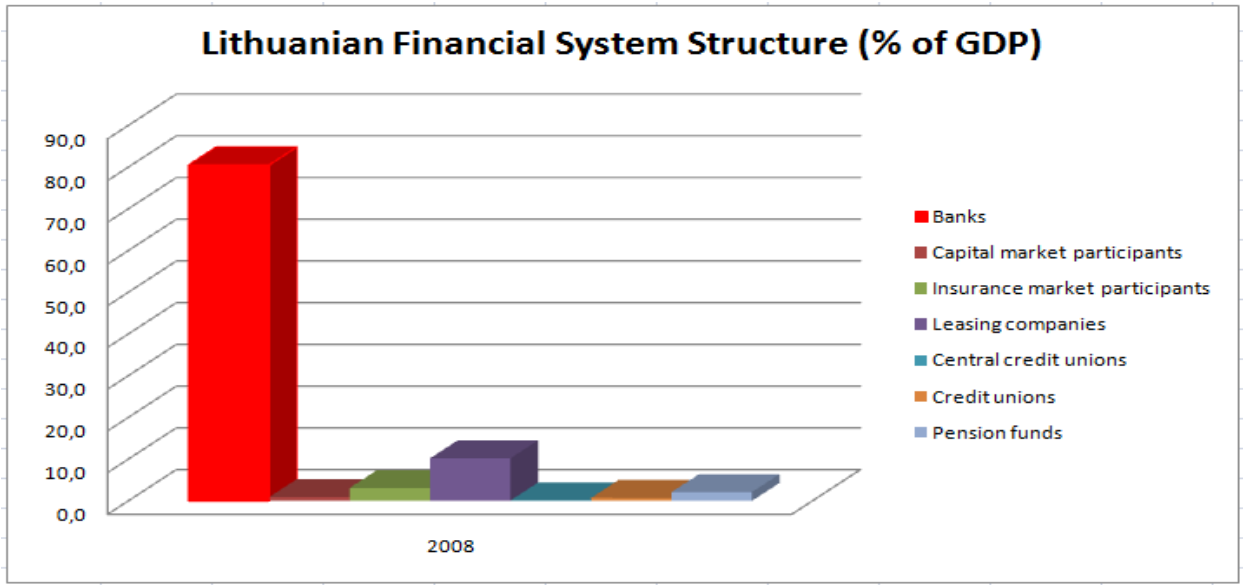
Figure 1. Financial system structure in Lithuania in 2010, % assets share



Source: Central Bank of the Republic of Lithuania. Financial Stability Review 2011

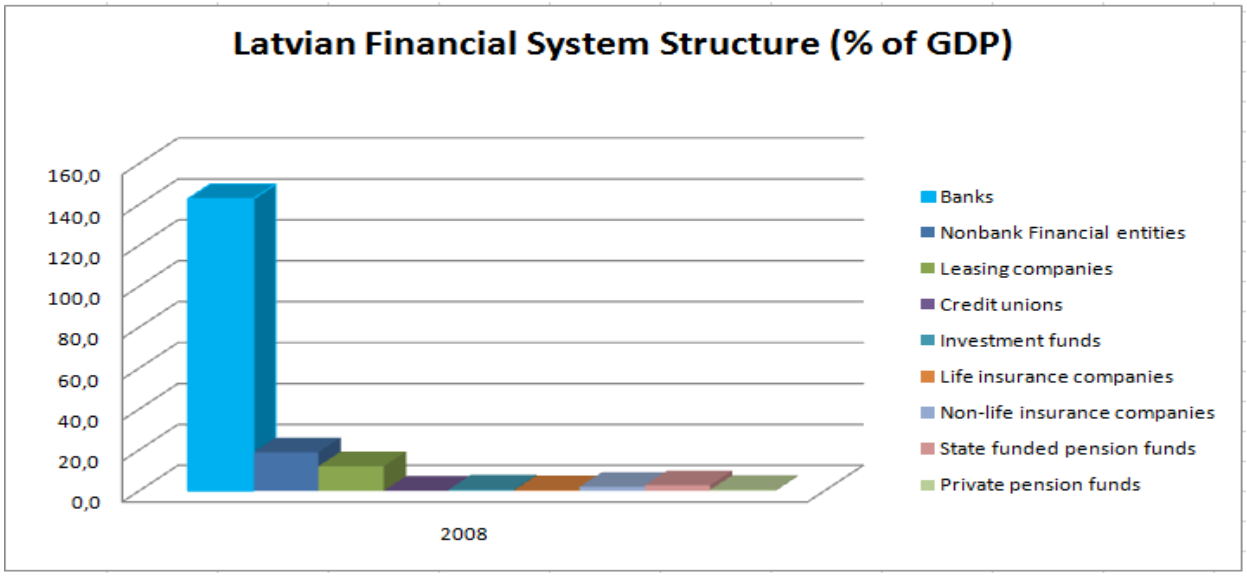
Financial sectors in the Baltic region has been growing rapidly in the last decade. This development was slowed down because of the global financial crisis in 2008. Total financial systems assets increased in all three countries. The figures 2, 3 and 4 expose overview of the size of financial sectors in three countries Lithuanian, Latvian and Estonian in 2008.

Figure 2. Financial system structure in Lithuania in 2008, % of GDP



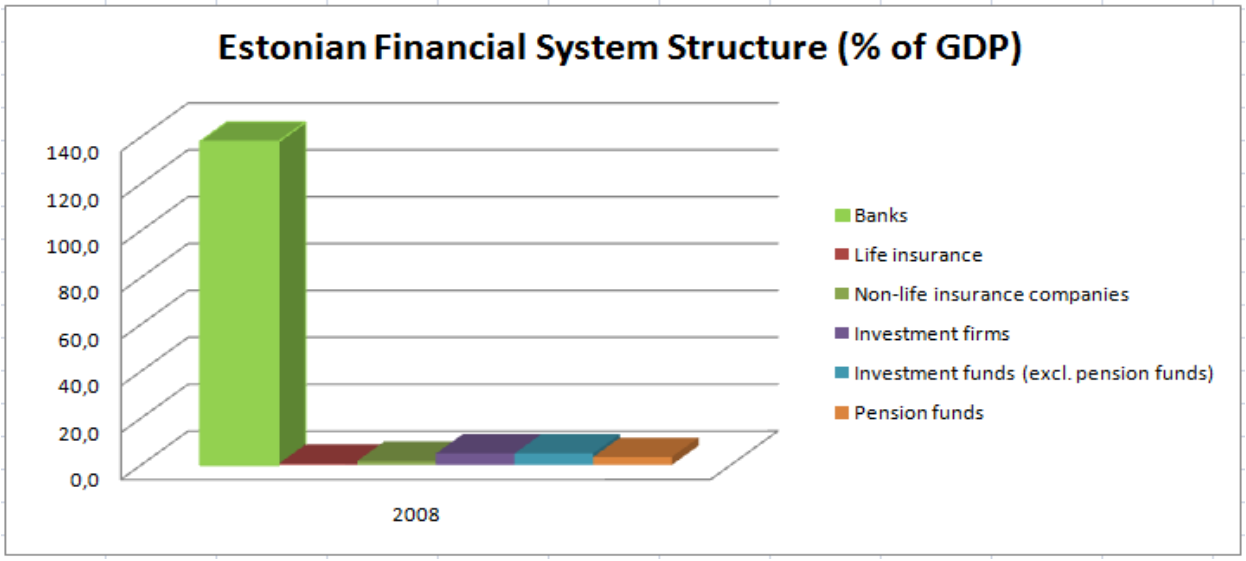
Source: Central Bank of the Republic of Lithuania. Financial Stability Review 2011

Figure 3. Financial system structure in Latvia in 2008, % of GDP



Source: Bank of Latvia, Central Statistical Bureau of Latvia

Figure 4. Financial system structure in Estonia in 2008, % of GDP



Source: Estonian Banking Association, Estonia Statistics

In Lithuania, banking sector accounted for 80,5% of GDP while non-banking sector accounted just for 17,1% of GDP in 2008. Latvian banking sector in relation to GDP was the highest of all Baltic countries and accounted for 142,8% of GDP while in Estonia it was 138%. The following financial structures overview shows strong predominance of banking sector in all three countries.

Because the banking institutions are dominating the financial market in Baltic region, this analysis is based mostly on the banking sector i.e. financial sector definition is reflecting banking sector.

Baltic States started to reconstruct the banking sectors in the yearly 1990's. It was highly important to reorganize financial sector to make it more efficient. As the result of privatization necessary legislation and supervision institutions were put in to place. All three countries selected mostly foreign banks as new strategic investors.

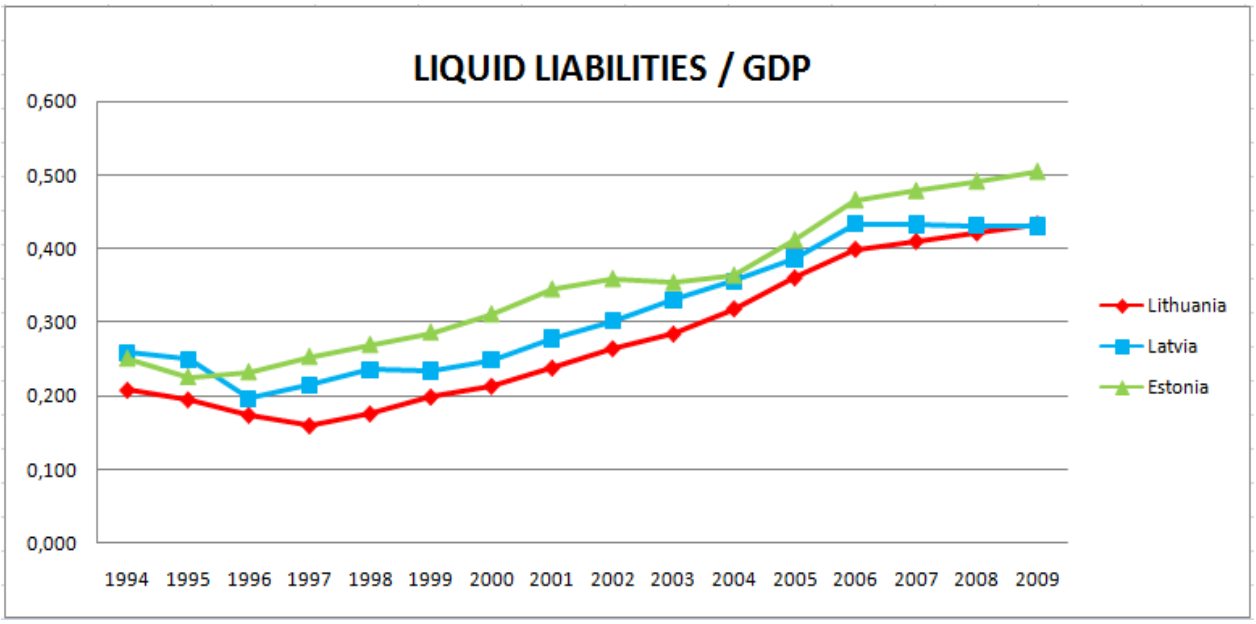
According to Tuuli Koivu (2002) the banking sectors in the Baltic countries become highly concentrated and mainly owned by foreign banks: "The concentration has not only happened inside the countries but also at the Baltic level. Foreign owners controlled nearly all sizeable banks in the Baltic's and most of these banks were operating in all three countries. The presence of foreign banks had balanced the financial sectors in the Baltic countries. In addition to stability, foreign banks had brought efficiency to the Baltic banks through the introduction of new technology. The share of capital of the banking sector owned by foreigners in 2002 was in Estonia about 85%, in Latvia 70% and in Lithuania almost 90%. In all three countries, Swedish Swedbank and SEB played an important role in the market" (Tuuli Koivu, 2002).

Theoretical literature of financial development suggest that financial system influence economic growth through different factors like capital accumulation and mobilization, generation of liquidity and others. To identify which index can measure financial development is not the easy task.

Sylviane Guillaumont Jeanneney and Kangni Kpodar (2008) suggests two indicators that could be used to measure development of the financial sector. The first one is the ratio to GDP of the liquid assets of the financial system. Liquid liabilities or M3 money supply are the sum of currency and deposits in the central bank or M0 money, plus transferable deposits and electronic currency or M1 money, plus time and savings deposits, foreign currency transferable deposits, certificates of deposits, and securities repurchase agreements or in other words M2 money supply. In addition M3 money includes traveler checks, foreign currency time deposits, commercial paper, and shares of mutual funds or market funds held by residents. Liquid liabilities to GDP ratio (M3/GDP ratio) development in the Baltic States expose the positive growth during the last ten years (See Figure 5). In Lithuania money supply to GDP ratio

increased from 0,160 in 1997 to 0.433 in 2009. At the same time in Latvia from 0,215 to 0,430 and Estonia from 0,253 to 0,505.

Figure 5. Development of liquid liabilities to GDP ratio in The Baltic States

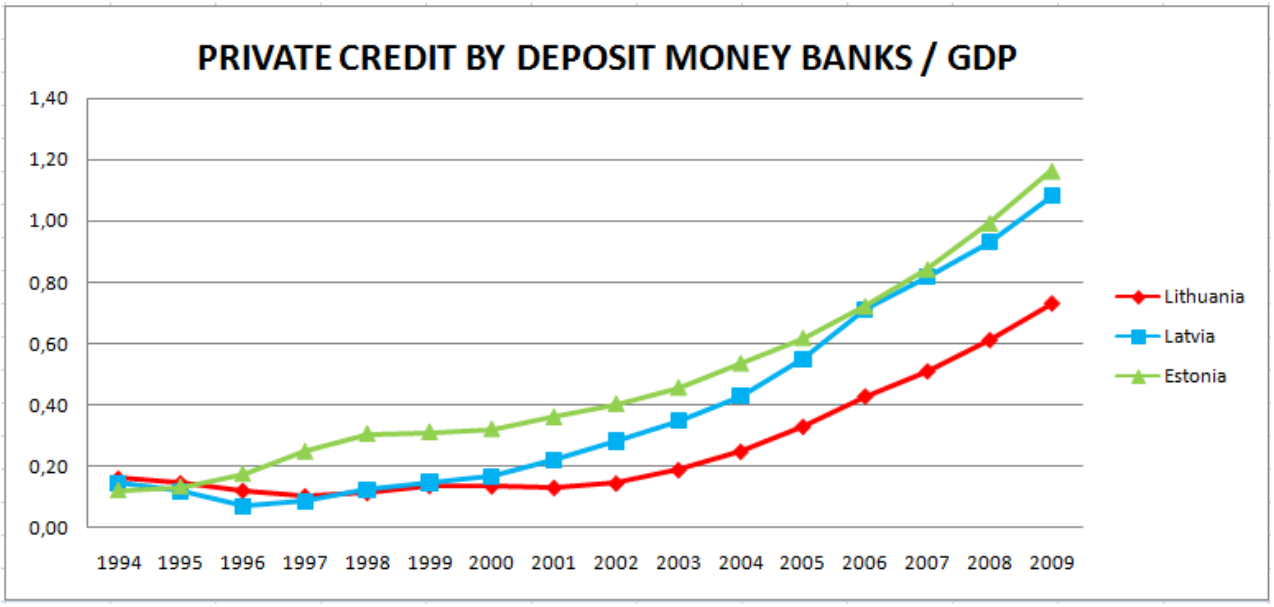


Source: The World Bank. The World Development Indicators

This indicator is related to the ability of financial system to provide transactions services and saving opportunities and it captures different aspects of financial growth. Liquid Liabilities is measure of financial depth due to that it is measuring overall size of the financial sector. The Liquid Liabilities and GDP ratio was used in the empirical analysis by Beck, Levine and Loayza (1999) also.

The other indicator that is suggested by Sylviane Guillaumont Jeanneney and Kangni Kpodar (2008) is the ratio to GDP of the value of credits provided by financial intermediaries to the private sector (Private credits/GDP ratio). Privet credit ratio is measuring activity of financial intermediaries. This ratio shows positive development in the financial sectors in all three Baltic countries. (See Figure 6).

Figure 6. Development of private credit to GDP ratio in the Baltic States



Source: The World Bank. The World Development Indicators

This ratio increased several times during the last decade. In Lithuania changes was from 0,14 in 1999 to 0,73 in 2009, followed by Latvia where private credit increased from 0,15 to 1,08. In Estonia the privet credit level was the highest in 2009 and since 1999 it has changed from 0,31 to 1,16. This ratio excludes credit to the public sector and has the advantage of measuring more accurately the fund channeling role of financial intermediaries. Channeling savings to investors is the main function of financial intermediaries due to that this ratio is most common measure of financial intermediation. Private credit ratio was also used in empirical studies by Ross Levine, Norman Loayza and Thorsten Beck (2000). They underlines importance of this rate: "This measure of financial development is more than a simple measure of financial sector size. Private credit isolates credit issued to the private sector, as opposed to credit issued to governments, government agencies, and public enterprises. Furthermore, it excludes credits issued by the central bank. While private credit does not directly measure the amelioration of information and transaction costs, we can interpret higher levels of private credit as indicating higher levels of financial services and therefore greater financial intermediary development" (Ross Levine, Norman Loayza and Thorsten Beck, 2000).

Financial sector development is a part of privet sector development strategy and has an objective to stimulate economic growth and reduce the poverty. It provides financial

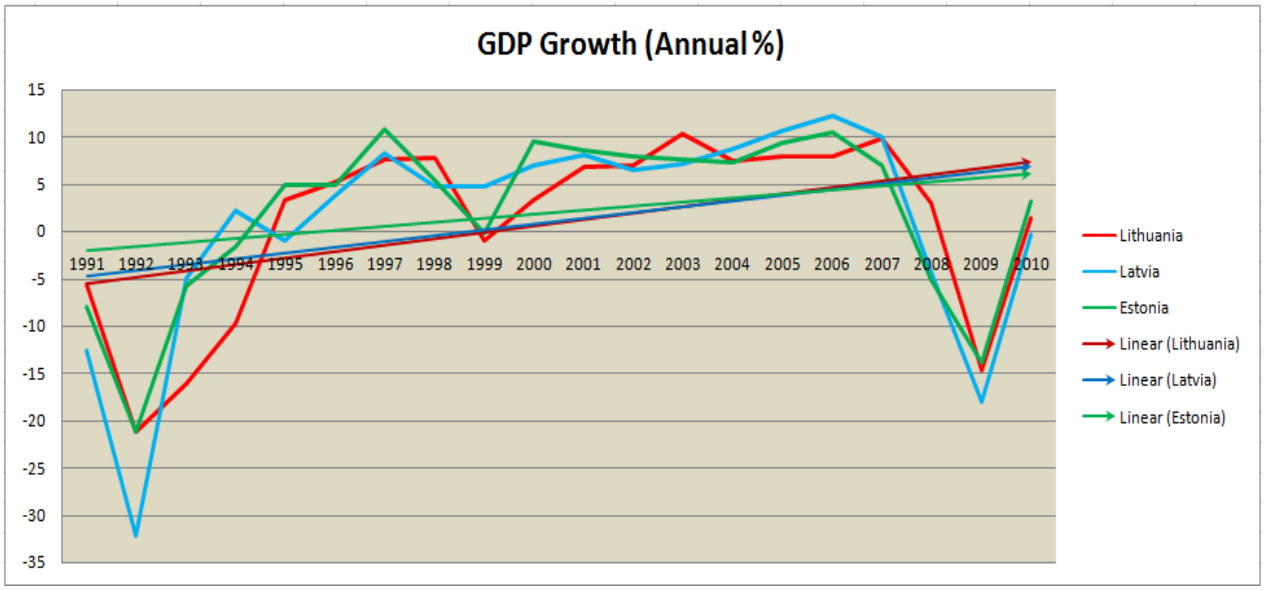
infrastructure and services like capital accumulation and mobilization, monitoring and others. Financial overview above shows great increasing in financial sector in all three Baltic countries in the last two decades.

2.3. Economic Growth in The Baltic States

Three Baltic countries are often considered sufficiently similar as a group. Even if the cultural differences exist, political and historical experiences led to similarities in the development of economical and political environment.

Since independence in 1991, all three countries have made steady progress in developing a market economy. Economical reforms process slowly moved Baltic States from a command economy toward a free market economy. The financial sector reforms and privatization was important factors that had impact on the development of the economy. This improvement has been truly visible from average annual growth rates in the period from 1991 to 2007 (see Figure 7).

Figure 7. GDP growth in the Baltic States, annual % growth



Source: The World Bank. The World Development Indicators

After independence the growth rate was negative in all three countries. Latvia had highest negative economical down turn with -12,6% annual GDP rate in 1991 after followed Estonia with

-8% and Lithuania had lowest negative growth rate -5,7%. The situation in 2007 looked totally different. Baltic States showed positive economical improvement. Latvia with the growth rate of 9,8% was at the first place followed up by the Lithuania with growth 9,8% of annual GDP and Estonia with 6,9% GDP.

All three Baltic countries had both upturns and downturns in their economies during the last to deceits. The first downturn started immediately after independence when Estonian banking crisis appeared in 1992. The annual growth rates moved down in Lithuania and Estonia to around -21% and in Latvia -31%. The reason for the second economical downturn was Russian financial in 1998. Estonia, Lithuania and Latvia had sunk into recession. Decline in Baltic's exports to Russia caused negative economic growth in Estonia and Lithuania. The Global Financial Crisis (GFC) in 2008 had negative impact on Baltic economies also. The financial crises was triggered by a complex interplay of valuation and liquidity problems in the United States banking system. U.S. housing bubble burst in 2007 and damaged financial institutions globally. The effects of global financial crises took plays in 2008 and 2009. Even if the world's central banks and governments tried to stimulate economies through monetary and fiscal policies it was not possible to avoid economic decline. This global economical downturn was strongly visible in Baltic countries also. Annual Gross Domestic Product rate fell down in all three countries after year 2007 (See Table 1).

Table 1. GDP development in The Baltic States, annual % growth

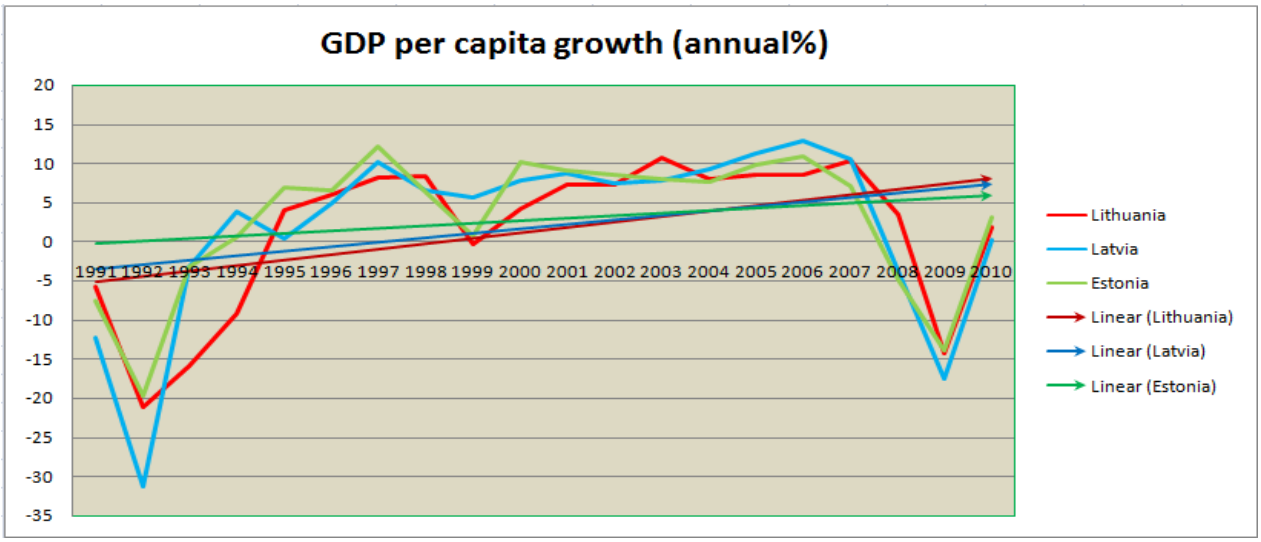
GDP Growth (Annual %)			
Country/Year	2007	2008	2009
Estonia	6,92	-5,06	-13,90
Latvia	9,98	-4,24	-17,95
Lithuania	9,84	2,93	-14,74

Source: The World Bank. The World Development Indicators

In the table above we can see that Lithuania and Latvia had almost 10% and Estonia almost 7% annual gross in 2007. One year later in 2008 economic growth decreased in all Baltic region. Lithuania have economic growth by 2,9% while Latvia and Estonia had negative growth, Latvia by -4% and Estonia by -5%. In year 2009 was the highest downturn in all three countries. Latvia had the lowest negative annual growth by almost -18%, while Lithuania -14,7% and Estonia -13,9%. If we look to the 20 years perspective we will see that general improvements in Baltic

States economies have positive trend. To see how economic growth had impact on the Baltic citizens welfare we have to look at the GDP per capita growth (See Figure 8).

Figure 8. GDP per capita growth in the Baltic States, annual % growth

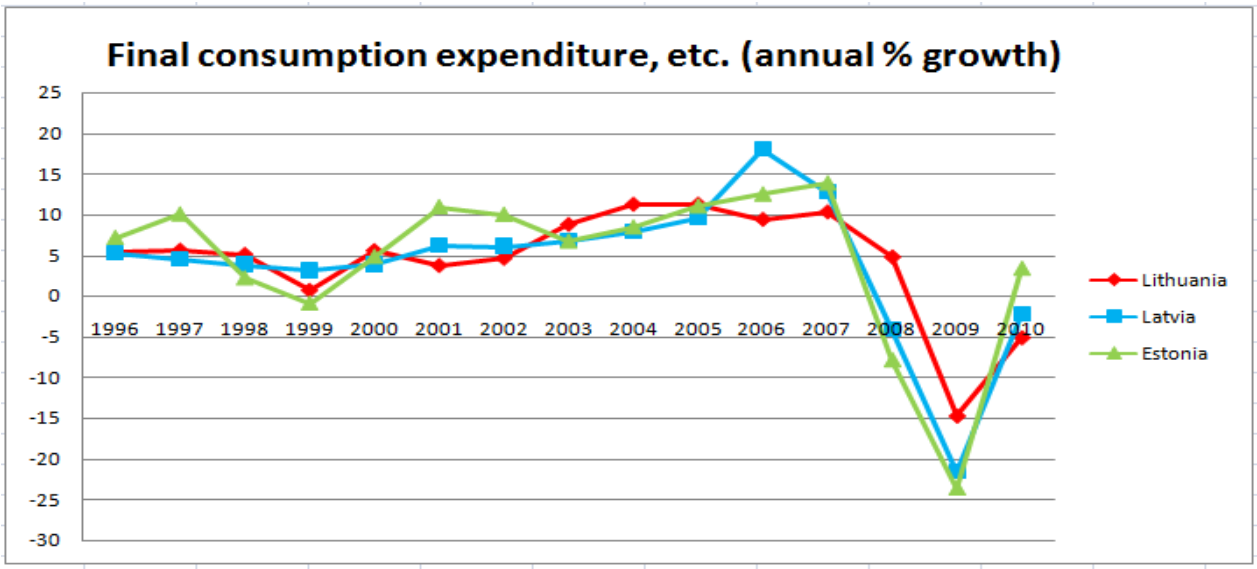


Source: The World Bank. The World Development Indicators

Growth per capita rate shows quit similar picture to the GDP growth rate. This indicates that economical growth in the Baltic countries had positive effects on the welfare for the Baltic people.

Expenditure approach to the GDP refers to aggregate value in the country that consist of private consumption (householders personal consumption i.e. expenditures on goods and services), investment (firms that make investments), government spending (government purchases of goods and services) and net exports. Final consumption expenditure that is based on annual percentage growth shows not strong but positive development in the Baltic States during the period between 2000 and 2007 (See Figure 9).

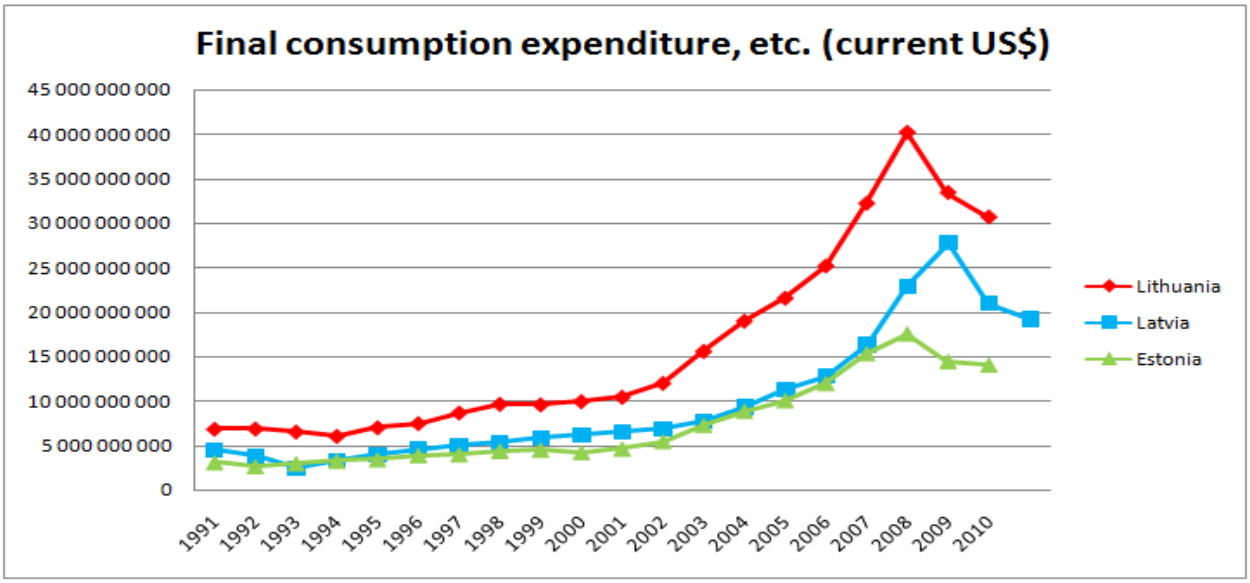
Figure 9. Final consumption expenditure in the Baltic States, annual % growth



Source: The World Bank. The World Development Indicators

In the period between 2000 and 2007 final consumption increased from 5,6% of GDP to 10,3% of GDP in Lithuania, from 3,9% to 12,8% in Latvia and from 4,9% to 13,9% in Estonia. The trend of final consumption in US dollars shows also stronger positive development in the Baltic States in the last two decades (see Figure 10).

Figure 10. Financial consumption expenditure in Baltic States in current US dollars.

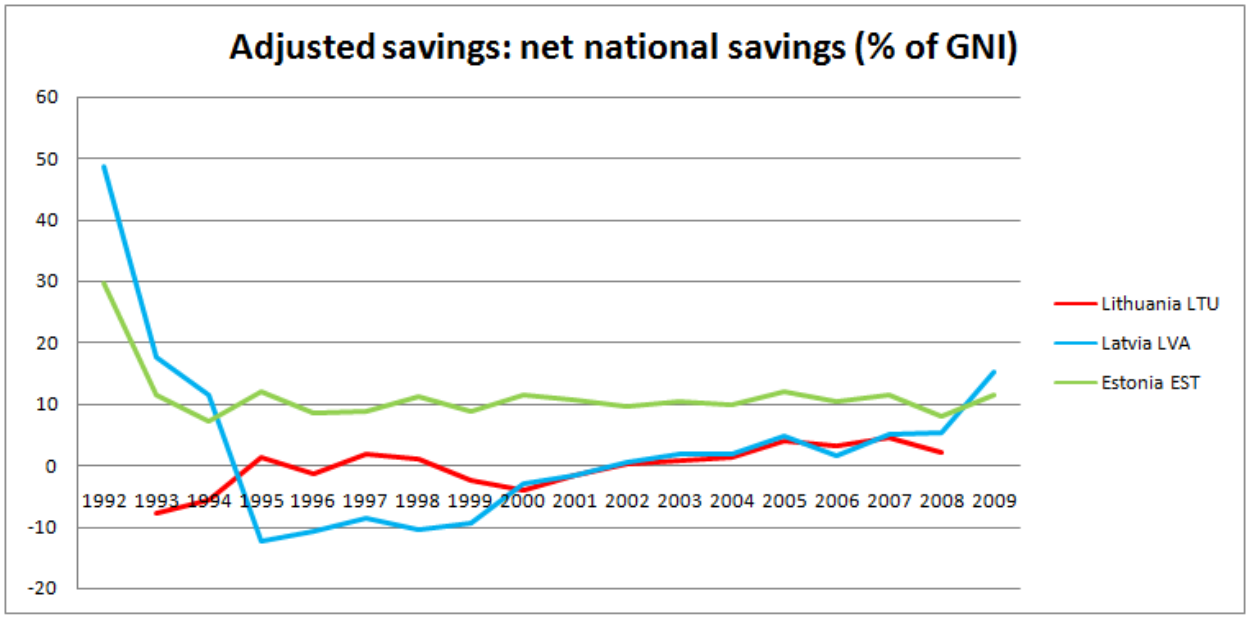


Source: The World Bank. The World Development Indicators

From 1993 to 2008 final consumption increased by 511% in Lithuania, 734% in Latvia and by 485% in Estonia. This positive trend had been slowed down by the global financial crises that started in 2007 and spread trough international economy in 2008. In the short period from 2008 to 2010 expenditure were reduced in Lithuania by 23,6%, in Latvia by 30,7% and 20% in Estonia.

Theoretical literature refers to national savings as the part of national capital accumulation. National savings can be used to finance investments. Theoretical part of this work supports the view that high national savings level have a strong positive effect on the total economy of the country. National savings in Estonia was highest in the hole Baltic region if we look at the savings as percentage of gross national income. Lithuania and Estonia had quite similar development of national capital accumulation. (See Figure 11).

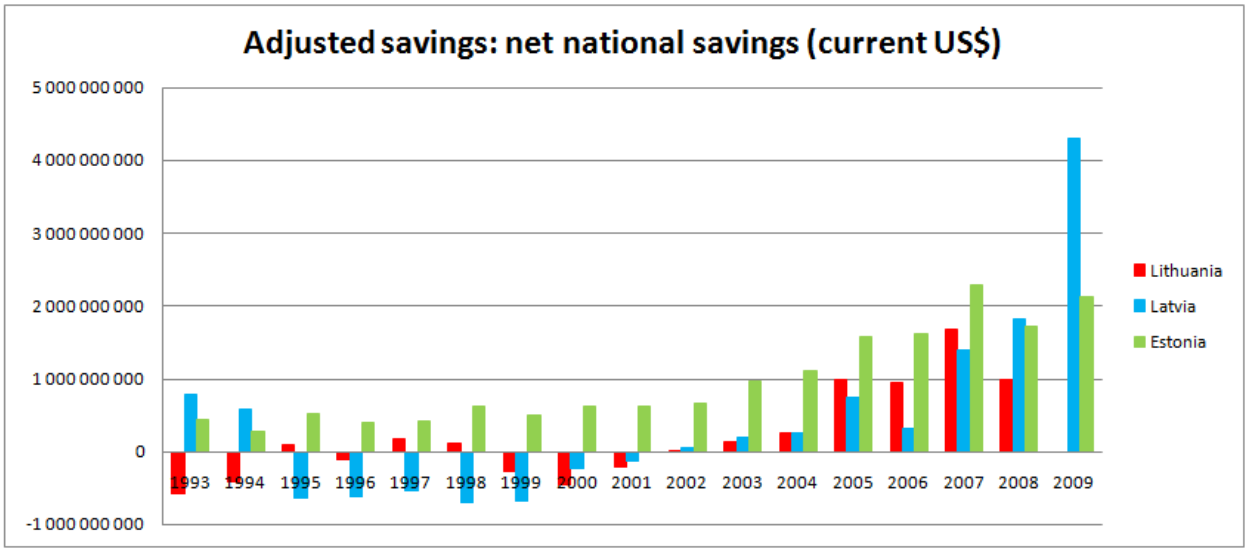
Figure 11. National savings in the Baltic States, % of GNI



Source: The World Bank. The World Development Indicators

If we analyze national savings in current US dollars we will find that Estonia had positive and stable income of national capital in the period between 1993 to 2009, while in Latvia and Lithuania national capital accumulation vary from time to time. Most dramatic period was between 1993 and 2001 when Lithuania and Latvia had generally negative national savings (See Figure 12).

Figure 12. National savings in the Baltic States, current US dollars

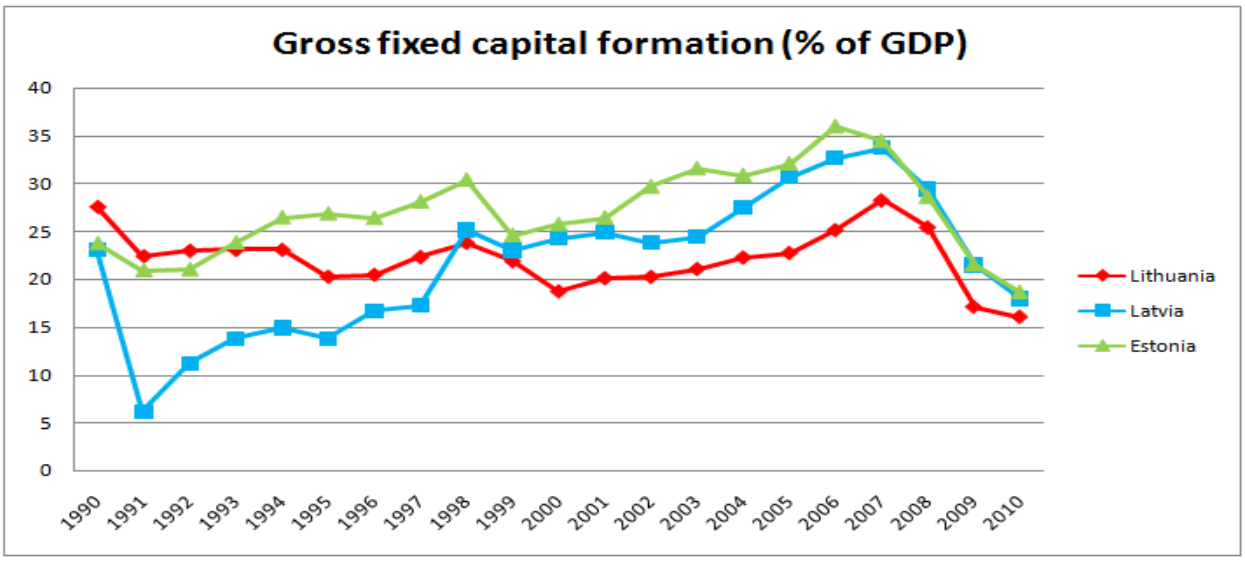


Source: The World Bank. The World Development Indicators

In 1993 national savings in Lithuania amounted to -577 mil US dollars. In 2007 it amounted to 1,69 billion US dollars and it was the highest level of national savings in Lithuanians history. Latvia had negative national savings seven years in a row from 1995 to 2001. The highest national savings was in 2009 and it amounted to 4,3 billion US dollars. Estonia had quit stable increasing in national savings without any negative variations. The highest level of savings was in 2007 and it was amounted to 2,29 billion US dollars.

National saving has strong relation to gross domestic fixed investments or in other words gross fixed capital formation. These investments including land improvements, plant, machinery, equipment purchases, commercial and industrial buildings and others capital investments. From theoretical point of view we know that capital formation has strong relationship with productivity in the country. Capital formation in the Baltic States shows positive trend if we look at the investments as percentage of GDP (See Figure 13).

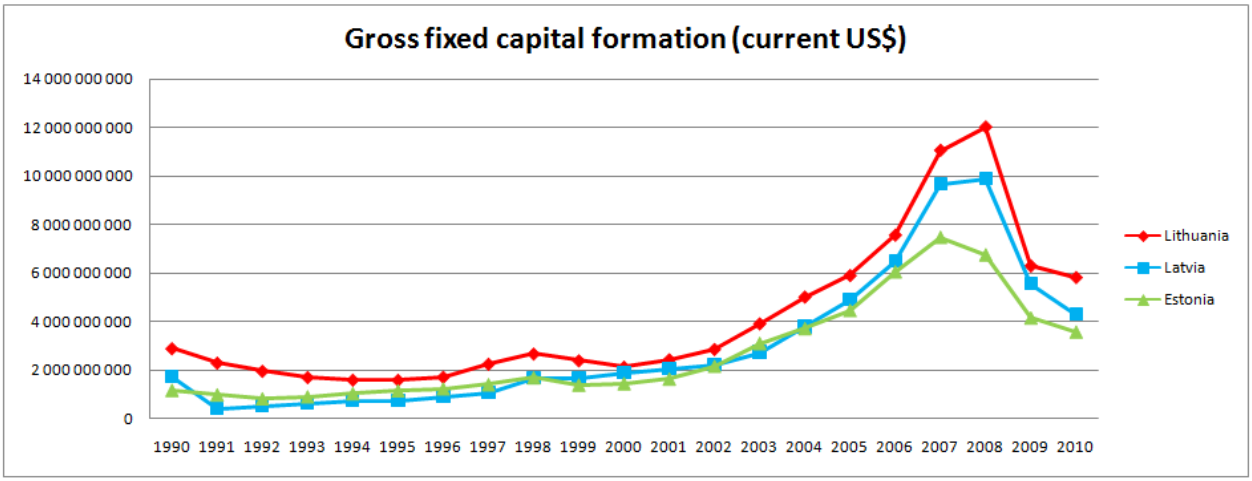
Figure 13. Gross fixed capital formation, % of GDP



Source: The World Bank. The World Development Indicators

In 1991 gross fixed capital formation in Lithuania was about 22% of GDP, while in Estonia it was 21% and just 6% of GDP in Latvia. The size of annual investments in capital increased in all three countries until 2007. Latvia and Estonia had investments in capital at the level of 34% of GDP while Lithuania had 28% of GDP. Capital acquisition in US dollars shows more evenly trend of capital investments (See Figure 14).

Figure 14. Gross fixed capital formation in the Baltic States, current US dollars

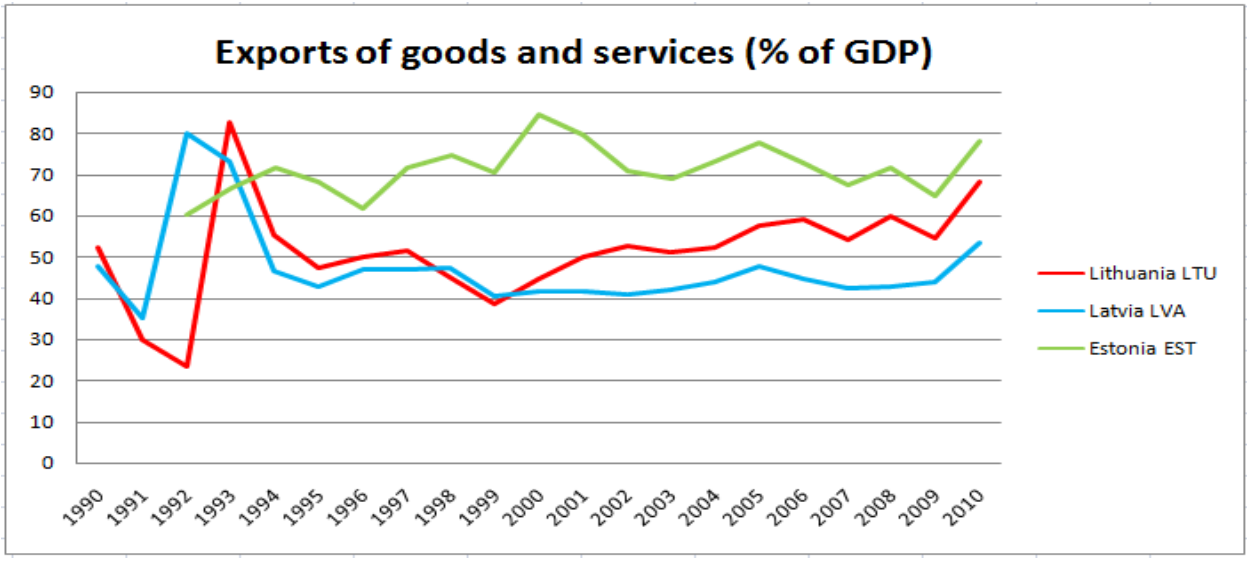


Source: The World Bank. The World Development Indicators

Most dramatic increase started in the period between 2000 and 2007. This development was slowed down by global financial crises. In 2000 gross domestic fixed investment in Lithuania was about 2 billion US dollars while in Latvia it was 1,9 and in Estonia 1,5 billion US dollars. In the 7 years period annual capital formation increased by more than 500% in all three countries. In 2007 investments in Lithuania was more than 11 billion in Latvia more than 9,6 billion and in Estonia about 7,5 billion US dollars.

The other component of countries aggregate output is net exports. Net exports plays significant role in total economy of the country through regulating balance of payments. From the theoretical part we know that net exports is equal to goods and services that were exported from the country minus goods and services that were imported in to the country during the same period of time. If we look at the exports as the percentage part of GDP we find that there were quite stable trend in all three Baltic countries. Estonia strongly distinguish form other to countries because of the high rate of exports (See Figure 15).

Figure 15. Exports of goods and services, % of GDP

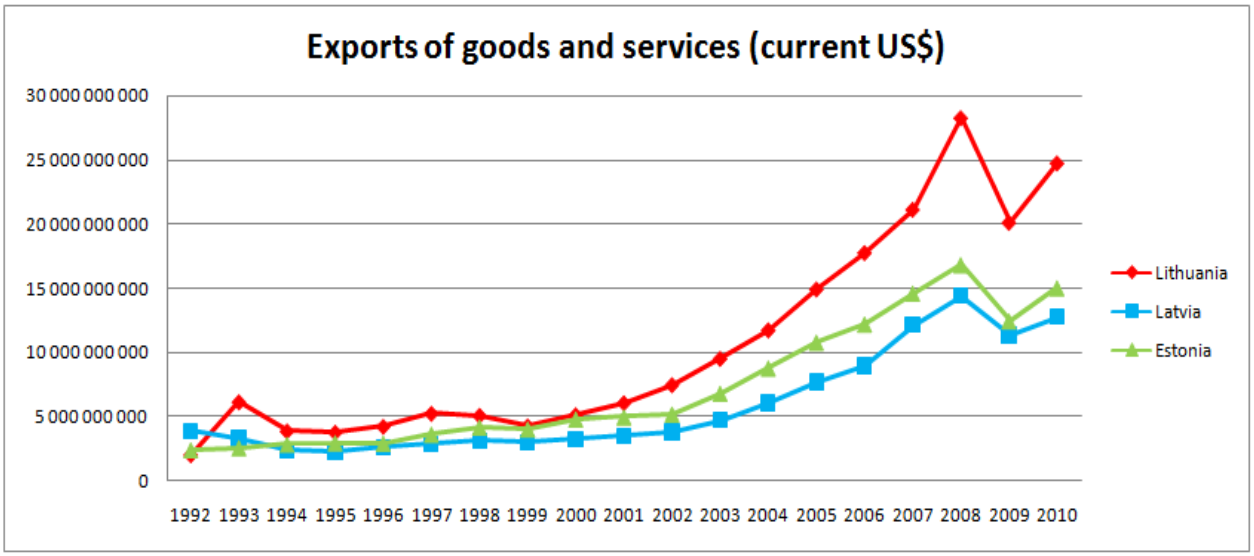


Source: The World Bank. The World Development Indicators

From the figure above we can see that Estonia managed to maintain highest export rates during the hole period of independence, while Lithuania was on the second place and Latvia in the end. In 1995 Export of goods and services consisted 47% of GDP in Lithuania, 42% in Latvia and 68% in Estonia. Export activity in 2010 increased until 68% of GDP in Lithuania, 53% in Latvia

and 78% in Estonia. The monetary value of exports shows strong increasing of exports in all Baltic countries. (See Figure 16).

Figure 16. Exports of goods and services, current US dollars

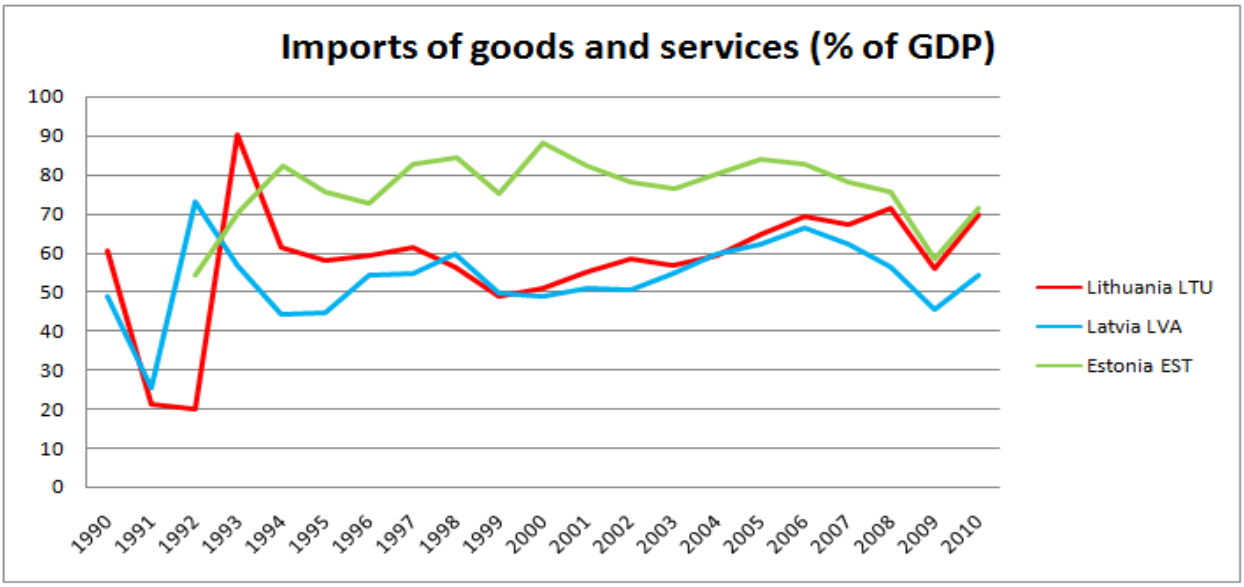


Source: The World Bank. The World Development Indicators

Measurement of exports in US dollars shows that highest exports had Lithuania. In 1994 Total exports from three Baltic countries was more than 9 billion US dollars. 3,8 billion was from Lithuania, 2,3 billion from Latvia and 2,8 billion from Estonia. From 1994 to 2008 exports of goods and services to foreign countries increased more than 7 times in Lithuania, and about 6 times in Latvia and Estonia (in Latvia it was 613% and in Estonia 592%).

Imports of goods and services shows quite similar trend. If we look at the percentage development we will find that Estonia had highest imports from the abroad (See Figure 17).

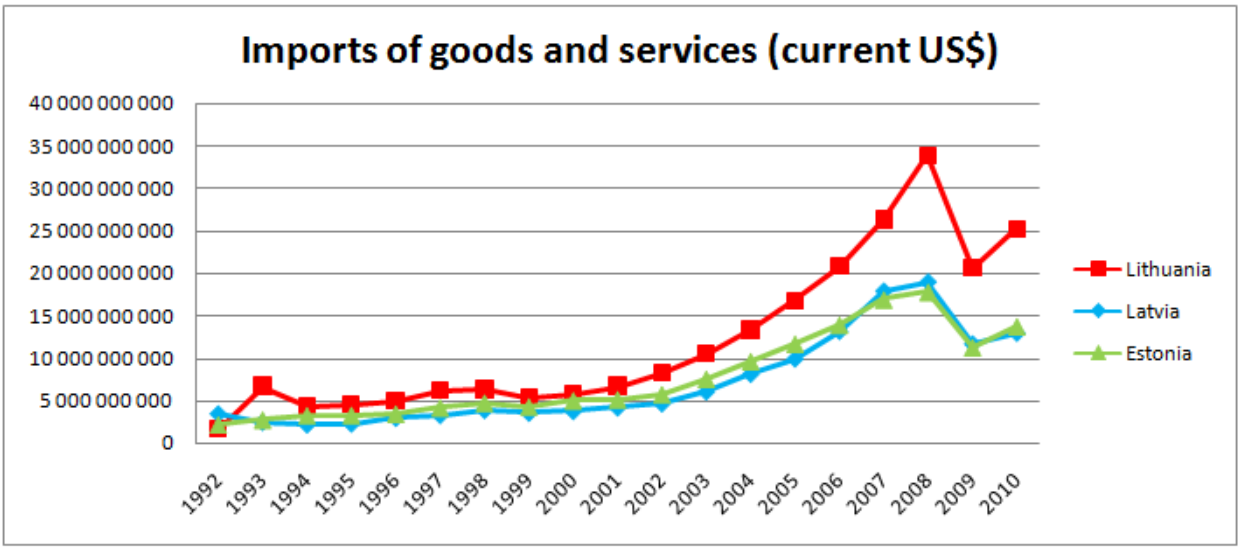
Figure 17. Imports of goods and services, % of GDP



Source: The World Bank. The World Development Indicators

Imports in to Estonia consist of 90% of GDP in 1993, in 2009 it reached the level of Lithuania imports i.e. 58% of GDP. Imports in the current US dollars reflects exports trend in the current US dollars. Lithuania maintain the highest level of imports and Latvia with Estonia are on the second place (See Figure 18).

Figure 18. Imports of goods and services, current US dollars

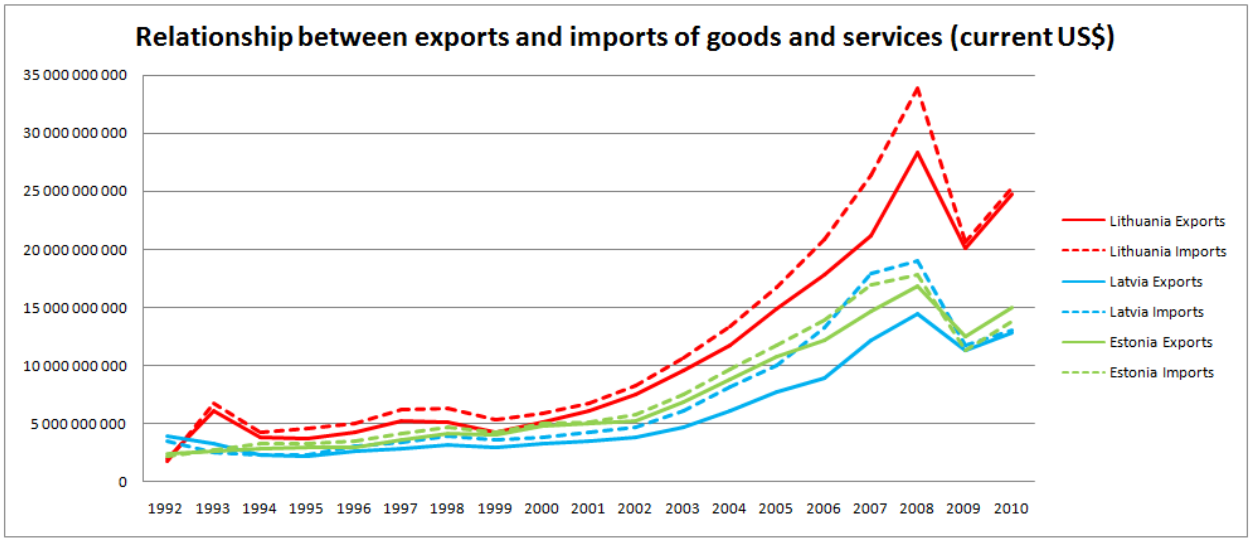


Source: The World Bank. The World Development Indicators

Imports in Lithuania in 1994 was 4,3 billion US dollars, while in Latvia it was 2,3 and in Estonia 3,3. Until 2008 imports in Lithuania increased about 7,9 times, in Latvia 8,5 times and in Estonia 5,5 times or 547%.

The separate analysis of the exports and imports can't give the total picture on how they effects total production in the country. It's much more important to analyze net export where exports and imports are to different parts. Namely net exports that is export minus import defines if countries international trade contributes to economical growth or not. If we look at the net export in the Baltic countries we will see that export was mostly eliminated because of the high import level. (See Figure 19).

Figure 19. Relationship between exports and imports in the increasing trend, current US dollars



Source: The World Bank. The World Development Indicators

Even if figure 19 shows positive development in both exports and imports this increasing didn't show positive effects on net exports (See Figure 20). During the last twenty years net exports was mostly negative in all three countries. We can mention exceptions in Estonia during the year 2009 and 2010 when net export was positive.

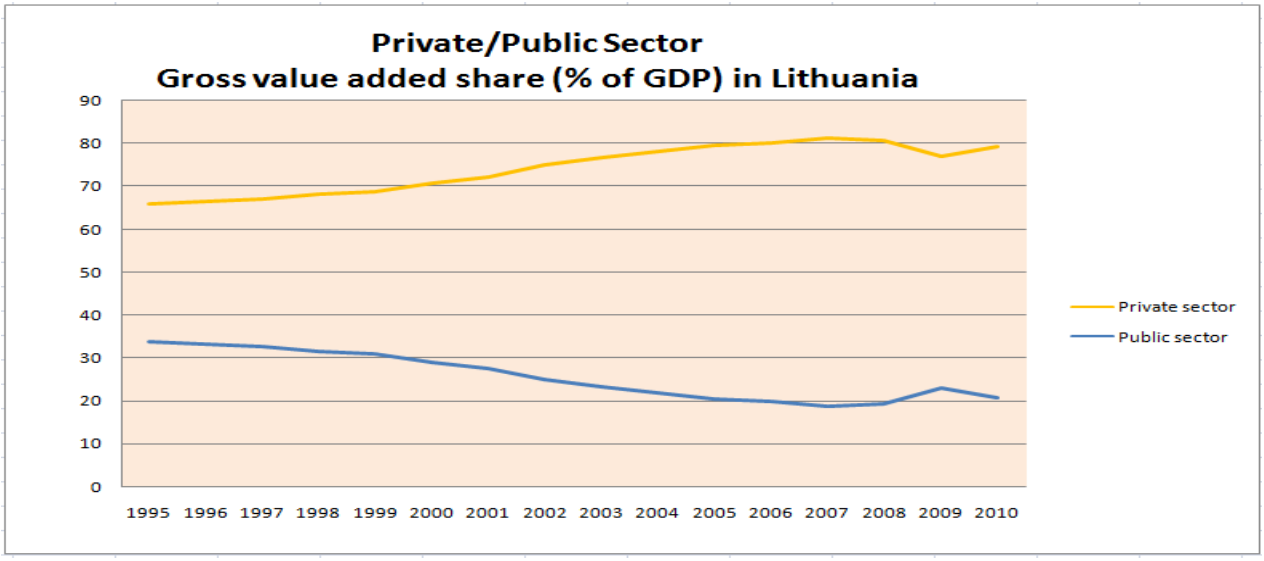
Figure 20. Net exports, current US dollars

Source: The World Bank. The World Development Indicators

The highest negative net export level was in Latvia in 2007 and reached 5,7 billion US dollars. The highest net export level in Lithuania was in 2008 at the 5,5 billion US dollars. Estonia managed to maintain the lowest level of net export and in 2009 and 2010 had positive net export rate about 1,2 billion US dollars.

Other factors that contributed to changes in economic environment in Baltic States was privatization. During the early 1990s, the governments of all Baltic countries launched a programs of market- oriented reforms, which included privatization. There were many differences in pre conditions on privatization reform programs in three Baltic States even though their goals were very similar to make public sector smaller and more efficient and to move toward a free market economy. Many large and medium-size enterprises were sold through public share offerings. Countries issued vouchers that was used in privatization of state assets. The Law on Initial Privatization of State-owned Property was passed in February 1991 in Lithuania. Lithuania was the first of three countries that implemented its voucher system and started privatization. In Latvia this process started between 1991 - 1993. Latvia passed a law on vouchers in November 1992. In Estonia privatization process started also between 1992 and 1993. In Lithuania public sector has been reduced from 33,9 % in 1995 to 20,7% in 2010 and at the same time private sector increased from 66,1 % in 1995 to 79,3 % in 2010 (See Figure 21).

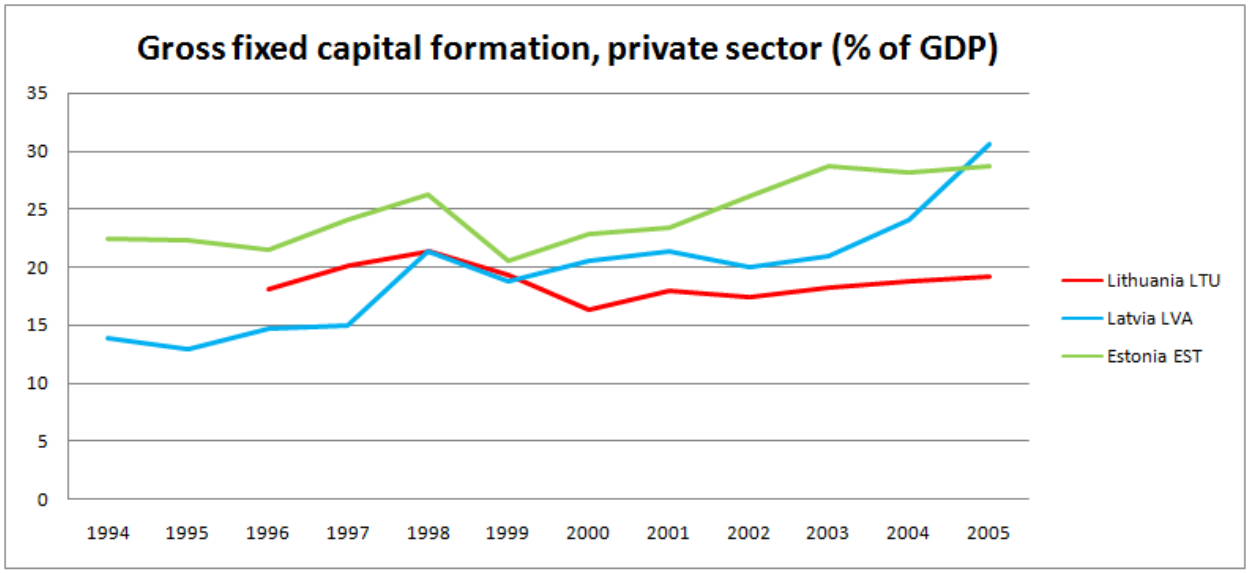
Figure 21. Private/Public sector in Lithuania, % of GDP



Source: Statistics Lithuania

To compare privet sector development in Baltic States the rate of Grosse fixed capital formation in privet sector was used. Privet sector in all three countries shows positive development (See Figure 22)

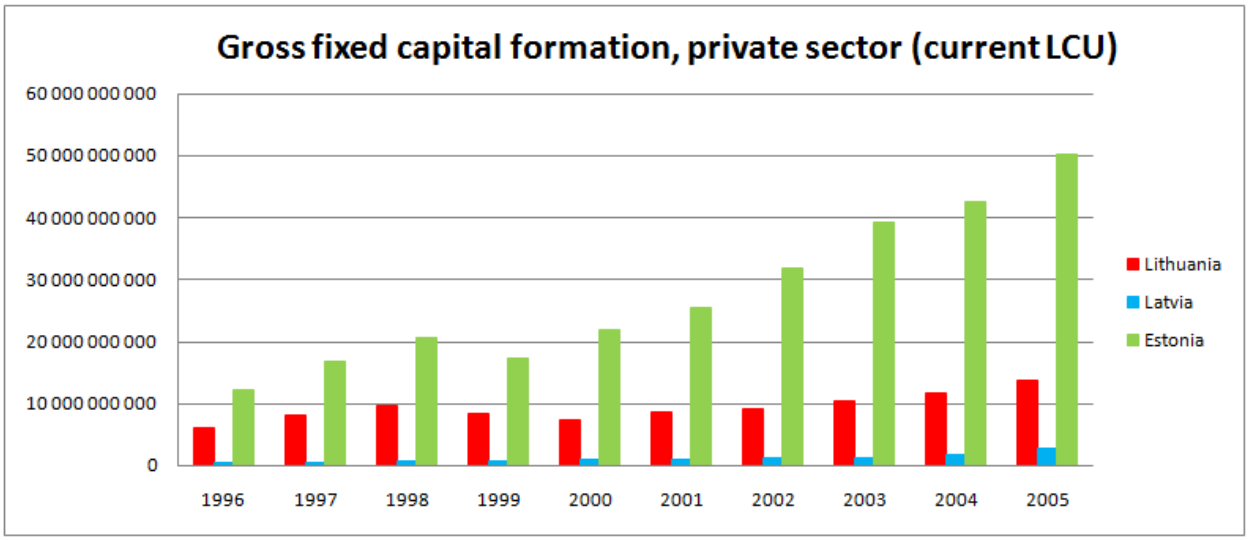
Figure 22. Gross fixed capital formation, private sector, % of GDP



Source: The World Bank. The World Development Indicators

Percentage ratio of GDP shows that the highest level of privet sector was in Estonia in the period between 1995 to 2005. Gross fixed capital formation in privet sector in local currency shows also positive trend (See Figure 23). Investments in Estonia was 12 billion Estonia's crown in 1996 and 50 billion in 2005, while in Lithuania it was 6 billion Lithuanians lits in 1996 and almost 14 billion in 2005 and in Latvia 450 millions Latvians lats in 1996 and 2,7 billions in 2005.

Figure 23. Gross fixed capital formation, private sector, current local currency

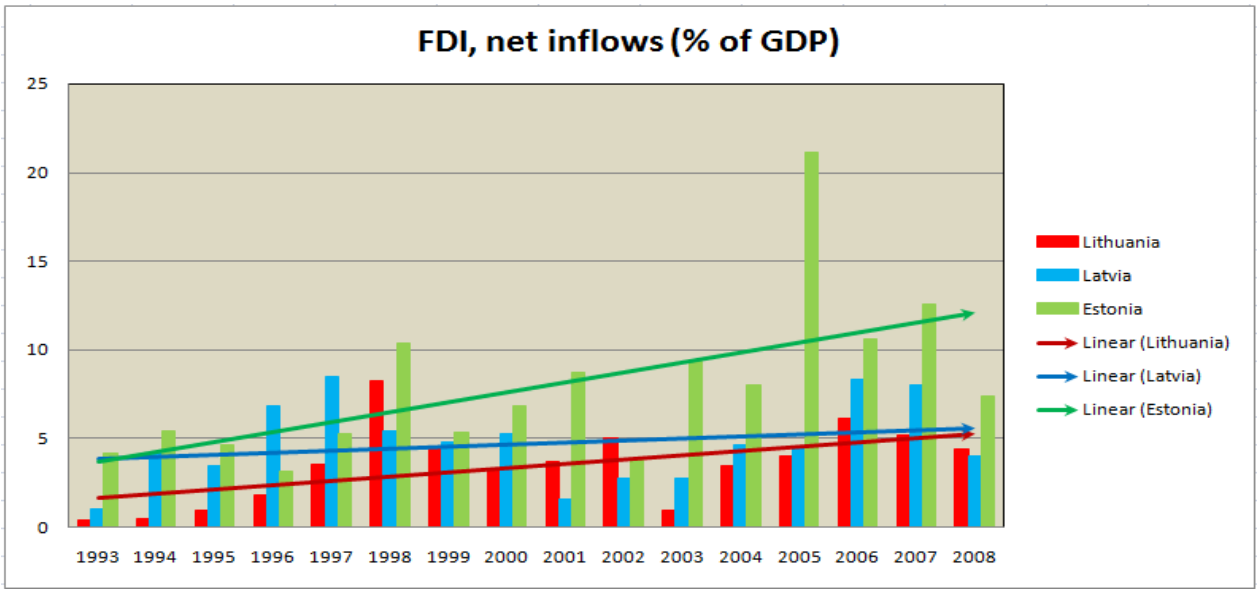


Source: The World Bank. The World Development Indicators

Privatization in the Baltic States had close relationship with Foreign Direct Investments. FDI occupied the important position in the privatization process and contributed to improvement of economic efficiency. Literature emphasize the importance of FDI on privatization: "...the importance of building regional and global networks as a motivation for FDI through privatization. Local companies sold to foreign investors can in fact increasingly become part of modern production networks, which help them to meet global requirement" (Kalman Kalotay and Gabor Hunya, 2000).

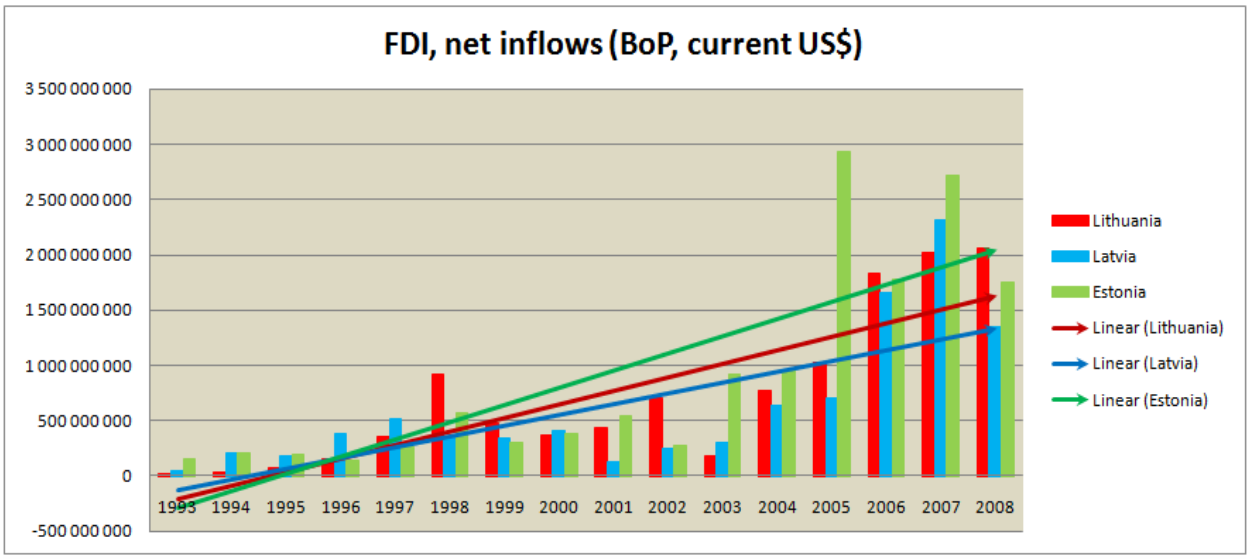
Foreign capital inflows have been important to the whole Baltic region also because of current account deficit. Until 1998 foreign investors invested mostly in Estonia and Latvia. More notable investments in Lithuania occurred from 1998. Through period from 1993 to 2008 investments in Baltic States increased both as the amount of money and as the percentage of GDP (see Figure 24 and 25).

Figure 24. FDI, net inflows, % of GDP



Source: The World Bank. The World Development Indicators

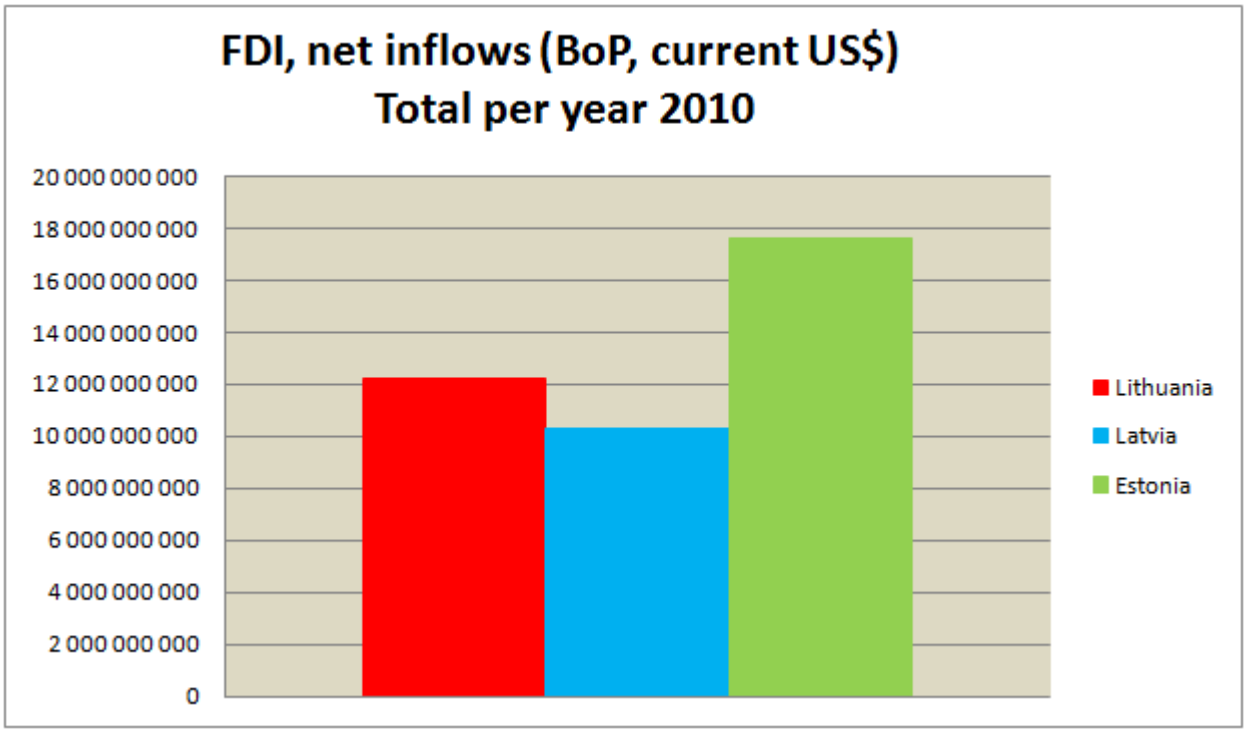
Figure 25. FDI, net inflows, current US dollars



Source: The World Bank. The World Development Indicators

The total Foreign Direct Investments in all Baltic countries per 2010 was more than 40 billion US dollars. The most investments received Estonia almost 18 billion, Lithuania 12 billion and the lowest investments level was in Latvia about 10 billion US dollars (see Figure 26).

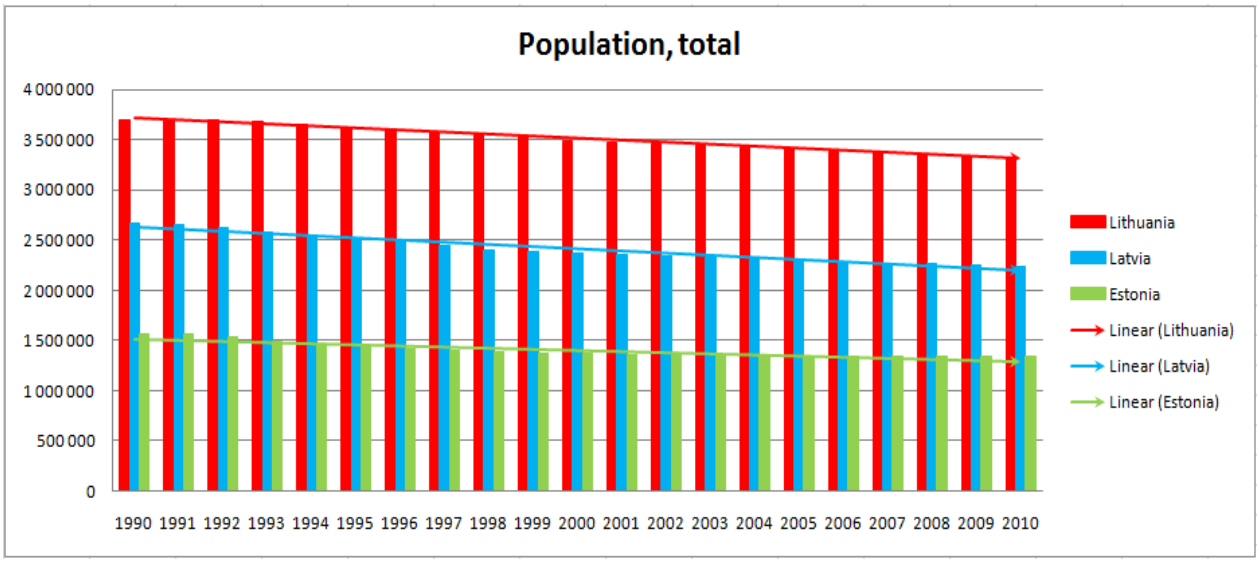
Figure 26. Total FDI, net inflows between 1993-2010, current US dollars



Source: The World Bank. The World Development Indicators

Cobb-Douglas function and Sollow model refers to capital per worker and productivity as the main factors to economic growth. This theoretical approach gives reason to believe that population, labor, unemployment and access to education affects total economy in Baltic region and through that financial development of Lithuania, Latvia and Estonia. It is important to mention that the biggest population is in Lithuania, then follows Latvia and Estonia. If we look at the population trend in the period of independence we will find that population decreased in all three countries. In Estonia there was biggest decrease by 427 thousand people during the 20 years period while in Lithuania it was 377 thousand and in Latvia 229 thousand decrease (See Figure 27).

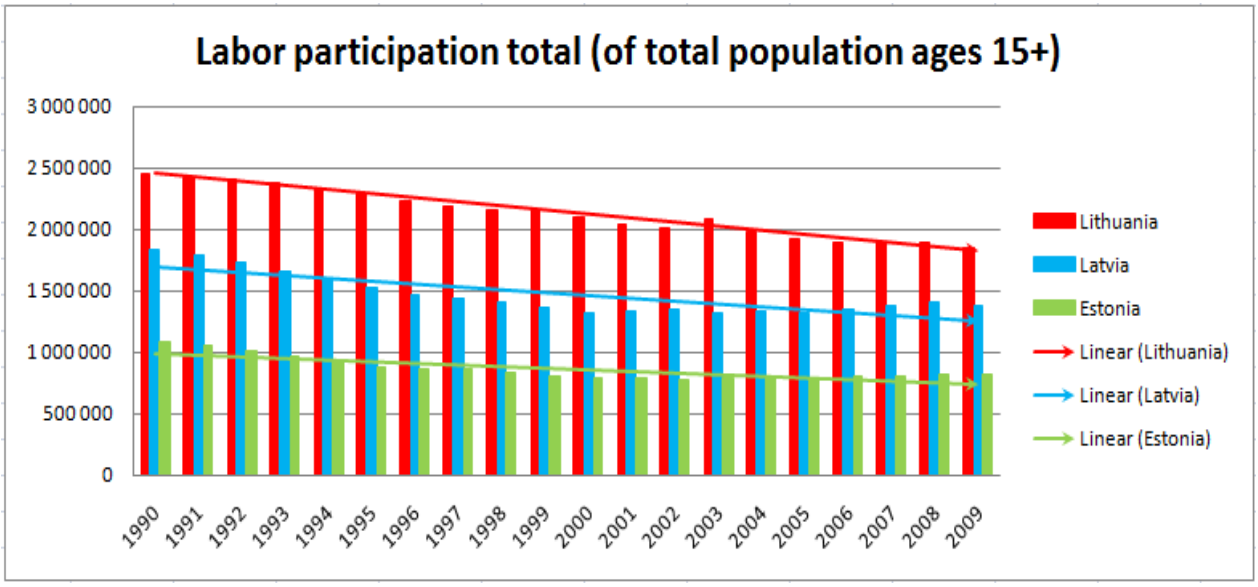
Figure 27. Population, total



Source: The World Bank. The World Development Indicators

In Lithuania total labor participation rate decreased from 66,3% in 1990 to 55,7% in 2009. At the same period in Latvia and Estonia labor participation rate decreased from 69% to 61%. Participation in the labor market shows also decreasing trend in all three countries during the period of last twenty years (See Figure 28).

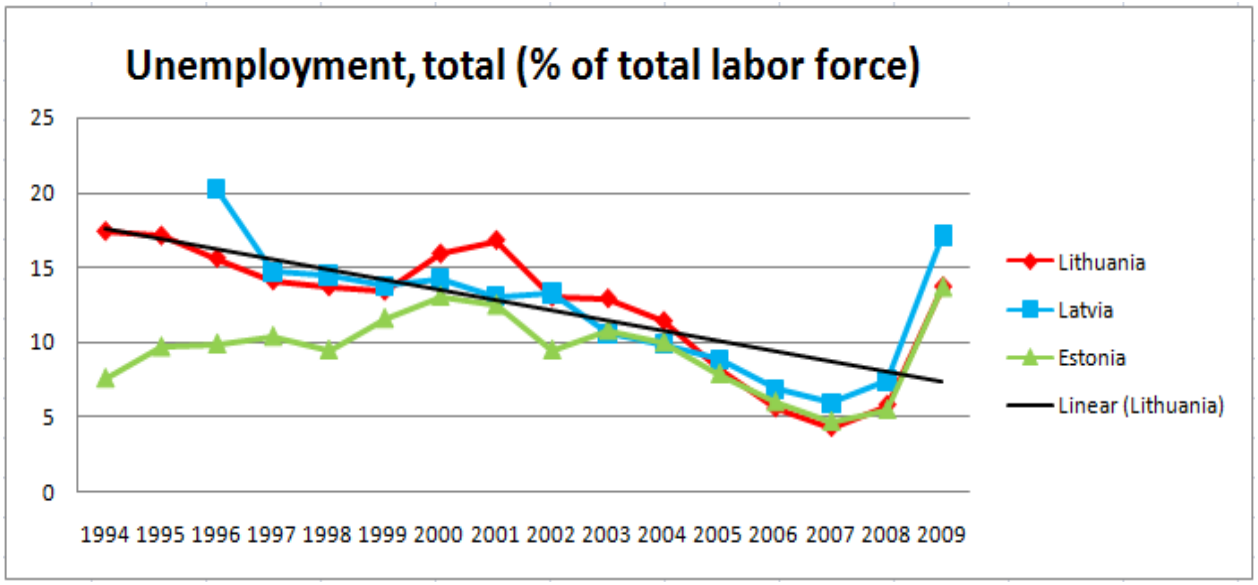
Figure 28. Labor participation total



Source: The World Bank. The World Development Indicators

Unemployment was varying in all Baltic countries in the period between 1994 and 2009 but the trend line is decreasing (see Figure 29).

Figure 29. Unemployment rate, total

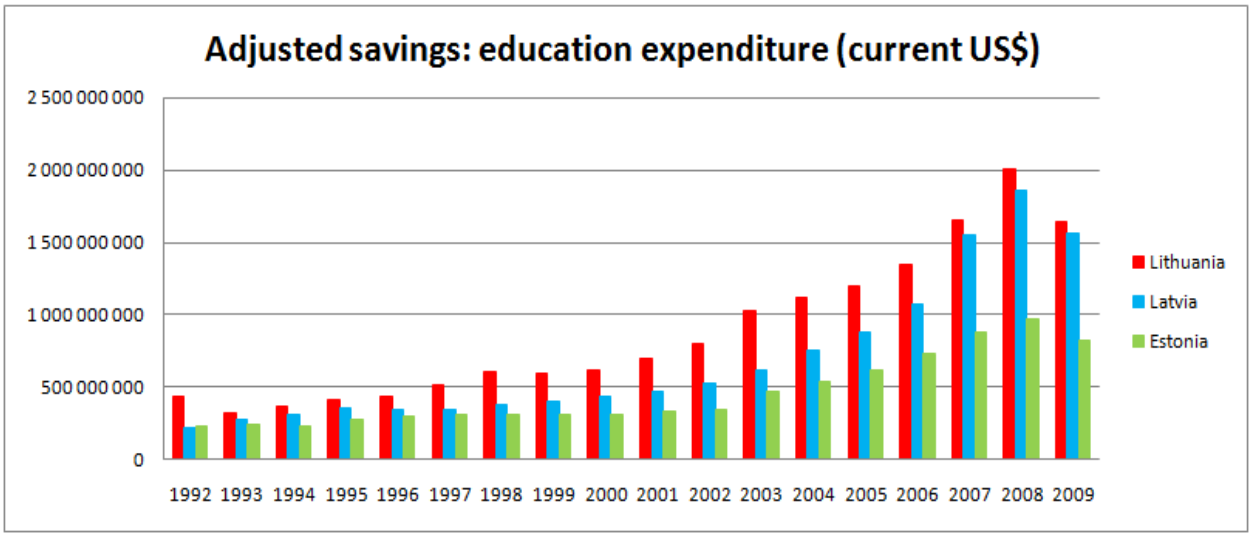


Source: The World Bank. The World Development Indicators

The highest unemployment rate In 1996 was in Latvia 20,2% of total labor force. In Lithuania it was 15,6% in Estonia 9,9%. The lowest unemployment in the Baltic States were reached in 2007 when Lithuania and Estonia had more than 4% and Latvia 6% unemployment. After 2007 effects of global financial crises led to dramatically increasing unemployment in all Baltic region. In 2009 Latvia had 17% and Lithuania with Estonia approximately 13,7% unemployment.

Education development shows opposite picture. Expenditure on education had increasing trend during the period of independence. It was slowed down just in 2008 when the global financial crises occurred (See Figure 30).

Figure 30. Education expenditure, current US dollars



Source: The World Bank. The World Development Indicators

Education expenditures in Lithuania increased from 430 milion US dollars in 1992 to 2 billion in 2008. In Latvia and Estonia it increased from more than 200 milion in 1992 to 1,9 bilion in Latvia and 972 million in Estonia in 2008.

3. EMPIRICAL RESEARCH

In this section collected data will be analyzed and empirical analysis will be presented by highlighting important aspects of the data. Two features of the distribution will be explored namely description of the central tendency and the spread of data. The data between three countries will be compared and correlation analysis will be drawn. This research will be based on tree periods of time: 1994-2009 (16 years), 1998-2007 (10 years), 2000-2005 (5 years). Data were collected from the World Bank database.

3.1. Descriptive Statistic

Descriptive statistic were used to analyze central tendency of the data. Table 2 presents descriptive statistics between financial development and economic variables in 16 years period between 1994-2009. There is a considerable variation across the Baltic countries. If we look at the financial sector indicators so we will find that M3/GDP rate mean was 0,31. The lowest M3/GDP rate was in Lithuania 0,28, while in Latvia it was 0,31 and the highest rate was recorded in Estonia 0,35. A similar trend shows PC/GDP rate. PC/GDP rate mean was 0,38. Lithuania had the lowest rate 0,26, while Latvia was at the second place with the rate of 0,39 and Estonia on the first plays with rate 0,48.

Regarding economic indicators, Lithuania showed the highest level of following variables: gross domestic product 4,57% of annual grow, final consumption expenditure 86,17% of GDP, inflation 11,3%, unemployment 12,44% of total labor force and average population 3,46 million people. Latvia had the highest level of following variables: gross domestic product per capita 5,32% annual growth, education expenditure 5,71% of GNI, gross fixed capital formation privet sector 22,01% of GDP and real interest rate 5,05%. Estonia had the highest level of the following variables: net national savings 10,06% of GNI, gross fixed capital formation 28,75% of GDP, export 71,89% of GDP, import 78,65% of GDP, foreign direct investments 8,29% of GDP, labor participants 60,2% of total population ages 15+.

Table 2. Descriptive analysis in the period 1994-2009

Descriptive 1994-2009								
Variable	Mean	StDev	Variance	Sum	Minimum	Maximum	Range	Obsr
M3/GDP	0,31	0,10	0,01	15,08	0,16	0,51	0,35	16
PC/GDP	0,38	0,29	0,09	18,16	0,07	1,16	1,09	16
GDPan	4,26	6,84	44,49	204,60	-17,95	12,23	30,19	16
GDPpc	5,01	6,90	47,54	240,61	-17,55	12,85	30,39	16
FCE	82,11	5,27	27,76	3 941,15	70,92	90,81	19,90	16
NNS	3,37	6,98	48,70	158,59	-12,25	15,36	27,60	16
GFC	24,92	5,16	26,67	1 196,23	13,76	35,99	22,24	16
EXP	55,75	12,83	164,64	2 676,20	38,63	84,59	45,96	16
IMP	64,13	12,43	154,43	3 078,25	44,39	88,20	43,81	16
FDI	5,49	3,69	13,61	263,66	0,34	21,16	20,81	16
INF	10,39	14,16	200,42	498,49	-1,13	72,15	73,28	16
LBP	59,46	2,17	4,73	2 853,90	55,70	63,80	8,10	16
UNM	11,35	3,86	14,94	522,10	4,30	20,20	15,90	16
POP	2,41	0,88	0,77	115,66	1,34	3,66	2,32	16
EDC	5,37	0,57	0,33	257,58	4,40	6,71	2,31	16
GFCps	20,18	7,72	59,58	888,09	-2,88	33,66	36,55	16
RIR	2,83	7,07	49,99	136,02	-17,59	18,00	35,59	16

Source: The World Bank. The World Development Indicators

M3/GDP	LIQUID LIABILITIES / GDP
PC/GDP	PRIVATE CREDIT BY DEPOSIT MONEY BANKS / GDP
GDPan	GDP Growth (Annual %)
GDPpc	GDP per capita growth (annual%)
FCE	Final consumption expenditure, etc. (% of GDP)
NNS	Adjusted savings: net national savings (% of GNI)
GFC	Gross fixed capital formation (% of GDP)
EXP	Exports of goods and services (% of GDP)
IMP	Imports of goods and services (% of GDP)
FDI	FDI, net inflows (% of GDP)
INF	Inflation, consumer prices (annual %)
LBP	Labor participation rate, total (% of total population ages 15+)
UNM	Unemployment, total (% of total labor force)
POP	Population, Total
EDC	Adjusted savings: education expenditure (% of GNI)

GFCps	Gross fixed capital formation, private sector (% of GDP)
RIR	Real interest rate (%)

Table 3 presents descriptive statistics between financial development and economic variables in the 10 years period between 1998-2007. M3/GDP rate mean was 0,32. The lowest M3/GDP rate was in Lithuania 0,29, while in Latvia it was 0,32 and the highest rate was recorded in Estonia 0,36. The same trend is in PC/GDP rate. The PC/GDP rate mean was 0,37. Lithuania had the lowest rate 0,24, while Latvia was at the second place with the rate 0,38 and Estonia had the highest private credit to GDP rate 0,49.

Economic indicators had a similar direction as in the period of 16 year. Lithuania showed the highest level of following variables: final consumption expenditure 85,05% of GDP, unemployment 11,53% of total labor force, average population 3,46 million people and real interest rate 5,69%. Latvia had the highest level of following variables: gross domestic product 7,95% annual growth, GDP per capita 8,75% annual growth, inflation 4,66% annual growth, education expenditure 5,57% of GNI and gross fixed capital formation privet sector 24,40% of GDP. Estonia had the highest level of the following variables: net national savings 10,55% of GNI, gross fixed capital formation 30,19% of GDP, export 74,06% of GDP, import 81,08% of GDP, foreign direct investments 9,68% of GDP, labor participants 58,97% of total population ages 15+.

Table 3. Descriptive analysis in the period 1998-2007

Descriptive 1998-2007								
Variable	Mean	StDev	Variance	Sum	Minimum	Maximum	Range	Obsr
M3/GDP	0,32	0,08	0,01	9,74	0,18	0,48	0,30	10
PC/GDP	0,37	0,22	0,05	11,03	0,11	0,84	0,73	10
GDPan	7,30	2,90	8,39	218,96	-1,07	12,23	13,31	10
GDPpc	7,92	2,78	7,75	237,66	-0,40	12,85	13,25	10
FCE	80,96	5,14	26,42	2 428,75	70,92	88,36	17,44	10
NNS	3,46	6,16	37,94	103,93	-10,45	11,84	22,29	10
GFC	26,54	4,68	21,87	796,11	18,73	35,99	17,26	10
EXP	55,94	14,20	201,51	1 678,20	38,63	84,59	45,96	10
IMP	65,43	12,61	159,00	1 962,89	48,65	88,20	39,55	10
FDI	6,30	3,96	15,65	189,07	0,96	21,16	20,19	10
INF	3,72	2,52	6,33	111,57	-1,13	10,11	11,24	10
LBP	58,49	1,55	2,39	1 754,70	55,90	61,10	5,20	10
UNM	10,74	3,38	11,46	322,10	4,30	16,80	12,50	10
POP	2,39	0,87	0,76	71,57	1,34	3,56	2,21	10
EDC	5,29	0,44	0,19	158,71	4,40	5,81	1,40	10
GFCps	21,77	6,67	44,52	653,18	2,71	33,66	30,96	10
RIR	3,40	5,35	28,58	101,87	-7,80	14,75	22,56	10

Source: The World Bank. The World Development Indicators

M3/GDP	LIQUID LIABILITIES / GDP
PC/GDP	PRIVATE CREDIT BY DEPOSIT MONEY BANKS / GDP
GDPan	GDP Growth (Annual %)
GDPpc	GDP per capita growth (annual%)
FCE	Final consumption expenditure, etc. (% of GDP)
NNS	Adjusted savings: net national savings (% of GNI)
GFC	Gross fixed capital formation (% of GDP)
EXP	Exports of goods and services (% of GDP)
IMP	Imports of goods and services (% of GDP)
FDI	FDI, net inflows (% of GDP)
INF	Inflation, consumer prices (annual %)
LBP	Labor participation rate, total (% of total population ages 15+)
UNM	Unemployment, total (% of total labor force)
POP	Population, Total
EDC	Adjusted savings: education expenditure (% of GNI)

GFCps	Gross fixed capital formation, private sector (% of GDP)
RIR	Real interest rate (%)

Table 4 presents descriptive statistics between financial development and economic variables in the 5 years period between 2000-2005. M3/GDP rate mean was 0,32. The lowest M3/GDP rate was in Lithuania 0,28, while in Latvia it was 0,32 and the highest rate was recorded in Estonia 0,36. The trend in PC/GDP rate holding the same as in previous periods. The PC/GDP rate mean was 0,37. Lithuania had the lowest rate 0,20, while Latvia was at the second place with the rate 0,33 and Estonia had the highest private credit to GDP rate 0,45.

Economic indicators had a similar share between all Baltic countries as in other periods. Lithuania showed the highest level of following variables: gross domestic product 8,37% annual growth, final consumption expenditure 85,03% of GDP, labor participation rate 58,60% of total population ages 15+, unemployment 13,05% of total labor force, average population 3,46 million people and real interest rate 6,05%. Latvia had the highest level of following variables: inflation 3,82% annual growth, education expenditure 5,57% of GNI, deposit interest rate 3,65%. Estonia had the highest level of the following variables: gross domestic product per capita 8,77% annual growth, net national savings 10,59% of GNI, gross fixed capital formation 29,41% of GDP, export 75,89% of GDP, import 81,64% of GDP, foreign direct investments 9,65% of GDP, gross fixed capital formation private sector 26,37% of GDP.

Table 4. Descriptive analysis in the period 2000-2005

Descriptive 2000-2005								
Variable	Mean	StDev	Variance	Sum	Minimum	Maximum	Range	Obsr
M3/GDP	0,32	0,05	0,00	5,72	0,21	0,41	0,20	5
PC/GDP	0,37	0,22	0,05	11,03	0,11	0,84	0,73	10
GDPan	7,80	1,67	2,77	140,39	3,25	10,60	7,35	5
GDPpc	8,36	1,57	2,47	150,47	4,18	11,19	7,01	5
FCE	80,65	4,88	23,78	1 451,79	72,71	87,39	14,67	5
NNS	3,82	5,37	28,85	68,73	-3,98	11,84	15,82	5
GFC	25,39	4,23	17,87	457,09	18,73	32,10	13,37	5
EXP	56,74	14,95	223,62	1 021,29	40,87	84,59	43,72	5
IMP	64,57	13,26	175,74	1 162,18	48,67	88,20	39,53	5
FDI	5,54	4,53	20,53	99,66	0,96	21,16	20,19	5
INF	2,78	2,06	4,26	50,06	-1,13	6,74	7,87	5
LBP	58,00	1,16	1,35	1 044,00	56,00	60,40	4,40	5
UNM	11,78	2,51	6,29	212,10	7,90	16,80	8,90	5
POP	2,38	0,88	0,78	42,90	1,35	3,50	2,15	5
EDC	5,35	0,38	0,14	96,31	4,62	5,81	1,18	5
GFCps	22,43	4,44	19,67	403,72	16,37	30,62	14,25	5
RIR	3,74	4,07	16,53	67,34	-3,69	11,10	14,79	5

Source: The World Bank. The World Development Indicators

M3/GDP	LIQUID LIABILITIES / GDP
PC/GDP	PRIVATE CREDIT BY DEPOSIT MONEY BANKS / GDP
GDPan	GDP Growth (Annual %)
GDPpc	GDP per capita growth (annual%)
FCE	Final consumption expenditure, etc. (% of GDP)
NNS	Adjusted savings: net national savings (% of GNI)
GFC	Gross fixed capital formation (% of GDP)
EXP	Exports of goods and services (% of GDP)
IMP	Imports of goods and services (% of GDP)
FDI	FDI, net inflows (% of GDP)
INF	Inflation, consumer prices (annual %)
LBP	Labor participation rate, total (% of total population ages 15+)
UNM	Unemployment, total (% of total labor force)
POP	Population, Total
EDC	Adjusted savings: education expenditure (% of GNI)

GFCps Gross fixed capital formation, private sector (% of GDP)

RIR Real interest rate (%)

To make total analysis of all three periods and to see overall picture I made matrix of descriptive analysis of all the periods. This illustrates highest rates in the particular period (see Table 5). Relationship analyze between three Baltic countries and the highest rate matrix shows that most developed financial sector was in Estonia in all three periods of time. Estonia had also highest rates of net national savings, gross fixed capital formation, export, import and foreign direct investments. While Lithuania had highest finale consumption expenditure rate, unemployment and population and Latvia had highest education expenditure rate.

Table 5. Matrix of descriptive analysis

Indicator	LTU 16 Y	LVA 16 Y	EST 16 Y	LTU 10 Y	LVA 10 Y	EST 10 Y	LTU 5 Y	LVA 5 Y	EST 5 Y	LTU Total	LVA Total	EST Total
M3/GDP			1			1			1			3
PC/GDP			1			1			1			3
GDPan	1				1		1			2	1	
GDPpc		1			1				1		2	1
FCE	1			1			1			3		
NNS			1			1			1			3
GFC			1			1			1			3
EXP			1			1			1			3
IMP			1			1			1			3
FDI			1			1			1			3
INF	1				1			1		1	2	
LBP			1			1	1			1		2
UNM	1			1			1			3		
POP	1			1			1			3		
EDC		1			1			1			3	
GFCps		1			1				1		2	1
RIR		1		1			1			2	1	

Source: Author based on The World Bank Development Indicators

1 - highest rate in one period

2 - highest rate in two periods

3 - highest rate in three periods

M3/GDP	LIQUID LIABILITIES / GDP
PC/GDP	PRIVATE CREDIT BY DEPOSIT MONEY BANKS / GDP
GDPan	GDP Growth (Annual %)
GDPpc	GDP per capita growth (annual%)
FCE	Final consumption expenditure, etc. (% of GDP)
NNS	Adjusted savings: net national savings (% of GNI)
GFC	Gross fixed capital formation (% of GDP)
EXP	Exports of goods and services (% of GDP)
IMP	Imports of goods and services (% of GDP)
FDI	FDI, net inflows (% of GDP)
INF	Inflation, consumer prices (annual %)
LBP	Labor participation rate, total (% of total population ages 15+)
UNM	Unemployment, total (% of total labor force)
POP	Population, Total
EDC	Adjusted savings: education expenditure (% of GNI)
GFCps	Gross fixed capital formation, private sector (% of GDP)
RIR	Real interest rate (%)

3.2. Correlation Analysis

Correlation analysis was used to explore spread of data and to analyze relationship between financial sector and economic growth indicators. To compute correlation I used Microsoft Excel functions but correlation calculation was based on following equation:

$$r = \frac{n\sum xy - (\sum x)(\sum y)}{\sqrt{[n\sum x^2 - (\sum x)^2][n\sum y^2 - (\sum y)^2]}} \qquad (9)$$

r - correlation

n - number of pairs of scores

$\sum_{xy}$ - sum of the indicators of paired scores

$\sum_{x}$ - sum of the x scores

$\sum_{y}$ - sum of y scores

$\sum x^2$ - sum of squared x scores

$\sum y^2$ - sum of squared y scores

The following interpretations of correlation range were used:

$r = 0$	Correlation do not exist between two variables
$0 < r < 1$	Positive correlation between two variables
	Both variables tend to increase or decrease together
$r = 1$	Perfect correlation between two variables
$-1 < r < 0$	Negative correlation between two variables
	One variable increases as the other decreases
$r = -1$	Perfect negative correlation

Table 6 presents correlation matrix of variables. Money and privet credit supply are positively correlated with GDP growth in all three Baltic countries. Consisting parts of GDP like final consumption expenditure, gross fixed capital formation, export and import refers to positive correlation also. National savings, foreign direct investments net inflows and education expenditure shows positive correlation with financial development. FDI has the weakest correlation with financial sector indicators compared to other economic variables that were mentioned above. FDI also showed stronger correlation with money supply than with privet credit supply. Labor participants showed strong negative correlation with financial indicators in Lithuania. While in Latvia labor participants was stronger correlated with financial development in short-term between year 2000 and 2005 and it was positive but weak correlation in long-term. In Estonia this correlation is not recorded. Unemployment is negative correlated with financial indicators. In short-term this relationship is strongest. In long-term strongest correlation was in Lithuania and Latvia, while in Estonia this correlation is not observed. Real interest rate had strong negative correlation in short-term, but weak correlation in long-term. Inflation had positive correlation with financial sector development in short-term but there is no correlation in long-term. Inflation had weak correlation in other two Baltic countries. Gross fixed capital formation in privet sector was analyzed in the short period of time from 2000 to 2005, because of data availability. Analysis shows that money and private credit supply have strong and positive relation with capital formation in all three Baltic countries.

Table 6. Correlation matrix

Correlation matrix						
	1994-2009		1998-2007		2000-2005	
Variable	M3/GDP	PC/GDP	M3/GDP	PC/GDP	M3/GDP	PC/GDP
GDPan						
LTU	0,949	0,937	0,956	0,986	0,983	0,986
LVA	0,912	0,960	0,914	0,972	0,973	0,972
EST	0,946	0,951	0,938	0,996	0,865	0,996
FCE						
LTU	0,948	0,953	0,957	0,987	0,981	0,974
LVA	0,904	0,956	0,916	0,973	0,978	0,989
EST	0,940	0,956	0,932	0,995	0,860	0,991
NNS						
LTU	0,844	0,867	0,888	0,948	0,972	0,946
LVA	0,753	0,881	0,890	0,904	0,957	0,979
EST	0,939	0,942	0,922	0,984	0,880	0,969
GFC						
LTU	0,889	0,851	0,910	0,982	0,986	0,976
LVA	0,902	0,901	0,899	0,965	0,941	0,974
EST	0,899	0,852	0,940	0,994	0,872	0,991
EXP						
LTU	0,945	0,931	0,976	0,985	0,994	0,980
LVA	0,919	0,965	0,932	0,982	0,954	0,983
EST	0,948	0,936	0,947	0,995	0,862	0,982
IMP						
LTU	0,921	0,902	0,956	0,992	0,992	0,983
LVA	0,913	0,917	0,925	0,979	0,965	0,986
EST	0,921	0,886	0,944	0,996	0,865	0,988
FDI						
LTU	0,712	0,545	0,760	0,889	0,657	0,717
LVA	0,720	0,567	0,809	0,902	0,640	0,783
EST	0,862	0,801	0,812	0,875	0,837	0,864
INF						
LTU	-0,315	-0,179	0,364	0,590	0,376	0,523
LVA	-0,185	-0,175	0,804	0,865	0,840	0,880
EST	-0,549	-0,529	-0,004	0,073	-0,066	-0,278

LBP						
LTU	-0,898	-0,771	-0,919	-0,842	-0,755	-0,729
LVA	0,288	0,401	0,613	0,699	0,698	0,649
EST	-0,149	-0,011	0,323	0,483	0,002	0,271
UNM						
LTU	-0,786	-0,657	-0,899	-0,960	-0,958	-0,932
LVA	-0,715	-0,509	-0,981	-0,986	-0,969	-0,959
EST	-0,338	-0,244	-0,825	-0,897	-0,927	-0,873
POP						
LTU	-0,913	-0,805	-0,984	-0,896	-0,998	-0,945
LVA	-0,841	-0,814	-0,971	-0,938	-0,993	-0,975
EST	-0,834	-0,783	-0,922	-0,877	-0,885	-0,968
EDC						
LTU	0,956	0,920	0,969	0,961	0,967	0,914
LVA	0,907	0,971	0,916	0,973	0,976	0,993
EST	0,938	0,951	0,936	0,995	0,852	0,984
GFCps						
LTU					0,971	0,993
LVA					0,946	0,898
EST					0,986	0,901
RIR						
LTU	-0,076	-0,052	-0,935	-0,881	-0,989	-0,960
LVA	-0,549	-0,358	-0,955	-0,958	-0,946	-0,960
EST	0,359	0,427	-0,947	-0,911	-0,711	-0,816

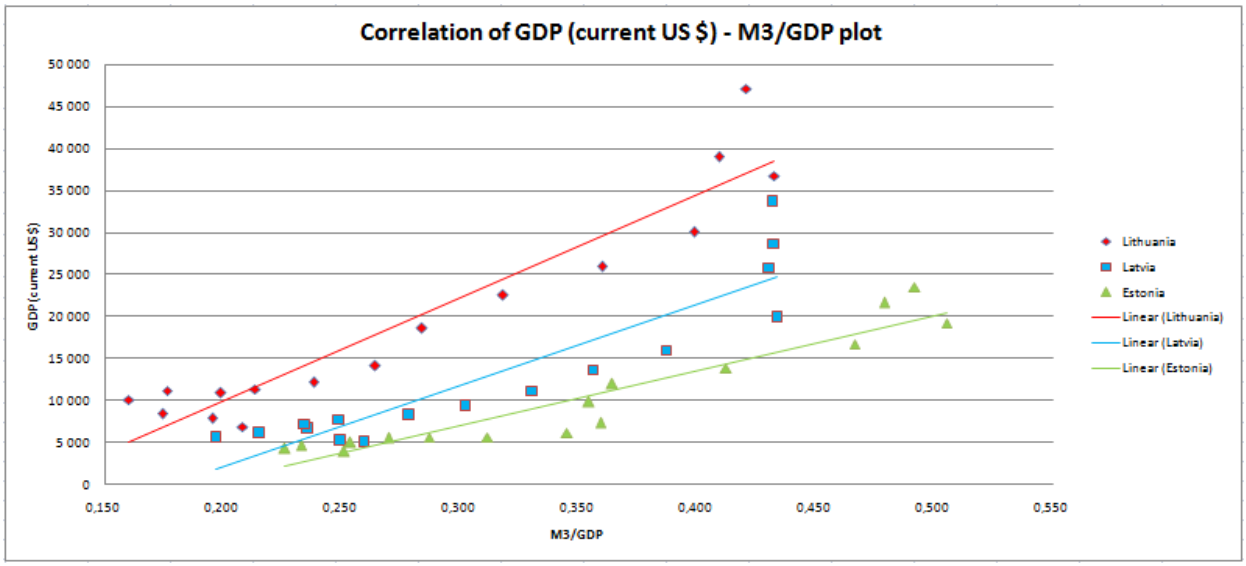
Source: Author based on The World Bank Development Indicators

M3/GDP	LIQUID LIABILITIES / GDP
PC/GDP	PRIVATE CREDIT BY DEPOSIT MONEY BANKS / GDP
GDPan	GDP Growth (Annual %)
FCE	Final consumption expenditure, etc. (current US$)
NNS	Adjusted savings: net national savings (current US$)
GFC	Gross fixed capital formation (current US$)
EXP	Exports of goods and services (current US$)
IMP	Imports of goods and services (current US$)
FDI	Foreign direct investment, net inflows (BoP, current US$)
INF	Inflation, consumer prices (annual %)
LBP	Labor participation rate, total (% of total population ages 15+)
UNM	Unemployment, total (% of total labor force)

GFCps	Gross fixed capital formation, private sector (current LC)
POP	Population, Total
EDC	Adjusted savings: education expenditure (current US$)
RIR	Real interest rate (%)

To get visual approach to correlation and to confirm correlation analysis I refer to the two-variables plot. The figure 34 shows relationship between GDP growth and liquid liabilities to GDP rate in the period between 1994-2009.

Figure 31. Correlation of GDP and M3/GDP in period 1994-2009



Source: The World Bank. The World Development Indicators

The strong correlation and two-variables plot between annual output and money supply rate confirms that financial sector in the Baltic States is depending on total economic growth. To make better approach to the hypothesis I create table that shows total overview of both descriptive and correlation analysis (See Table 7).

Table 7. Overview of descriptive and correlation analysis

Indicator	Total Descriptive Statistic			Avrg. Corr. All Periods			Total. Avrg. Corr.
	LTU	LVA	EST	LTU	LVA	EST	
M3/GDP	L1	L2	L3	M3/GDP	M3/GDP	M3/GDP	M3/GDP
PC/GDP	L1	L2	L3	PC/GDP	PC/GDP	PC/GDP	PC/GDP
GDPan	2	1		0,969	0,966	0,948	0,966
FCE	3			0,965	0,965	0,948	0,965
EXP			3	0,978	0,959	0,948	0,959
EDC		3		0,959	0,972	0,944	0,959
IMP			3	0,969	0,945	0,932	0,945
GFCps		2	1	0,982	0,922	0,943	0,943
GFC			3	0,943	0,922	0,920	0,922
NNS			3	0,917	0,897	0,941	0,917
FDI			3	0,714	0,752	0,849	0,752
INF	1	2		0,370	0,822	-0,172	0,370
LBP	1		2	-0,807	0,631	0,137	0,137
RIR	2	1		-0,908	-0,951	-0,764	-0,908
UNM	3			-0,916	-0,964	-0,849	-0,916
POP	3			-0,929	-0,955	-0,881	-0,929

Source: Author based on The World Bank Development Indicators

M3/GDP LIQUID LIABILITIES / GDP

PC/GDP PRIVATE CREDIT BY DEPOSIT MONEY BANKS / GDP

GDPan	GDP Growth	L1 - lowest level
FCE	Final consumption expenditure, etc.	L2 - higher level
NNS	Adjusted savings: net national savings	L3 - highest level
GFC	Gross fixed capital formation	1 - highest rate in one period
EXP	Exports of goods and services	2 - highest rate in two periods
IMP	Imports of goods and services	3 - highest rate in three periods
FDI	Foreign direct investment, net inflows	
INF	Inflation, consumer prices	
LBP	Labor participation rate, total	
UNM	Unemployment, total	
GFCps	Gross fixed capital formation, private sector	
POP	Population, Total	
EDC	Adjusted savings: education expenditure	

RIR Real interest rate

The table above shows that strongest positive relationship is between financial sector indicators and total economic growth. Correlation coefficient r = 0,966 confirms the first hypothesis which assumes that increasing in total output in the country leads to increasing financial sector.

Final consumption expenditure shows positive correlation with financial sector in all Baltic countries r = 0,965, gross fixed capital formation has lower but still positive and strong correlation r = 0,922, both exports and imports of goods and services shows also positive and strong relationship with financial sector in all three countries, export with the rate r = 0,959 and imports r = 0,945. This approves the second hypothesis which states that components of the total output in the country (final consumption expenditure, gross fixed capital formation, exports and imports of goods and services) have positive relationship with financial sector development.

Relationship between financial sector and inflation refers to the negative and weak correlation in Estonia r = -0,172 and the positive but still weak correlation in Lithuania r = 0,370. The results shows quit strong positive correlation between financial sector and inflation in Latvia r = 0,822. In the periods 2000-2005 and 1998-2007 Lithuania had positive but weak correlation r ≈ 0,5, Latvia had positive and strong correlation r ≈ 0,84 and in Estonia this correlation was not recorded at all. Long-term analysis between 1994-2009 shows that all countries had negative correlation among financial sector development and inflation. The strongest but still weak negative correlation was in Estonia r ≈ -0,5 while in Lithuania it was r ≈ -0,3 and Latvia r ≈ -0,2. According to the third hypothesis high inflation creates instability and has negative effects on the financial sector development. This hypothesis can't be approved because correlation between inflation and financial sector development was weak in Lithuania and Estonia all three periods and it was weak in Latvia in long-term. Even if Latvia had strong correlation in two shorter-terms this can't be used as the argument that inflation and financial development has common trend. First of all financial sector in Latvia was not the greatest. The strongest financial sector was maintained by Estonia, but relation among financial sector and inflation was not recorded there. This can be the reason to believe that inflation has weak effect on financial sector development.

The fourth hypothesis states that government regulation has negative impact on financial development. This hypothesis can be approved because of strong negative correlation between real interest rates and financial sector development in all three Baltic countries. Average

correlation rate in all Baltic region was r = -0,908. It is important to mention that this strong and negative relationship between real interest rates and financial sector development was recorded in two shorter periods of time, while in long-term this correlation was weak. The main reason can be global financial crises that distorted the whole picture. Strong and negative correlation indicates that increasing government regulation leads to decreasing financial sector development. Increasing real interest rates reduce the broad money supply and economic activity. This is the reason that financial sector development slows down.

Population shows strong negative correlation in all three countries with the rate r = -0,929. This confirms the fifth hypothesis which states that population growth and financial sector development have opposite trend. Increasing population leads to reducing output per capita that can have effect on householders savings and capital accumulation in financial marked.

Unemployment and financial development showed negative correlation in all three countries r = -0,916. Labor participation had strong negative correlation in Lithuania r = -0,807, while in Latvia it was positive correlation rate r = 0,631 and in Estonia weak but positive rate r = 0,137. Increasing in national savings showed positive and strong correlation in all three countries in all three periods of time r = 0,917. Foreign direct investments had also positive relationship with financial sector development in all countries r = 0,752. The sixth hypothesis assumes that financial development in the country depends on high labor participation, low unemployment, high national savings and high FDI. Because of the labor participation that do not shows strong positive correlation with financial sector development in the Baltic region the sixth hypothesis can't be totally approved. This can be partially confirmed by underlying that financial development in the country depends on low unemployment, high national savings and high foreign direct investments.

Education expenditure shows strong positive relationship with financial development in the Baltic States r = 0.959. Investments in knowledge has positive impact on financial sector. Knowledge and competence can be interpreted as unlimited recourse in the country, these recourses is the factor of production of technology and innovation. This confirms the seventh hypothesis which assumes that increasing in education expenditure has positive impact on financial sector development.

Gross fixed capital formation in private sector shows positive correlation with financial development in all Baltic countries in all periods of time with average rate r = 0,943. This

confirms the eighth hypothesis which assumes that privatization leads to smaller and more efficient public sector and greater private sector. The main objective of the private sector is to increase profitability. Therefore stronger privet sector stimulates economic activity through increasing investments that leads to higher capital accumulation and positive financial sector development.

The ninth hypothesis refers to the assumption that capital accumulation in the country has strongest impacts to financial development. Descriptive results shows that strongest financial sector was in Estonia in all periods of time. Estonia had also highest import and export rates, gross fixed capital formation, national savings and foreign direct investments. While Lithuania had the lowest financial sector development. Lithuania had the highest rates of final consumption expenditure, unemployment and population. Latvia had strongest rate just on education expenditure. Financial sector in Latvia was weaker than in Estonia but stronger then in Lithuania. Correlation analysis shows that export, import, national savings, FDI and growth fixed capital formation have positive and strong relationship with financial sector development. Descriptive and correlation analysis confirms the assumption that financial capital accumulation has strongest impact on financial sector development.

4. RESULTS OF THE RESEARCH

This paper investigates economic factors that impacts financial sector development through literature review, statistical analysis and empirical research of three Baltic countries. Theoretical sources refers to causal relationship between economic growth and financial sector development. The core question that causality researchers raise is which part of the economy is the reason and which is the cause. Most of the studies refers to the Patrick (1966) supply-leading and demand-following hypothesis. According to supply-leading hypothesis financial sector impacts economic growth, while demand-following hypothesis assumes that economic growth effects financial sector development. Supply-leading hypothesis explains causality through the fact that creation of financial institutions and markets increasing the supply of financial services and thus leads to economic growth. Demand-following hypothesis refers to the increasing demand for financial services that might create an enlargement in the financial sector when economy grows. Researchers like McKinnon (1973), King (1993), Levine (1993 and 2000), Neusser (1998), Kugler (1998), Loayza (2000), Beck (2000) supported supply-leading hypothesis. Others like Both Gurley (1967), Shaw (1967), Goldsmith (1969) and Jung (1986) supported demand-following hypothesis.

Financial market in all three Baltic countries is dominated by banks that are mostly foreign owned. For instance in 2008 banking sector in Lithuania accounted for 80,5% of GDP while non-banking sector accounted just for 17,1% of GDP. Therefore financial indicators that were used in this paper were mostly related to the banking sector. Financial sector was measured by liquid liabilities or M3 money supply to GDP rate and private credit supply to GDP ratio. King and Levine (1993) used M3 to GDP ratio to measure the size of financial intermediaries and for measuring financial activity they used private credit supply to GDP ratio. Liquid liabilities to GDP and private credit ratio shows that positive development and rapidly growing financial sector during the last decade in the Baltic States. M3 money supply to GDP ratio in the Baltic increased from 0,16 to 0,51 i.e. more than 3 times and private credit to GDP ratio from 0,07 to 1,16. This confirms rapid development in financial market.

Analysis of aggregate output in the country was made through expenditure approach. Gross domestic product that is the main indicator of economic growth was divided into the components. Financial sector development was explored by both total economic growth and by the constituent parts of the GDP like final consumption expenditure, gross fixed capital formation and net

exports. Economical reforms process moved Baltic States from a command economy toward a free market economy. The Baltic countries showed positive improvement in total production. GDP annual growth in the Baltic region have changed from the lowest level of -17,95% annual growth to the highest level of 12,23% of annual growth. This growth was specially visible from 1999 until 2008. Growth per capita rate showed quit similar picture to the GDP growth rate. This indicates that economic growth in the Baltic countries had positive effects on the welfare for the Baltic people. This upturn was slowed down by the global financial crises that started in 2007 in United States and reach the Europe in 2008. Correlation analysis exposed the strong and positive connection between financial sector indicators and GDP. This allowed to confirm the first hypothesis that increasing production in the country leads to increasing economic activity and has positive impact on the financial sector.

David Ricardo who was supporter of classical growth theory (1817) connected economic growth to the international business. He underlined the comparative advantage as core factor and claimed that the country should specialize in producing and exporting only those goods and services which it can produce more efficiently (at lower opportunity costs) then other countries and other goods and services it should import. Imports and exports rates displayed increasing trend in the Baltic region. Even if trade indicators indicated and had positive trend the net exports or balance of trade was negative almost the whole research period. This unfavorable development influenced balance of payments and had negative effects on the total economy. Final consumption expenditure that consist of private consumption and general government consumption and growth fixed capital formation showed increasing trend in all three countries. This increasing trend was maintained until the global financial crises took plays in 2008. From the descriptive and correlation analysis the second hypothesis was confirmed. Descriptive statistic performed uprising of all indicators and correlation analysis demonstrated strong linkage among them and financial sector.

Adam Smith (1776) and David Ricardo (1817) who were supporters of classical growth theory argued that capital accumulation leads to growth but increasing population reduce economic activity because of the limited resources. Analyzing economic changes in Baltic States from the classical growth perspective it is important to underline that Lithuania had the highest population in the Baltic States in whole research period. Latvia was at the second place and Estonia had the lowest population. Population rate showed strong negative correlation with

financial sector indicators and this confirmed the fifth hypothesis which assumed that population growth leads to lower recourses per capita and therefore negative effects economic growth and financial sector development.

Productivity issue was analyzed through Neoclassical growth theory. Robert Solow (1956) through Cobb-Douglas production function and steady state level explained how country depends on capital and labor. The Salow model showed that investments contributes to capital per worker growth and leads to increasing production in per worker terms. Neoclassical growth theory underlines importance of the national savings. The greater national savings in the country the eseare for the country to make investments. Investments was displayed as the sum of national savings and financial assets inflow in to the country. National savings varied in all three Baltic countries. In Lithuania and Latvia national savings were negative almost all the time until 2002. While in Estonia it was positive and increasing in the whole period. Lowest national savings in the Baltic region was -12,25% of GNI while highest was at the level of 15,36% of GNI. Correlation analysis exposed strong positive relation between national savings and financial sector. Neoclassical model also explained the distribution of foreign direct investments. There is an tendency for capital to flow from the rich countries to the poor countries because of the diminishing marginal product of capital. Researchers like Robert E. Lipsey (2002), Jadviga Ciburiene (2010), Robert E. Lipsey (2002), Manuela Tvaronaviciene (2007) and Virginija Grybaite (2007) suggested that FDI have both positive and negative effects for host countries. One of the positive sides is that FDI gives additional source of capital, creates new jobs, introduce new technologies and increase export, negative sides can be that profits returns to home countries and increasing inflation leads to increasing negative balance of trade. Foreign capital inflows have been important to the whole Baltic region. Until 1998 foreign investors invested mostly in Estonia and Latvia. More notable investments in Lithuania occurred from 1998. In the period between 1993-2010 total FDI were highest in Estonia then followed Lithuania and Latvia. Correlation analysis indicated quit strong and positive relation among FDI and financial sector.

In the analysis of human capital, labor participation and unemployment rates was used. Labor participation varied in all three Baltic countries and exposed week correlation with financial sector development. Unemployment rate displayed strong negative relationship with financial sector indicators. Highest unemployment was in Lithuania then followed Latvia and

Estonia. This strong negative correlation showed that increasing in unemployment leads to decreasing of financial sector development.

Financial capital accumulation and human capital participation partly confirmed the sixth hypothesis that productivity in the country has strong effect on financial sector development.

New technologies and innovation is the core factors in new economic growth theory. Joseph Corthright (2001) and Romer (1993) who are supporters of this theory argued that technological development results from new knowledge and increasing standards of living can lead to findings of more valuable projects and arrangements. Romer (2008) explains that knowledge is input factor to the production that do not leads to diminishing returns that's why knowledge is opposite factor to the physical capital. Innovation and knowledge has relationship with education. Expenditure on education in all three countries showed positive development. It was only slowed down in 2009 because of the global financial crises. Education expenditure exploed positive and strong correlation with financial sector development and confirmed the seventh hypothesis.

According to Hernando de Soto (1996) property rights has directly effect on productivity and at the same time to economic growth. Ronald Coase (1960) proposed that the private sector is effective in solving the problem of externalities through costless bargaining, driven by individual incentives. The Coase Theorem explains that individual parties will directly or indirectly take part in a cost-benefit analysis, which will eventually result in the most efficient solution. Theoretical and empirical literature suggests that countries that achieved a faster expansion of the private sector were able to attain more rapid economic growth. Gross fixed capital formation in private sector was highest in Latvia and Estonia as the percentage of GDP in the period between 1995 to 2005 but the ratio showed increasing trend in Lithuania also. Correlation analysis exposed strong and positive link between privet capital formation and financial sector development. This has confirmed the hypothesis that privatization has positive impact on the financial sector development.

Goldsmith (1969), Ronald McKinnon (1973), Edward Shaw (1973), Both Stiglitz (1989), King (1992), Levine (1992) supported the view that government regulations and interventions has negative effect on the economic development. According to Goldsmith (1969), McKinnon (1973) and Shaw (1973) government intervention leads to lower capital accumulation, investments and high interest rate. The highest interest rates was in Lithuania and Latvia during

the research period. Correlation analysis showed the strong negative linkage between real interest rates and financial sector and confirmed the assumption that government intervention has negative impact on the financial sector development.

According to Demirguc-Kunt and Detragiache (1998 and 2005) stable inflation rates maintains higher levels of financial sector development. High inflation and real interest rates are associated with higher probability of systemic banking crises. Inflation was highest in Latvia and Lithuania but the correlation analysis exposed weak relation between inflation and financial sector development.

GENERALIZING CONCLUSIONS

This study investigated economic growth impact on financial sector development in Baltic States in the period between 1994-2009. The purpose of this paper was to examine this relationship and to find the factors which had strongest effect.

Descriptive statistic and correlation analyses exposed that financial sector development in the Baltic region was highest depended on export, import, final consumption expenditure and capital accumulation rates. Strong negative effects had real interest rates, unemployment and population while labor participation and inflation had little effect.

Statistical data showed positive financial sector development in Baltic States during the research period. Estonia had highest developed financial sector, then followed Latvia and Lithuania. The main reason for strong financial sector performance in Estonia can be explained by highest export and import activity, financial capital accumulation and lowest real interest rates, unemployment and population. Financial sector development in Latvia was supported by high education expenditure and capital formation in the private sector. Lowest performance of financial situation in Lithuania can be justified by greatest unemployment, population and real interest rates and lowest financial capital attraction.

This work confirmed Patrick (1966) demand-following hypothesis which states that growing economy leads to increasing demand of financial services and so creates an expansion in the financial sector. Work results disclosed that high capital accumulation, increasing productivity and innovation together with low unemployment and government intervention creates the environment for long-term economic growth and financial sector development.

Based on the findings that financial activity in the country can be developed throughout increasing of total economy this paper suggest that countries should concentrate their actions to capital accumulation, productivity and innovation to achieve financial stability and growth. Further these goals can be gain by creating economical and political stability in the country, by attracting foreign direct investments, by increasing exports and national savings, by reducing unemployment, by investing in education and by supporting innovative businesses.

REFERENCES

1. Akmal Athamov (2011). The Role of National Savings on Generation Fixed Investment Capital. National University of Uzbekistan
2. Asli Demirguc-Kunt (2008). Finance and Economic Development: The Role of Government. World Bank. Development Research Department.
3. Asli Demirguc-Kunt and Enrica Detragiache (1998). The Determinants of Banking Crises in Developing and Developed Courtiers. International Monetary Fund. IMF Staff Papers. Vol.45, No. 1.
4. Athanasios P. Papadopoulos, Nikolaos Giannellis, Angelos Kanas (2010). Asymmetric Volatility Spillovers between Stock Market and Real Activity: Evidence from the UK and the US. 4, pp. 429-445.
5. Cat Moody (2006). Migration and Economic Growth: A 21s t Century Perspective. New Zealand Treasury Working Paper 06/02.
6. Central Bank of the Republic of Lithuania (2008). Banking Statistics 2007 Yearbook.
7. Central Bank of the Republic of Lithuania (2010). Banking Statistics 2010 Yearbook.
8. Central Bank of the Republic of Lithuania (2011). Financial Stability Review 2011.
9. Central Bank of the Republic of Lithuania (2012). Lithuania Economic Review 2012.
10. Cesar Calderon an Lin Liu (2002). The Direction of Causality Between Financial Development and Economic Growth. Central Bank of Chile Working Papers. No. 184.
11. Chaido Dritsaki and Melina Dritsaki-Bargiota (2006). The Causal Relationship between Stock, Credit Market and Economic Development: An Empirical Evidence for Greece. Economic Change and Restructuring, 38:113–127.
12. Chee-Keong Choong and Sok-Gee Chan (2011). Financial development and economic growth: A review. African Journal of Business Management Vol.5 (6), pp. 2017-2027.
13. Christian Thimann (2002). Financial Sectors in EU Accession Countries. European Central Bank.
14. Claudio Detotto and Edoardo Otranto (2010). Does Crime Affect Economic Growth. Vol. 63. No. 3, 330–345.
15. Dana Hajkova, Jaromir Hurnik (2007). Cobb-Douglas Production Function: The Case of a Converging Economy. Czech Journal of Economics and Finance, 57, No. 9-10.

16. David Lynch (1996). Measuring Financial Sector Development: A Study of Selected Asia-Pacific Countries. The Developing Economies, XXXIV-1.
17. David N.Weil (2005). Economic Growth. Brown University.
18. Douglas W. Diamond (1984). Financial Intermediation and Delegated Monitoring. Review of Economic Studies, 393 - 414. University of Chicago.
19. Dr. Taher Kanaan (2005). The Changing Role of the Public Sector in the Jordanian Economy. ZEF Project. Centre for Public Policy Research and Dialogue.
20. Eatzas Ahmad and Aisha Malik (2009). Financial Sector Development and Economic Growth: An Empirical Analysis of Developing Countries. Journal of Economic Cooperation and Development, 17-40.
    Electronic library at http://ssrn.com/abstract_id=1001457
21. Elias Papaioannou (2007). Finance and Growth a Macroeconomic Assessment of The Evidence from A European Angle. Working Paper Series No. 787.
22. Emma Svensson (2007). Microfinance, Financial Systems and Economic Growth - A Theoretical Framework and Findings from Bolivia. Department of Economics, School of Economics and Management. Lund University.
23. Enrica Detragiache, Poonam Gupta, and Thierry Tressel (2005). Finance in Lower-Income Countries: An Empirical Exploration. International Monetary Fund. Research Department. IMF Working Paper WP/05/167.
24. Erdal Demirhan, Oguzhan Aydemir, Ahmet Inkaya (2011). The Direction of Causality between Financial Development and Economic Growth: Evidence from Turkey. International Journal of Management Vol. 28 No. 1 Part 1.
25. European Commission (2011). European Economic Forecast. Commission Staff Working Document. Directorate-General for Economic and Financial Affairs.
26. Gene M. Grossman; Elhanan Helpman (1994). Endogenous Innovation in the Theory of Growth. The Journal of Economic Perspectives, Vol. 8, No. 1. pp. 23-44.
27. Gitana Dudzeviciute (2006). Bankininkystes sektoriaus poveikis ekonomikos augimui: Teoriniai ir praktiniai aspektai. Vol 7, No 2, 128-135. Vilniaus Gedimino Technikos Universitetas.

28. Gordon H. Hanson (2001). Should Countries Promote Foreign Direct Investment? United Nations Conference on Trade and Development. Center for International Development Harvard University. G-24 Discussion Paper Series.
29. Gordon H. Hanson (2012). Cato Journal, Vol. 32, No. 1. University of California.
30. Herman E. Daly (2008). A Steady-State Economy. Sustainable Development Commission, UK. School of Public Policy University of Maryland.
31. Hernando de Soto (1994). The Missing Ingredient: what poor countries will need to make their markets work. Housing Finance International.
32. Hugh T. Patrick (1966). Financial Development and Economic Growth in Underdeveloped Countries. Economic Development and Cultural Change, Vol. 14, No. 2. pp. 174-189.
33. J. Edward Taylor (2006). International Migration and Economic Development. Population Division Department of Economic and Social Affairs. United Nations Secretariat, Turin, Italy.
34. Jadvyga Ciburiene (2010). Relation of Foreign Direct Investment With The Stage of Country Economic: Lithuania Case. Kaunas University of Technology.
35. Jelena Zubkova, Egils Kauzenas, Ivars Tillers, Martins Prusis (2003). Financial Market in Latvia. The Bank of Latvia.
36. Joel Kurtzman (2008). An Interview with Paul M. Romer. http://www.strategy-business.com
37. John A. Cole, Lucy J. Reuben (2011). Minority Banks' Profits, Regulatory Constraint Lessons. Global Conference on Business and Finance Proceedings, Volume 6. North Carolina A&T State University, Duke University.
38. John Boyd and Bruce Champ (2003). Inflation and Financial Market Performance: What Have We Learned in the Last Ten Years? Federal Reserve Bank of Cleveland. Working Paper 03/17.
39. Jonas Cicinskas, Linas Sadzius (2006). Evolution of The Banking System in Lithuania: From State-Owned Mono-Banks To A Modern Banking System (1988–2004). Vilnius University, Mykolas Romeris University.
40. Joseph Cortright (2001). New Growth Theory, Technology and Learning: A Practitioner's Guide. U.S. Economic Development Administration. Reviews of Economic Development Literature and Practice: No. 4.

41. Juzhong Zhuang, Herath Gunatilake, Yoko Niimi, Muhammad Ehsan Khan, Yi Jiang, Rana Hasan, Niny Khor, Anneli S. Lagman-Martin, Pamela Bracey, and Biao Huang (2009). Financial Sector Development, Economic Growth, and Poverty Reduction: A Literature Review. No 173. Asian Development Bank Economics Working Paper Series.
42. Kalman Kalotay and Gabor Hunya (2000). Privatization and FDI in Central and Eastern Europe Transnational Corporations, vol. 9, no. 1.
43. Katarzyna Burzynska (2009). Financial Development and Economic Growth: The Case of Chinese Banking Sector. September. Lund University School of Economics and Management Department of Economics.
44. Katarzyna Burzynska (2009). Financial Development and Economic Growth: The Case of Chinese Banking Sector. Lund University. School of Economics and Management Department of Economics.
45. Kristina Rimkunaite, Edita Vysniauskaite (2005). Banking system stability in Lithuania. Kaunas University of Technology, Lithuania.
46. Laura Alfaro (2003). Foreign Direct Investment and Growth: Does the Sector Matter? Harvard Business School.
47. Manuela Tvaronavicienė, Virginija Grybaite (2007). Impact of FDI on Lithuanian Economy: Insight Into Development of Main Economic Activities. Journal of Business Economics and Management. Vol. 7, No 4, 285–290.
48. Mary M. Cleveland (2003). A Classical Model of Distribution, Productivity and Growth: Adam Smith was Right. Distribution, Productivity & Growth.
49. Meghana, Ayyagari, Asli Demirguc-Kunt, Vojislav Maksimovic (2005). How Important Are Financing Constraints? The role of finance in the business environment.
50. Mejra Festie, Sebastijan Repina, Alenka Kavkler (2009). The Overheating of Five EU New Member States and Cyclicality of Systemic Risk in The Banking Sector. Journal of Business Economics and Management. 219-232.
51. Menzie D. Chinn and Hiro Ito (2007). A New Measure of Financial Openness University of Wisconsin and NBER and Portland State University.
52. Nick Gier (2006). Soles Hundreds of Feet Thick: Visualizing Economic Inequality in America. University of Idaho.

53. Niranjan Roy, Avijit Debnath, Assam University, Silchar (2011). International Conference on Social Science and Humanity IPEDR vol.5. Singapore.
54. Organization for Economic Co-operation and Development (OECD 2000). Lithuania: Foreign Direct Investment Impact and Policy Analyse. Working Papers of International Investments No.2000/3.
55. Organization for Economic Co-operation and Development (OECD 2011). Estonia, Review of The Financial System.
56. Patrick Honohan (2003). Financial Development, Growth and Poverty: How Close are The Links? Development Research Group and Financial Sector Operations and Policy Department, The World Bank.
57. Philip Arestis (2005). Financial Liberalization and The Relationship Between Finance and Growth. CEPP Working Paper No. 05/05. University of Cambridge. Department of Land Economy.
58. Philip Lowe (1992). The Impact of Financial Intermediaries on Resource Allocation and Economic Growth. Research Discussion Paper 921, Economic Research Department Reserve Bank of Australia.
59. Rengin AK, Ekrem Kara (2011). The Relationship between Financial Development and Economic Growth: "Econometric Model" European. Journal of Scientific Research Vol.54 No.4, pp.522-531.
60. Richard A. Werner (2002). Post-Crisis Banking Sector Restructuring and Its Impact on Economic Growth. The Japanese Economy, vol. 30, no. 6, pp. 3–37.
61. Robert E. Lipsey (2002). Home and Host Country Effects of FDI. Paper for ISIT Conference on Challenges to Globalization, Lidingo, Sweden.
62. Robert E. Lucas (1988). On The Mechanics of Economics Development. Journal of Monetary Economics 22, 3-42. North-Holland. Jr. University of Chicago.
63. Robert G. King and Ross Levine (1993). Finance and Growth: Schumpeter Might Be Right. The Quarterly Journal of Economic.
64. Robert M. Solow (1997). The Tanner Lecture on Human Values. March. Princeton University. Welfare and Work.
65. Ronald H. Coase (1960). The Problem of Social Cost. Journal of Law and Economics.

66. Ross Levine (2004). Finance and Growth: Theory and Evidence, September 3, 2004 Carlson School of Management, University of Minnesota and the NBER.
67. Ross Levine, Norman Loayza and Thorsten Beck (2000). Financial intermediation and growth: Causality and causes Journal of Monetary Economics 46, 31-77.
68. Ross Levinie, Normani Loayza, Thorsten Beck (1999). Financial Intermediation and Growth, Causality and Cause. Policy Research Working Paper 2059. The World Bank. Development Research Group.
69. Sarunas Kraujalis (2001). The Development of Universal Banking in Lithuania. Informatica, Vol. 12, No. 4, 509–518. Kaunas University of Technology, Economics and Management Faculty. Department of International Economics and Trade. Lithuania.
70. Seymour Martin Lipset (1993). Reflections on Capitalism, Socialism & Democracy. Journal of Democracy Vol. 4, No. 2.
71. Stijn Claessens, Luc Laeven (2005). Journal of the European Economic Association 3(1): 179–207. European Economic Association.
72. The Pennsylvania State University (2005). An Inquiry Into The Nature and Causes of "The Wealth of Nations" by Adam Smith. A Penn State Electronic Classics Series Publication.
73. The World Bank (2010). Latvia, Diagnostic Review of Consumer Protection and Financial Capability. Volume II. Comparison against Good Practices
74. Thorsten Beck, Asli Demirguce-Kunt, and Ross Levine (1999). A New Database on Financial Development and Structure. Financial Sector Discussion Paper No. 2. The World Bank
75. Thorsten Beck, Asli Demirguc-Kunt, Ross Levine (1999). New Database on Financial Development and Structure. Financial Sector Discussion Paper No. 2A. The World Bank.
76. Tuuli Koivu (2002). Banking and Finance in the Baltic Countries. No. 11. Bank of Finland Institute for Economies in Transition.
77. Tuuli Koivu (2002). Do efficient banking sectors accelerate economic growth in transition countries? Bank of Finland Institute for Economies in Transition. BOFIT Discussion Papers No. 14
78. Valpy FitzGerald (2006). Financial Development and Economic Growth: A Critical View. Background paper for World Economic and Social Survey. Oxford University.

79. William H. Meyers, Natalija Kazlauskiene, Inesis Feiferis, Valdek Loko (1992). Agriculture Transformation and Privatization in the Baltics. Baltic Raport 92-BR 7. Center for Agriculture and Rural Development Iowa State University.
80. William R. Drexel (2004). Telecom Public Policy Schizophrenia: Schumpeterian Destruction Versus Managed Competition. Virginia Journal of Law & Technology. University of Virginia. Vol.9, No.5.
81. Wontack Hong (1998). Financing Export-Oriented Catching-up in Korea: Credit-Rationing, Sustained High Growth and Financial Chaos. International Economic Journal. Vol. 12, No. 1. Seoul University.

APPENDIXES

Table 8. Overview of financial and economic indicators

Financial and Economic Indicators																
Year	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
LIQUID LIABILITIES / GDP (M3 as % of GDP)																
Lithuania	0,208	0,195	0,174	0,160	0,176	0,199	0,213	0,238	0,264	0,284	0,318	0,360	0,398	0,409	0,421	0,433
Latvia	0,259	0,250	0,197	0,215	0,236	0,235	0,249	0,278	0,302	0,330	0,356	0,387	0,433	0,432	0,431	0,430
Estonia	0,251	0,226	0,233	0,253	0,270	0,287	0,311	0,345	0,359	0,354	0,364	0,412	0,466	0,479	0,492	0,505
PRIVATE CREDIT BY DEPOSIT MONEY BANKS / GDP																
Lithuania	0,16	0,14	0,12	0,10	0,11	0,14	0,14	0,13	0,14	0,19	0,25	0,33	0,43	0,51	0,61	0,73
Latvia	0,14	0,12	0,07	0,08	0,12	0,15	0,17	0,22	0,28	0,35	0,43	0,55	0,71	0,82	0,93	1,08
Estonia	0,12	0,13	0,17	0,25	0,31	0,31	0,32	0,36	0,40	0,46	0,54	0,62	0,72	0,84	0,99	1,16
GDP Growth (Annual %)																
Lithuania	-1,642	4,976	4,977	10,802	5,358	-0,136	9,558	8,513	7,942	7,564	7,223	9,434	10,562	6,920	-5,064	-13,899
Latvia	2,190	-0,945	3,791	8,283	4,723	4,699	6,914	8,043	6,473	7,196	8,678	10,601	12,233	9,978	-4,244	-17,955
Estonia	-9,766	3,290	5,183	7,469	7,629	-1,073	3,251	6,736	6,864	10,247	7,351	7,802	7,845	9,840	2,927	-14,742
GDP per capita growth (annual%)																
Lithuania	-9,149	4,029	5,970	8,220	8,386	-0,401	4,179	7,295	7,240	10,721	7,932	8,474	8,487	10,441	3,464	-14,265
Latvia	3,714	0,355	4,791	10,095	6,461	5,575	7,725	8,639	7,429	7,779	9,266	11,193	12,850	10,550	-3,821	-17,545
Estonia	0,484	6,867	6,537	12,073	6,375	0,626	10,049	8,944	8,376	7,968	7,562	9,694	10,772	7,069	-4,993	-13,873
GDP (current US$ mil)																
Lithuania	6 959	7 905	8 427	10 129	11 254	10 971	11 434	12 159	14 164	18 609	22 552	25 962	30 089	39 104	47 253	36 846
Latvia	5 061	5 236	5 585	6 133	6 617	7 289	7 833	8 313	9 315	11 186	13 762	16 042	19 935	28 766	33 669	25 876
Estonia	3 965	4 353	4 729	5 052	5 598	5 705	5 676	6 240	7 324	9 845	12 031	13 903	16 807	21 659	23 566	19 266
Final consumption expenditure, etc. (% of GDP)																
Lithuania	87,60	89,27	89,35	86,12	86,16	87,83	87,39	86,23	85,02	83,95	84,38	83,21	83,84	82,47	85,10	90,81
Latvia	78,81	87,90	90,08	88,28	88,36	85,80	83,32	82,92	83,07	83,83	82,58	80,00	81,78	79,64	82,47	81,20
Estonia	83,34	79,37	82,85	79,98	79,02	79,59	75,22	74,56	75,07	74,34	73,99	72,71	71,55	70,92	74,65	75,22
Final consumption expenditure, etc. (current US$ mil)																
Lithuania	6 096	7 057	7 529	8 723	9 696	9 637	9 992	10 485	12 043	15 622	19 028	21 602	25 227	32 250	40 214	33 462
Latvia	3 988	4 602	5 031	5 414	5 847	6 253	6 527	6 893	7 738	9 377	11 364	12 833	16 302	22 910	27 769	21 012
Estonia	3 304	3 455	3 918	4 040	4 424	4 541	4 269	4 653	5 498	7 319	8 902	10 110	12 026	15 360	17 592	14 491
Adjusted savings: net national savings (% of GNI)																
Lithuania	-5,74	1,33	-1,25	1,72	1,14	-2,48	-3,98	-1,73	0,16	0,77	1,22	3,91	3,24	4,51	2,16	
Latvia	11,55	-12,25	-10,77	-8,48	-10,45	-9,38	-2,85	-1,44	0,69	1,80	1,89	4,74	1,66	5,01	5,50	15,36
Estonia	7,16	11,94	8,43	8,73	11,22	8,86	11,36	10,64	9,58	10,35	9,76	11,84	10,38	11,49	7,83	11,46
Adjusted savings: net national savings (current US$ mil)																
Lithuania	-400	105	-104	170	125	-265	-447	-207	23	140	267	990	948	1 691	986	
Latvia	586	-644	-606	-525	-697	-677	-222	-120	65	200	255	751	322	1 393	1 832	4 315
Estonia	282	520	399	428	619	496	622	634	670	964	1 112	1 578	1 633	2 291	1 724	2 127
Gross fixed capital formation (% of GDP)																
Lithuania	23,10	20,28	20,48	22,34	23,82	21,91	18,73	20,12	20,26	21,08	22,28	22,77	25,17	28,30	25,45	17,12
Latvia	14,88	13,76	16,67	17,22	25,10	22,98	24,24	24,86	23,80	24,40	27,46	30,62	32,62	33,66	29,33	21,45
Estonia	26,47	26,87	26,40	28,13	30,40	24,61	25,75	26,45	29,70	31,59	30,89	32,10	35,99	34,46	28,64	21,55
Gross fixed capital formation (current US$ mil)																
Lithuania	1 607	1 603	1 725	2 262	2 681	2 404	2 141	2 446	2 870	3 923	5 025	5 911	7 574	11 065	12 025	6 307
Latvia	753	720	931	1 056	1 661	1 675	1 899	2 066	2 217	2 730	3 779	4 912	6 503	9 683	9 876	5 551
Estonia	1 050	1 170	1 248	1 421	1 702	1 404	1 461	1 651	2 176	3 110	3 716	4 462	6 049	7 465	6 749	4 152
Exports of goods and services (% of GDP)																
Lithuania	55,38	47,41	49,97	51,58	45,06	38,63	44,75	49,78	52,71	51,15	52,05	57,53	59,08	54,09	59,88	54,63
Latvia	46,46	42,67	46,82	46,85	47,18	40,37	41,64	41,58	40,87	42,07	43,96	47,85	44,88	42,35	42,82	43,89
Estonia	71,77	68,10	61,91	71,73	74,56	70,44	84,59	79,83	70,93	69,19	73,07	77,72	72,70	67,57	71,49	64,66
Exports of goods and services (current US$ mil)																
Lithuania	3 853	3 748	4 211	5 224	5 071	4 238	5 116	6 053	7 465	9 519	11 739	14 937	17 777	21 152	28 294	20 129
Latvia	2 351	2 234	2 615	2 873	3 122	2 942	3 262	3 456	3 807	4 706	6 050	7 676	8 948	12 181	14 416	11 356
Estonia	2 846	2 964	2 927	3 623	4 174	4 019	4 801	4 981	5 195	6 812	8 792	10 805	12 219	14 635	16 848	12 458
Imports of goods and services (% of GDP)																
Lithuania	61,40	57,97	59,17	61,58	56,41	48,65	51,02	55,30	58,42	56,98	59,13	64,65	69,26	67,43	71,69	56,05
Latvia	44,39	44,87	54,25	54,65	59,62	49,60	48,67	51,11	50,62	54,65	59,57	62,23	66,35	62,38	56,46	45,37
Estonia	82,16	75,67	72,90	82,59	84,59	75,35	88,20	82,30	78,29	76,68	80,13	84,22	82,95	78,13	75,62	58,55
Imports of goods and services (current US$ mil)																
Lithuania	4 272	4 583	4 986	6 237	6 348	5 337	5 834	6 724	8 275	10 604	13 335	16 783	20 840	26 370	33 876	20 653
Latvia	2 247	2 349	3 030	3 352	3 945	3 615	3 813	4 249	4 715	6 113	8 198	9 983	13 227	17 944	19 011	11 739
Estonia	3 257	3 294	3 447	4 172	4 735	4 299	5 006	5 136	5 734	7 549	9 641	11 709	13 941	16 922	17 821	11 280

FDI, net inflows (% of GDP)																
Lithuania	0,45	0,92	1,81	3,50	8,22	4,43	3,31	3,67	5,03	0,96	3,43	3,97	6,12	5,16	4,38	0,34
Latvia	4,24	3,43	6,83	8,50	5,39	4,77	5,27	1,59	2,72	2,71	4,63	4,45	8,35	8,05	4,03	0,36
Estonia	5,41	4,63	3,18	5,27	10,37	5,35	6,82	8,69	3,88	9,33	8,03	21,16	10,63	12,56	7,42	9,90
FDI, net inflows (BoP, current US$ mil)																
Lithuania	31,30	72,56	152,40	354,50	925,53	486,46	378,88	445,83	712,45	179,18	773,15	1 031,82	1 840,19	2 017,04	2 069,80	126,13
Latvia	214,45	179,62	381,69	521,05	356,90	347,60	412,50	132,00	253,60	303,50	636,90	713,50	1 664,20	2 315,60	1 357,40	93,50
Estonia	214,43	201,49	150,22	266,22	580,52	305,18	387,31	542,49	284,52	918,99	965,82	2 941,28	1 787,44	2 720,03	1 748,52	1 908,21
Inflation, consumer prices (annual %)																
Lithuania	72,15	39,66	24,62	8,88	5,07	0,75	0,99	1,36	0,28	-1,13	1,14	2,66	3,75	5,74	10,93	4,45
Latvia	35,93	24,98	17,61	8,44	4,66	2,36	2,65	2,48	1,92	2,96	6,19	6,74	6,53	10,11	15,40	3,53
Estonia	47,65	28,78	23,05	10,58	8,21	3,30	4,03	5,74	3,57	1,34	3,05	4,09	4,43	6,60	10,37	-0,08
Labor participation rate, total (% of total population ages 15+)																
Lithuania	63,8	63,0	62,2	61,4	60,9	61,1	60,1	58,8	58,2	60,4	57,6	56,5	55,9	56,3	56,7	55,7
Latvia	62,8	61,1	59,2	59,0	58,8	57,5	56,0	56,5	58,1	57,2	57,6	57,6	59,3	60,6	62,2	61,5
Estonia	63,2	61,6	61,6	61,5	60,3	59,0	58,5	58,3	56,9	58,6	58,6	58,5	60,4	60,6	61,5	61,2
Unemployment, total (% of total labor force)																
Lithuania	17,40	17,10	15,60	14,10	13,70	13,40	15,90	16,80	13,00	12,90	11,40	8,30	5,60	4,30	5,80	13,70
Latvia			20,20	14,70	14,50	13,80	14,20	13,10	13,30	10,60	9,90	8,90	6,90	6,00	7,50	17,10
Estonia	7,60	9,70	9,90	10,40	9,50	11,60	13,10	12,50	9,50	10,80	10,00	7,90	6,00	4,70	5,50	13,70
Population, Total																
Lithuania	3,66	3,63	3,61	3,58	3,56	3,53	3,50	3,48	3,47	3,45	3,44	3,41	3,39	3,38	3,36	3,34
Latvia	2,55	2,52	2,49	2,45	2,41	2,39	2,37	2,36	2,34	2,33	2,31	2,30	2,29	2,28	2,27	2,25
Estonia	1,46	1,44	1,42	1,40	1,39	1,38	1,37	1,36	1,36	1,35	1,35	1,35	1,34	1,34	1,34	1,34
Adjusted savings: education expenditure (% of GNI)																
Lithuania	5,23	5,25	5,18	5,18	5,51	5,51	5,51	5,81	5,67	5,67	5,09	4,73	4,59	4,40	4,40	4,40
Latvia	6,11	6,71	6,06	5,57	5,57	5,57	5,57	5,57	5,57	5,57	5,57	5,57	5,57	5,57	5,57	5,57
Estonia	5,85	6,25	6,34	6,34	5,53	5,53	5,53	5,53	4,93	5,05	4,71	4,62	4,62	4,42	4,42	4,42
Adjusted savings: education expenditure (current US$ mil)																
Lithuania	364	414	432	515	606	590	619	696	794	1 028	1 117	1 200	1 343	1 651	2 007	1 638
Latvia	310	353	341	345	372	402	436	464	521	621	750	883	1 078	1 550	1 858	1 564
Estonia	230	272	300	311	305	310	303	329	345	471	537	617	728	881	972	819
Gross fixed capital formation, private sector (% of GDP)																
Lithuania			18,11	20,07	21,29	19,34	16,37	17,94	17,44	18,28	18,73	19,15	22,11	25,52		
Latvia	13,82	12,90	14,62	14,94	21,33	18,81	20,53	21,37	20,04	20,91	24,12	30,62	32,62	33,66	30,34	21,58
Estonia	22,53	22,36	21,57	24,12	26,29	20,60	22,91	23,41	26,23	28,76	28,18	28,72	2,71	5,18	0,85	-2,88
Adjusted savings: education expenditure (current US$ mil)																
Lithuania	0	0	6 103	8 132	9 585	8 488	7 485	8 725	9 082	10 413	11 742	13 799	18 305	25 177	0	0
Latvia	282	333	450	532	832	802	975	1 116	1 154	1 337	1 793	2 774	3 644	4 975	4 911	2 823
Estonia	7 062	9 678	12 269	16 913	20 702	17 272	22 081	25 535	31 921	39 233	42 698	50 241	5 670	12 820	2 130	-6 255
Real interest rate (%)																
Lithuania	0,41	-17,59	2,13	2,28	8,69	14,75	11,10	10,04	6,65	6,67	3,13	-1,26	-1,34	-1,51	-1,24	12,56
Latvia	14,39	5,52	9,50	7,74	9,26	9,42	7,37	9,31	4,21	1,75	0,41	-3,69	-2,35	-7,80	-2,21	18,00
Estonia	-10,75	-9,51	-8,25	0,47	7,96	4,18	2,39	3,35	3,25	1,22	1,98	-0,54	-3,03	-3,70	1,27	9,44

Source: The World Bank. The World Development Indicators