LATVIJAS BANKA

DISCUSSION PAPER

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SAVINGS IN LATVIA

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CONTENTS

ABBREVIATIONS

CSB – Central Statistical Bureau of Latvia
EC – European Commission
EMU – Economic and Monetary Union
EU – European Union
EU15 – EU countries prior to 1 May 2004
FCMC – Financial and Capital Market Commission
GDP – gross domestic product
NATO – North Atlantic Treaty Organisation
OECD – Organisation for Economic Co-operation and Development
PPS – purchasing power standard
UK – United Kingdom
US – United States of America

ABSTRACT

A high saving rate is the foundation of a sustainable national social and economic policy. Nevertheless, boosting saving is not an end in itself. The process of making savings should be analysed taking into account several related aspects. This paper aims at conducting a detailed and comprehensive analysis of saving behaviour in Latvia and its estimation in the global context. Household saving behaviour and saving habits are in a particular focus and are examined econometrically using a unique source of Latvia's micro data, i.e. household budget surveys.

Key words: savings, household saving habits, micro data, cross-section model.

JEL classification codes: C21, D12, D14, E21, O16

INTRODUCTION

In order to render social and economic policies sustainable, various activities to promote saving habits have been implemented in a number of world countries of late. Nevertheless, boosting saving in the context of sustainable policy is not an end in itself; many other aspects are to be considered as well. On the one hand, a steady current external balance plays an important part in maintaining external equilibrium and minimising financial vulnerability risks. On the other hand, the investing of funds, both saved and borrowed, in the production of output with higher value added and the boosting of productivity create preconditions for increased income in the future.

This paper aims to provide a comprehensive analysis of saving behaviour and the role savings play in the economy of Latvia (up to 2008, in the breakdown by sector – up to 2007). The length of the chosen period is restricted by the availability of statistical data in the breakdown required for the study. The authors have held the household savings and their formation in a particular focus. Using econometric methods, a mechanism of household saving behaviour in Latvia based on micro data has been obtained. The objective of the econometric approach based on CSB household budget surveys in 2005 and 2006 is to assess how various specific qualities of Latvian households affect their saving habits. The household savings are explained in the context of income and different household descriptive variables (demography, geography, average level of education, household-owned durable goods, etc).

The importance of such econometric assessment in Latvia relies on several factors. First, household savings can potentially make a notable contribution to national savings; hence understanding household saving habits can help explain the trends of economic developments. Second, substantial capital investment is needed for Latvia's growth, and saving is an instrument to ensure the needed amount of domestic investment without jeopardising the external balance of the country. Finally, household savings are significant in terms of financial stability. They provide for the distribution of monetary income, with funds accumulated during periods of fast growth spent at the time of more subdued development. Consequently, savings guarantee financial stability of households during economic downturns and have a positive effect on the economic growth and stability of the banking sector.

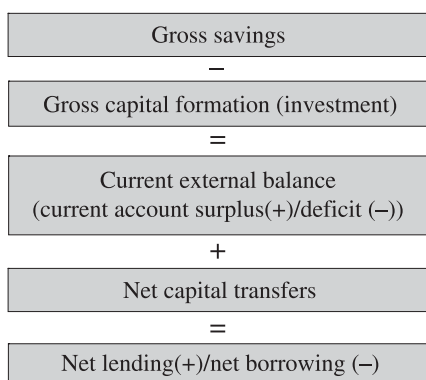Section 1 deals with savings in Latvia relative to European countries and looks at their significance for a balanced external economic perspective. Section 2 discusses savings in the breakdown by sector, with household savings in the spotlight. The mechanism of household saving behaviour is analysed using econometric methods and micro data as the basis. The concluding section presents authors' main findings.

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1. SAVINGS IN LATVIA IN AN INTERNATIONAL CONTEXT

In many countries across the globe, gross saving formation is of particular importance for the pursuit of adequate economic and social policies. However, the boosting of savings and investment and achieving a positive saving and investment gap (current external balance; see Chart 1) is not an end in itself. The government policy should build on economic and social foundations, and be sustainable and consistent with the business cycle, i.e. savings should be made in periods of economic growth to be used as stimuli for economic development during times of economic downturns. A number of other factors are to be considered as well. On the one hand, a steady current external balance plays an important part in maintaining external equilibrium and in minimising financial vulnerability risks. On the other hand, investing savings and borrowings in the production of output with higher value added and boosting productivity create preconditions for rising income in the future.

Chart 1
Savings and investment relationship

Gross savings
−
Gross capital formation (investment)
=
Current external balance (current account surplus(+)/deficit (−))
+
Net capital transfers
=
Net lending(+)/net borrowing (−)

Researchers and analysts are unlikely to be unanimous about policy priorities, either personal or public, in the decisions concerning sectoral development, employment, income distribution (taxes, subsidies, benefits, dividends, etc), consumption, saving, investment, borrowing or lending, etc, which have implications for economic or social processes. Individual decision-making processes are also determined by the priority of the day: some will prefer immediate improvement of life quality by pushing up final consumption expenditure or purchasing a house; others will invest the funds, available or borrowed, in a production unit that promises a profit in the future; still others will deposit ever larger amounts for old age or children's education.

All such decisions act on the economic development. With the mobility of labour force and capital increasing, implications for the external sector also become more pronounced. Using macroeconomic indicators in the breakdown by sector for the purpose of analysis improves the perception of predominating national economic growth trends and behaviour of economic agents. The sectoral breakdown is based on the behavioural variance of economic agents, their activities and functions, and covers financial institutions (financial intermediation), non-financial corporations

(production of goods and non-financial services), the government (redistribution of national income and wealth), and households[1] (final consumption).

The gross saving rate[2], or overall national saving rate, and savings-related decisions can be affected by direct and indirect factors, among them the business cycle, disposable income, accumulated wealth, needed investment, projected future income and price levels, return on non-financial and financial investment, exchange rates, lending and depositing rates, taxes, social attitude towards savings and habits, income distribution, population breakdown by gender and age[3], etc. Many of these factors depend on the social and economic policies of the country which set definite objectives at different periods.

The total amount of savings in Latvia accounted on average for 19.2% of GDP in 2003–2007, a medium level in comparison with other European countries. It is true, however, that the steeply growing private consumption of 2006 triggered a substantial drop in saving rate in Latvia (from 21.9% of GDP in 2005 to 17.2% of GDP in 2006). In line with dramatically decelerating GDP growth and deteriorating assessment of projected progress, economic agents began to restrict their spending towards the end of 2007, bringing savings up to the level of 17.9% of GDP for the year overall (in the fourth quarter of 2008, to 26.8% of GDP).

For a half of the European countries in the focus of this paper[4] (see Chart 2) the dispersion of gross savings is relatively small, within the range of 5 percentage points (19%–24% of GDP). At the same time, the respective savings display substantial differences in the breakdown by sector.
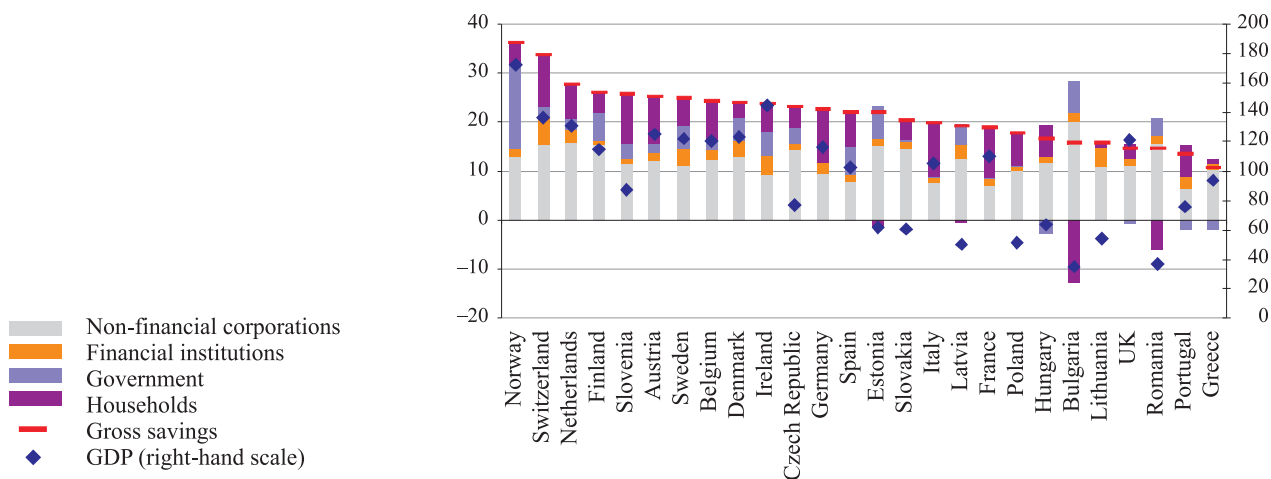
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[1] For convenience, non-profit institutions serving households (such as public, religious, and charity organisations, sports federations, etc) are often treated as households. For the purpose of this study, the household sector includes non-profit institutions as well.

[2] The share of national disposable income not used for final consumption expenditure.

[3] In accordance with the life cycle hypothesis, the average consumption behaviour is more pronounced for young people and older generations; hence the age structure of country's population may affect the amount of gross savings. The level of gross savings may depend on employment indicators (unemployment level and demographic load, participation of women in the labour market, etc) and labour force changes as well.

[4] Charts 2–5 include data on Austria, Belgium, Bulgaria, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Italy, Ireland, Latvia, Lithuania, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the UK. Chart 5 does not present Switzerland's data.

Chart 2
Gross savings (in % of GDP) and GDP by per capita PPS (in % of the EU average) in 2003–2007[5]

Non-financial corporations
Financial institutions
Government
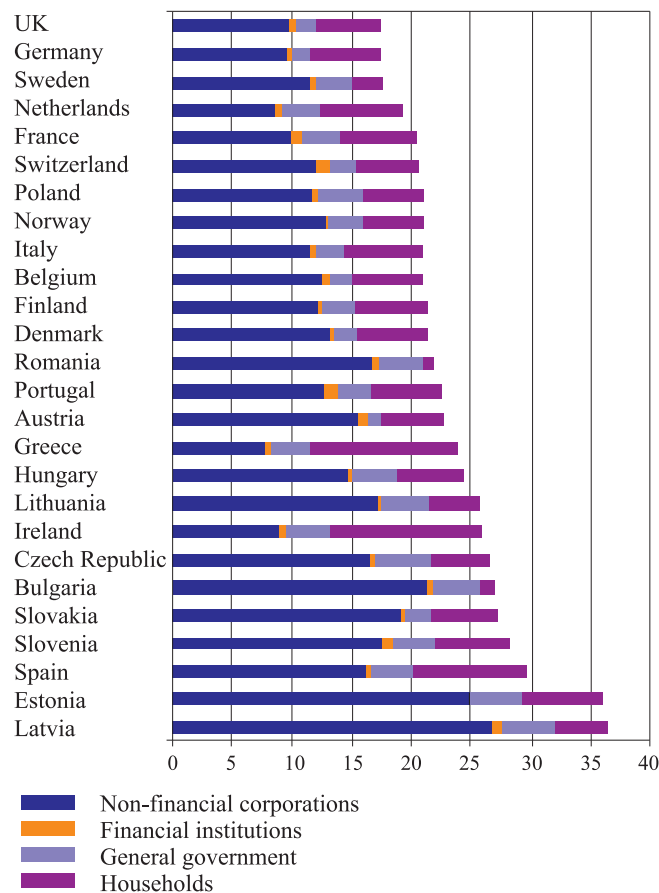Households
Gross savings
GDP (right-hand scale)

Source: Eurostat.

Most often, low-income countries (see Charts 2 and 3) boast proportionally higher non-financial corporations' gross saving rates and investment (gross capital formation) levels, while the household saving rate is lower. For instance in the analysed period, GDP measured by per capita PPS in Bulgaria on average accounted for a mere 35.0% of the respective average EU indicator (the lowest among the EU countries, household savings contracted substantially on an annual basis, and savings of non-financial corporations increased at the same time (the situation was similar in Romania).

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[5]   Data consistent with available statistics, since several countries do not have sectoral account systems. The last period with the data available in sectoral breakdown in the majority of cases is 2007.

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Chart 3
Gross capital formation (in 2003–2007 on average; in % of GDP)

UK
Germany
Sweden
Netherlands
France
Switzerland
Poland
Norway
Italy
Belgium
Finland
Denmark
Romania
Portugal
Austria
Greece
Hungary
Lithuania
Ireland
Czech Republic
Bulgaria
Slovakia
Slovenia
Spain
Estonia
Latvia

0   5   10   15   20   25   30   35   40

■ Non-financial corporations
■ Financial institutions
■ General government
■ Households

Source: Eurostat.

The Baltic States are in a similar situation, with the levels of gross capital formation and net borrowing recorded by non-financial corporations particularly high relative to other countries. There might be two main explanations.

First, amassing corporate savings for the purpose of raising productive capacity is of particular importance for low-income countries and transitory economies, particularly so with a view to serious and long-term economic restructuring. As under such conditions the income level is relatively low and does not ensure savings in the amount needed for maintaining adequate investment levels, the attraction of foreign financing is as a rule necessary, though it brings about a deficit in the current account at least in the short run.

Second, given a gradual balancing of income across Europe, the countries with initially lower income levels record also accordingly lower household final consumption expenditures. While a certain level of well-being is not achieved, households would first wish to push up their consumption instead of saving for retirement or a "rainy day" in the majority of cases. Hence it is natural that household savings are considerably lower in these countries than per capita savings in high-income states.
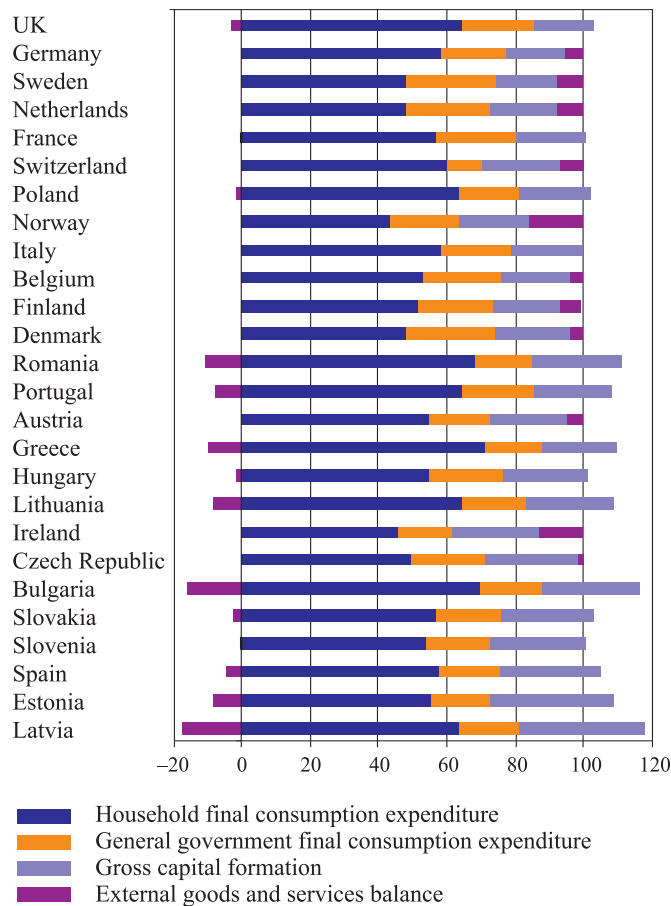
The breakdown of disposable income by sector can be affected by additional factors, e.g. tax burden of employers and employees, income distribution between the two with trade union activities playing a certain role, etc.

Thus, for instance, Norway stands out for both the amount of savings and breakdown by sector in 2003–2007 (see Chart 2). Gross savings are extremely high in this country (36.2% of GDP on average); moreover, they posted a fast increase in the concluding years of the given period. Most likely, it was on account of two main factors: global oil price elevations and fiscal policy. For Norway as the third largest oil exporting country of the globe, oil price rises boosted the income. The objective of the country's fiscal policy to achieve a surplus in the general government consolidated budget spurred the general government sector to make savings.

Similar to other transition economies, the investment level in Latvia for the analysed period was among the highest, at the same time implying that other countries recorded higher final consumption expenditure and/or net export levels (see Chart 4). The domestic demand data suggest that final consumption expenditure levels were higher in Scandinavian public institutions than elsewhere. It is to be associated with the economic policy in Scandinavia, which quite strongly relies on public sector participation in economic processes, and a sound social policy (high social benefits, state-financed educational and medical services, etc).

Chart 4
GDP expenditure (in 2003–2007 on average; in % of GDP)

UK	
Germany	
Sweden	
Netherlands	
France	
Switzerland	
Poland	
Norway	
Italy	
Belgium	
Finland	
Denmark	
Romania	
Portugal	
Austria	
Greece	
Hungary	
Lithuania	
Ireland	
Czech Republic	
Bulgaria	
Slovakia	
Slovenia	
Spain	
Estonia	
Latvia	

–20   0   20   40   60   80   100   120

■ Household final consumption expenditure
■ General government final consumption expenditure
■ Gross capital formation
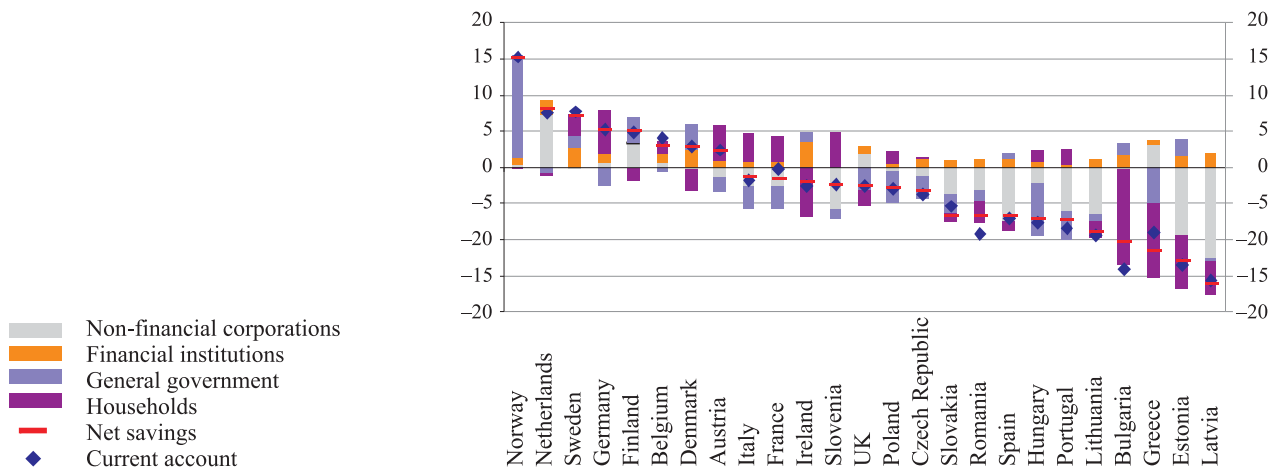■ External goods and services balance

Source: Eurostat.

The gap between national savings and domestic investment is either a surplus or deficit of the current account. Consequently, if gross savings are not sufficient to cover investment plans, money should be borrowed from other countries. When savings exceed the funding required for non-financial investment, a financial surplus is formed.

The majority of European countries are net borrowers (see Chart 5), recording, in addition, a substantial deficit in the current account as well. It should be noted that the disproportion between the external and internal sectors across countries is expanding. Economists maintain that the dynamic changes in the current external balance of countries reflect the financial globalisation trends and accelerating capital mobility in the form of, e.g. foreign direct investment.

Chart 5
Net lending/borrowing and current external balance[6] (in 2003–2007 on average; in % of GDP)

Non-financial corporations
Financial institutions
General government
Households
Net savings
Current account

Source: Eurostat.

The steep deterioration in Latvia's external trade balance in the last three years of the analysed period when the current account deficit was above 20% of GDP raised Latvia to the "leading position" among other European countries as early as 2006; consequently, the current account deficit of Latvia's balance of payments in 2003–2007 was the highest in Europe on average as well. In the second half of 2007 with the contraction phase in the business cycle setting in, the demand for durable and capital goods dropped substantially and triggered a steep shrinkage in imports. Although Latvia's exports narrowed as a result of decelerating global economic growth in the second half of 2008, a more dynamic contraction in imports in the first quarter of 2009 brought about a surplus in Latvia's current account for the first time since the fourth quarter of 1995.

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[6] The gap between net lending/borrowing and current external balance is made up by net capital transfers whose amount as a rule is rather insignificant. In Latvia, the main component of net capital transfers is EC funding.
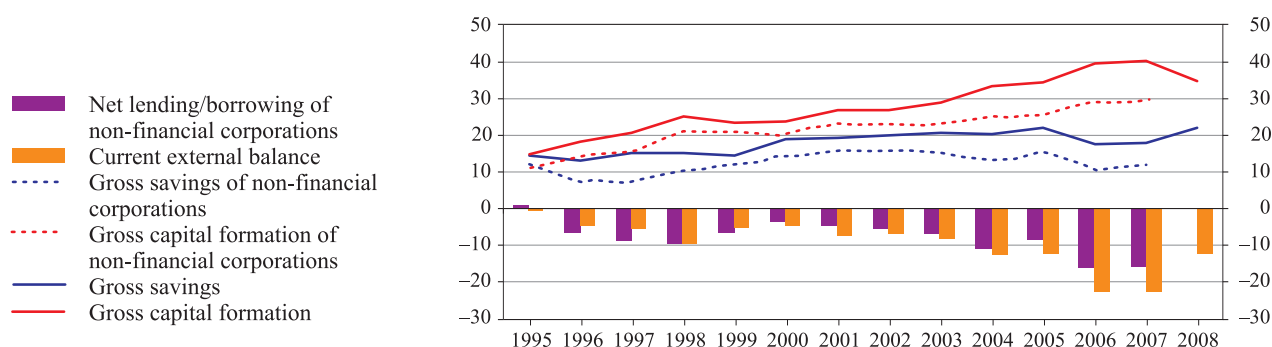
2. SAVINGS IN LATVIA IN BREAKDOWN BY SECTOR

For the purpose of assessing the current situation in Latvia, i.e. the economic development, savings and investment levels and the factors affecting them, the dynamics of the respective indicators in 1995–2007 is analysed.

The rate of gross savings in Latvia gradually increased from 14.6% of GDP in 1995 to 21.8% of GDP in 2005. In the next two years when private consumption was growing buoyantly (to 21.2% of GDP in 2006 and 23.3% of GDP in the first half of 2007 in real terms), the saving rate dropped steeply (to 13.6% of GDP). At the end of 2007, with the deceleration in lending and contraction in business cycle following, economic agents began to cut their expenditures, thus bringing the saving rate up to 22.1% of GDP in 2008.

Gross capital formation in Latvia was at an extremely high level, with its rate exceeding that of national saving in the last 10 years. In 1995, savings covered 97.5% of investment, whereas in 2007, the respective coverage was only 43.4%. As a result, Latvia's current external balance remained negative in the long run, with the current account deficit rising at a particularly fast pace in 2006 and 2007. On the one hand, the high level of total investment in Latvia is a positive phenomenon as investment ensures capital expenditure, expansion and diversification of production, transition from labour intensive to knowledge intensive economy, and improvement of productivity, all providing for natural convergence toward a higher capital level. On the other hand, the persisting current account deficit of the balance of payments amplified vulnerability of Latvia's economy and resulted in a more dramatic downturn than would have been if a "safety cushion" in the form of savings had existed.

Chart 6
Gross savings of total economy and non-financial corporations, gross capital formation and net lending/borrowing (in % of GDP)

Net lending/borrowing of non-financial corporations
Current external balance
Gross savings of non-financial corporations
Gross capital formation of non-financial corporations
Gross savings
Gross capital formation

Source: Eurostat.

A very close relationship exists between the changes in Latvia's external current balance and net lending/borrowing of non-financial corporations in the breakdown by sector (see Chart 6). It implies that the changes in savings and investment and their differences in Latvia primarily depend on the changes in the indicators of non-financial corporations, their components and factors of influence. According to OECD studies (13), the majority of world countries report similar relationships. At the same time, no pronounced interdependence between the changes of net

borrowings of households and non-financial corporations exists, which may lead to a conclusion that either the factors regulating saving and investment decisions or their impact differ. The financial institution and general government sectors engage in financial intermediation and redistribution of national income; their operation is also determined by other behavioural factors.
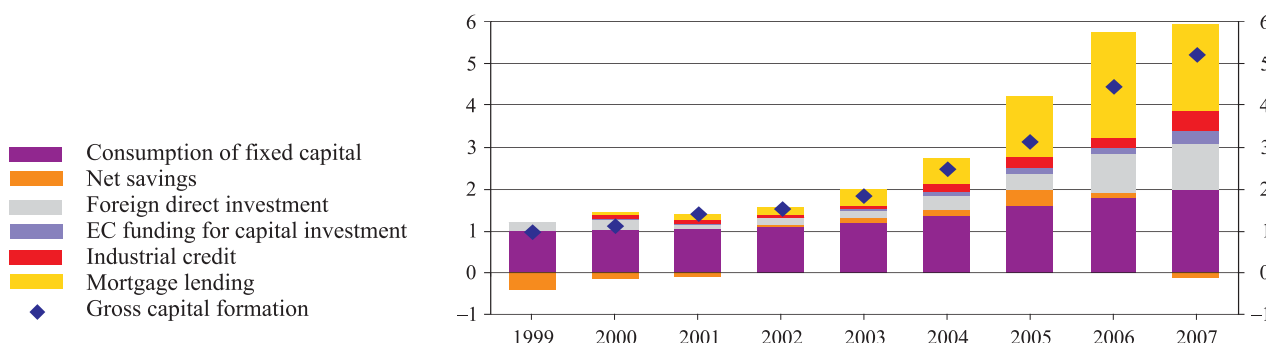
As the economy is a system of countless processes and transactions which are interrelated and, at the same time, determined by various factors, it is impossible to cover all aspects affecting saving and investment behaviour; the focus therefore is on the most significant ones.

2.1 Non-Financial Corporations

The assessment of the total saving rate and investment financing sources leads to an inference that at this junction the national savings fully cover only the replacement of capital stock, while the funding for development and growth is scarce and corporations need to resort to borrowing. This is confirmed by either an extremely low or, in some periods, even negative rate of net savings (gross savings, excluding fixed capital consumption or depreciation deductions; see Chart 7).

Chart 7
Financing of non-financial investment (annual changes in nominal terms; in billions of lats)

Consumption of fixed capital
Net savings
Foreign direct investment
EC funding for capital investment
Industrial credit
Mortgage lending
◆ Gross capital formation

Sources: Eurostat, FCMC, and Bank of Latvia.

Gross savings of non-financial corporations had been growing gradually since 1997, with the rate remaining relatively stable for a longer run (1999–2005; see Chart 8). In 2006, the saving rate dropped drastically under the impact of a number of factors. On the one hand, the GDP base increased, with other GDP income aspect positions, i.e. remuneration of employees and taxes on production and imports, growing at a faster pace than the gross operating surplus (consumption of fixed capital and net operating surplus[7]). On the other hand, the amount of current transfers to the external sector and income from foreign capital in Latvia grew faster. It should be noted that a part of this income was reinvested in the Latvian economy as foreign direct investment.

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[7] Net operating surplus or profit (except depreciation) prior to accounting for property net income (interest, rents) that does not influence GDP. With regard to interest payable and receivable on deposits, loans and other instruments, GDP includes only financial intermediation services indirectly measured.

Chart 8
Composition of non-financial corporations' gross savings (net positions; in % of GDP)

Current taxes on income, wealth, etc
Property income
Gross operating surplus
Current transfers
◆ Gross savings
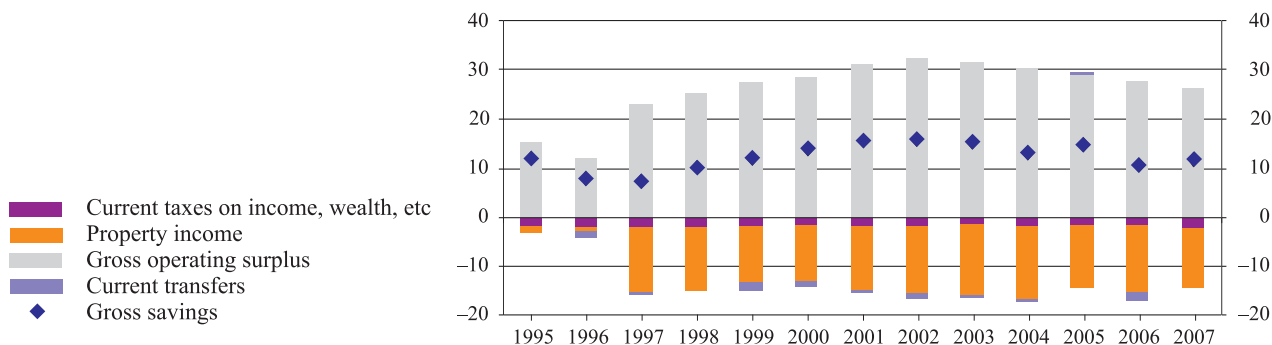
Source: Eurostat.

With regard to other sources of financing in Latvia that influence the level of gross capital formation mention should be made of international capital, i.e. EU funding, foreign direct investment, and financing attracted by domestic banks (primarily from their parent banks abroad). Net inflow of foreign capital were well supported by lower costs (of labour in particular), a relatively stable, sound and benign business environment, with the EU and NATO membership playing a part, and expectations of further buoyant economic growth.

Foreign direct investment in Latvia in 2006 and 2007 picked up more than 1 billion lats on average. Funds attracted by domestic banks from their parent banks and syndicated loans from non-resident banks increased at an even faster pace. The dynamic expansion of lending was spurred by improved credit availability, continuously low interest rates, and rising real estate prices[8].

As mortgage and industrial credits are taken not only for the purpose of building a house, importing capital goods or renovating fixed assets but also for investing in real estate and purchasing other fixed assets, the ownership rights will only change as a result of such transactions while gross capital will remain unchanged. Thus only a part of the above credit resources would go for total non-financial investment[9]. A part of credit resources granted can boost financial assets or be channelled into consumption. For instance, in the event of house building, the borrower can dispose of financing gradually. When the funding is used for buying or selling fixed assets, the seller's financial assets will increase to be utilised to his/her own liking for consumption, investment, depositing, etc. Likewise, foreign direct investment cannot

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[8]   Many research papers (e.g. (9)) suggest that rising real estate prices can substantially enhance the interest about investment and fuel or constrain final consumption and savings as well. Of these factors, two can be distinguished as most significant.
Realised wealth effect – real estate price rises influence the wealth of real estate owner, enabling expenditure and/or savings to go up.
Unrealised wealth effect – even if the real estate owner does not intend to sell the property, real estate price rises increase its value, make the owner feel "wealthier", and less subject to the insolvency risk in the event of several estates; as a result, the owner increases expenditure and is less motivated to save financial resources for safety.

[9]   Instead of affecting changes in gross capital, fixed asset buying and selling transactions only underpin changes in the sector and unit assets.

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always be directly considered as the total investment financing since it is made up of not only new non-financial assets (e.g. a new factory built) but also of non-resident's repurchase of capital shares from a resident.

In 2006–2007, Latvia's actual output exceeded potential output[10] (11), exerting additional upward pressure on consumer prices, undermining Latvia's competitiveness in foreign markets, and pushing up its current account deficit.[11] This brings the issue of persistent current account deficit to the forefront. The permissible level of the current account deficit, at which no problems for maintaining a steady external balance and of state insolvency would arise, has not been strictly defined. A current account deficit persisting at a high level, however, can be a matter of concern in terms of insolvency for the Latvian economy, particularly so in the circumstances of sustained economic downturn. Government's ability to develop and pursue structural export promoting policies and to boost competitiveness as well as non-financial corporations' capacity to expand exports would be decisive for the solution.

The buoyant economic progress during the concluding years of the given period was primarily on account of domestic demand, which fuelled larger investment in the domestic demand oriented sectors, particularly real estate, renting and business activities, and construction. Although investment in manufacturing, the main exporting sector, was the largest, its proportion in total investment, compared with other European countries, is rather small. In addition, more than a half of invested funding went to food and wood industries, conditionally low-tech sectors producing output with relatively low value added. The unfavourable structure of investment sectors and low productivity are among hindrances to the growth of the Latvian economy.

2.2 Households

Along with the income convergence in the EU countries, disposable income of households increased steeply (see Chart 9). The rise was on account of growing average wages and salaries, employment, compensation of residents abroad, and social benefits. In line with higher income, consumers also increased their consumption expenditure, which was additionally and substantially boosted by borrowed funding[12].

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[10] Output gap or the difference (in %) between actual and potential output. Potential output is calculated on the basis of the economic growth trend. A positive output gap indicates that the actual output exceeds the potential output, which is likely to create inflationary pressures.

[11] The coefficients estimated using panel regressions from the OECD papers covering a number of world countries (13) suggest that an increase in output gap by 1 percentage point of GDP is related to a decrease in net borrowing/lending of non-financial corporations by 0.5 percentage point of GDP.

[12] Increase in private consumption depends on both consumer credit and mortgage loans. First, if a mortgage loan is used for building a house or capital repairs, the actual or imputed rent goes up (for international comparison, imputed rent for owner-occupied dwelling is calculated). Second, a part of total household debt is a component of final consumption expenditure while another part makes up net property income, which reduces the amount of disposable income. Third, sometimes mortgage loans are used to purchase consumer goods.

Chart 9
**Structure of household income and disposable income, and private consumption
(at 2000 average prices; in billions of lats)**
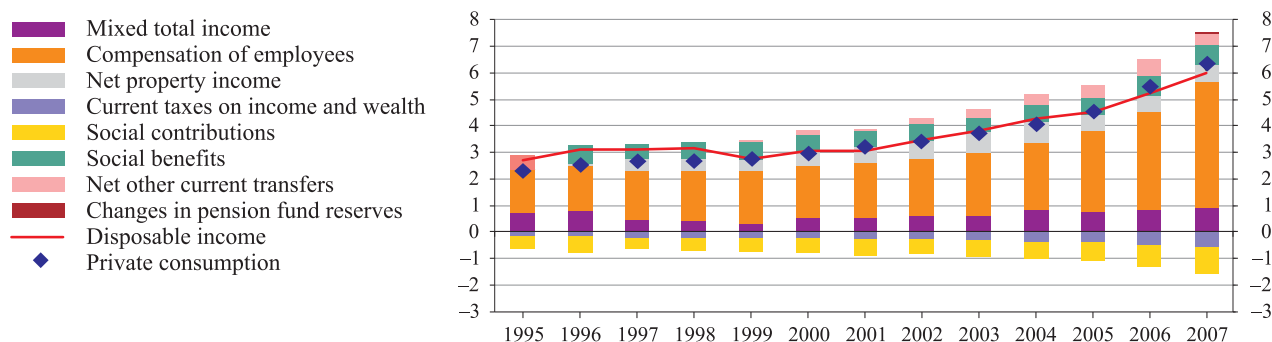
Source: Eurostat.

In recent years, private consumption was additionally spurred by a number of factors, among them consumer price rise expectations, increasing value of personal non-financial assets, and optimism generated by the buoyant economic development likely to incite delusions about potential growth of income and non-financial asset value in the future.

The analysis of changes in the savings dynamics shows that in the periods of crises (the 1995 banking crisis, Russian financial crisis of late-1998 and early-1999) the saving rate in Latvia was negative. Despite falling disposable income during the above periods, households made attempts to maintain previous consumption levels using savings of the previous periods and/or borrowing funds for the purpose. Financial instability was an additional factor that made people to refrain from saving. The personal income growth decelerated in 2001 on account of contracting real average wage and salary growth, dropping numbers of pensioners in the country as a result of amendments to retirement legislation (raised retirement age), and demographic factors, as a result of which the share of social benefits in the total income shrank. Further on, this drop in benefits was set off by a rise in net property income and current transfers, fuelled by labour force mobility and higher compensation of residents abroad.

Chart 10
Average propensity to save (in % to disposable income) and changes in disposable income and private consumption (at 2000 average prices; in %)
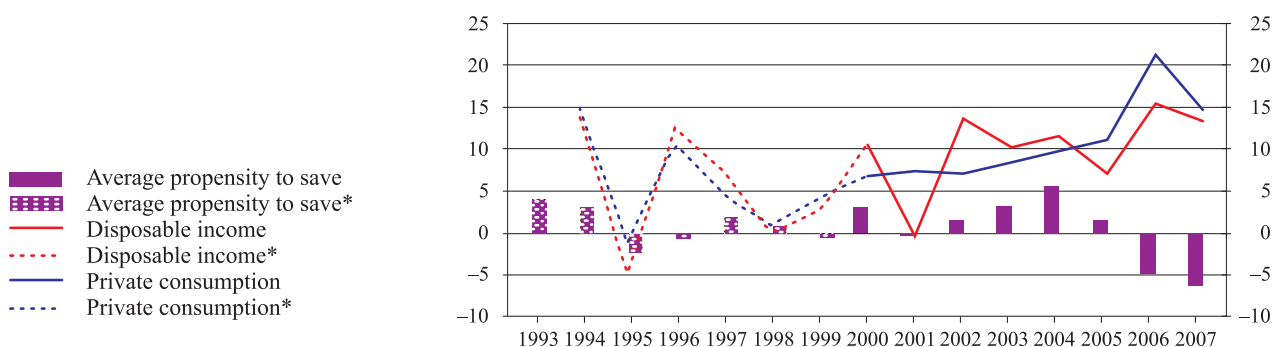
* CSB data prior to 2008 GDP methodology adjustments (1993–2000).
Source: Eurostat.

It can be concluded in general that prior to 2005 personal saving behaviour was anti-cyclical to a larger or smaller extent, whereas in the concluding years of the period this behaviour was mostly pro-cyclical as the high inflation, dynamic lending growth, and overoptimistic income forecasts incited a rise in the average propensity to consume[13] and a commensurate drop in the average propensity to save[14] (see Chart 10). This suggests that people did not save for a "rainy day" when their income grew; just on the contrary, they borrowed funds and spent more than they earned.

The fast-growing private consumption underpinned a sharp drop in personal savings which along with a rise in private investment had a substantial upward pressure on household net borrowings (almost 8 percentage points of the current account deficit in 2007; see Chart 11). The growth of household indebtedness was fuelled by credit accessibility, advertising campaigns of financial institutions supported by bank competition for the market share, insufficient housing space[15], elevation in consumer confidence or sentiment indicators, negative real interest rates (see Chart 12), and other factors. The debt level stabilised only in the second half of 2007 when crediting was restricted and consumer confidence deteriorated.

Chart 11
**Gross savings, gross capital formation and net lending/borrowing of households
(in % of GDP)**

Net lending/borrowing
Gross capital formation
Gross savings

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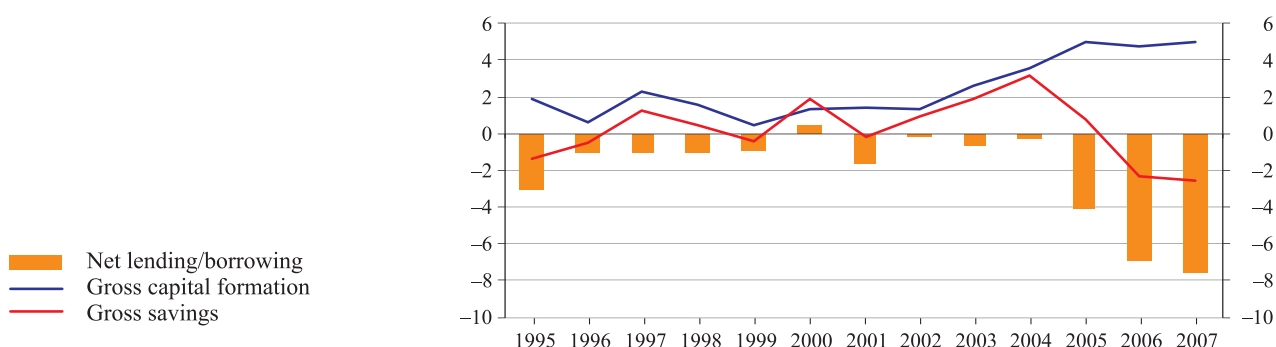
[13] Average propensity to consume is calculated by dividing final consumption expenditure by disposable income.

[14] Average propensity to save is calculated by dividing savings by disposable income.

[15] Despite household non-financial investment growing substantially of late, housing stock per person lags notably behind the EU average level. It is currently above 26 m^2 per person in Latvia, 35 m^2 in EU, and 40–50 m^2 in EU15.

Chart 12
Household debt and lending rates

Household debt (% of GDP*; right-hand scale)
Interest rates on loans to households in lats
Interest rates on loans to households in euro
Real interest rate on loans to households in lats
Real interest rate on loans to households in euro
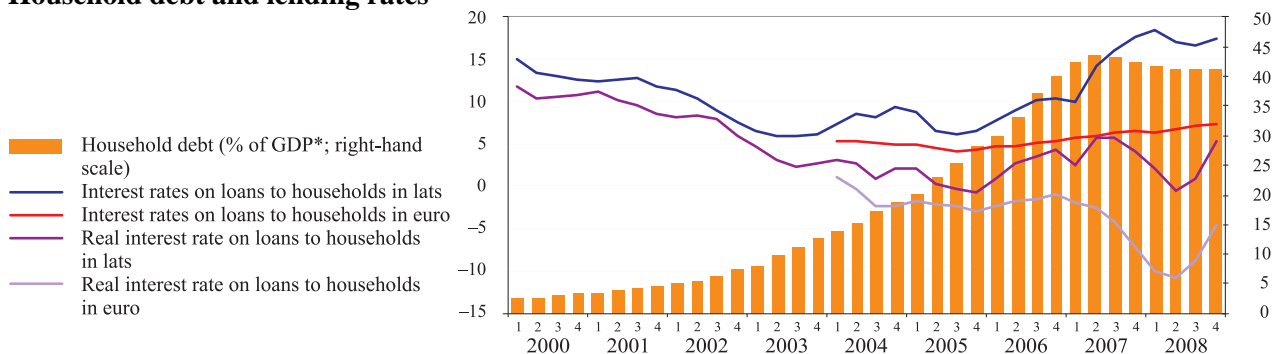
* Four quarter moving total.
Sources: Eurostat, FCMC, CSB, and authors' calculations.

Along with non-financial investment (for households, housing is a primary non-financial asset) households can use their savings for financial investment; the latter are relatively more liquid and allow for broader risk diversification.

Household financial assets in Latvia are at a much lower level than in the EU countries on average, suggesting that the interest of Latvian households in available financial instruments worldwide is rather weak and understanding about them most likely inadequate. The modest activity in this respect most probably stems from return on the most popular financial instruments being relatively low in the circumstances of high inflation (against the steep rise in non-financial asset value due to surging real estate prices) and their rather sluggish supply. At the same time, the lack of understanding about and confidence in financial transactions is confirmed by abundant household cash savings. It is true, however, that savings in cash might in part be associated with the grey economy.
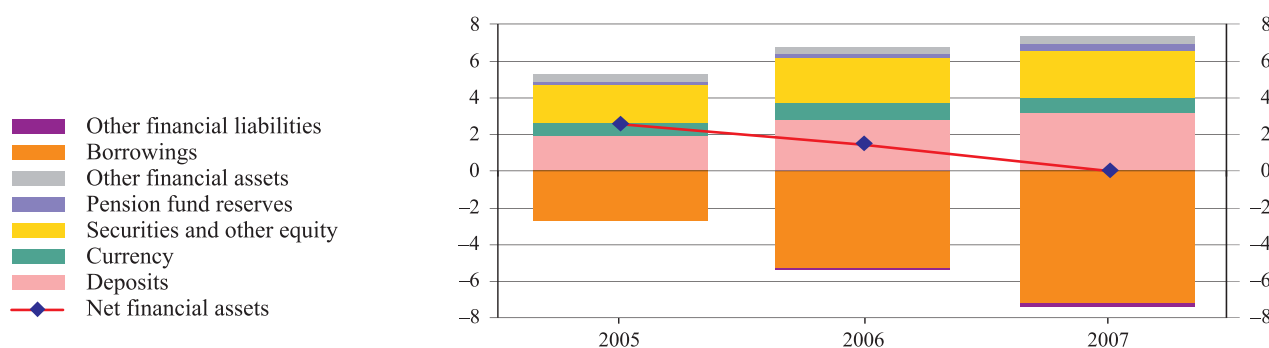
Interest about financial instruments can be enhanced by a more extensive supply, higher returns, and individual instruments of fiscal policy. For instance, the promotion campaigns by financial institutions for accumulation of financial assets of various types became more active in the first half of 2007 when people were offered to place their money savings with investment funds generating many times higher returns than depositing. As real interest rates on deposits were negative due to high inflation, this proposal triggered a sharp rise in investment funds' stocks. The state tax policy acted as an extra stimulus: voluntary contributions to private pension plans, life insurance schemes with savings or investment funds under a contract of at least 5 years make participants eligible for a 25% income tax rebate of the amount paid.

Even though financial instruments become more and more widespread, bank deposits still figure as the main vehicle of saving money (see Chart 13). At the same time, the pickup in deposits in recent years is primarily associated with the lending growth to be in part confirmed by the large share of short-term demand deposits (more than a half of total deposits) which due to restricted lending notably contracted in 2007. In contrast to often erroneous interpretations, such growth in total deposits at the expense of rising debt cannot be considered a genuine increment

in savings[16]. It may create delusions about a change in population's saving behaviour. Moreover, during the concluding years of the analysed period, the growth in lending notably exceeded that in depositing; hence the rise in deposits has not improved the financial stability of households. Some positive trends in this respect have become evident only since the end of 2007 when households began to cut their spending and push up savings. The pro-cyclical behaviour of households still has negative spillovers: the restricted private consumption amplifies the problems of insufficient demand, triggering an even stronger downturn of the economy, with private consumption down by 20.1% at constant prices in the fourth quarter of 2008.

Chart 13
Financial assets and liabilities of households (at year's end; in billions of lats)

■ Other financial liabilities
■ Borrowings
■ Other financial assets
■ Pension fund reserves
■ Securities and other equity
■ Currency
■ Deposits
◆— Net financial assets

Source: authors' assessment.

Discouraging demographic trends and the necessity to render pension system sustainable compelled the government to draft a pension system reform. Consistently with it, the rate of contributions to be transferred to the state funded pension scheme was gradually increased as with 2006, to stand at 2% of participants wages and salaries in 2006, at 4% in 2007, and at 8% in 2008 (in 2009, due to a steep GDP drop, the reform was terminated and contribution rate set at 2%). As a result of the reform and with personal income growing simultaneously and private pension funds evolving on a regular basis (with participants eligible to tax rebates as in life insurance with savings and investment funds), the pension fund reserves have been growing since 2006. It should be noted, however, that from household positions these pension fund resources do not fall in the category of funds that could serve as "safety cushion" in the event of unemployment, illness or other personal shocks, for they can be used only at retirement. From the positions of the economy in general, at the same time, this increment in pension fund reserves can be used for controlling economic processes via other sectors.

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[16] In order to derive correct estimates of gross savings of the reporting period using financial data, net lending/borrowing or net financial assets should first be calculated as financial assets less financial liabilities. Thereafter, net capital transfers and non-financial investment should be added. This estimation has several weaknesses. First, several indicators are not officially estimated, therefore such data and estimates are to be employed that may not accurately be consistent with methodology of macroeconomic indicator calculation. Second, when one and the same indicator is estimated using different data, the results obtained coincide only theoretically, whereas in practice a discrepancy will usually be found between them. The data of the National Accounts System demonstrate that the discrepancy in the breakdown by sector is significant for Latvia.

2.3 Microeconomic Analysis of Household Saving Behaviour

In order to conduct a more comprehensive analysis of household saving behaviour, an econometric model has been built based on micro data of Latvian households and their budgets. The world has amassed comparatively rich experience in studying this phenomenon using household data of Europe, the US and other regions, including also household budgeting micro data. J. Loundes (8) has used a survey of Australian household budgets, J. K. Gibson and G. M. Scobie (3) studied household savings in New Zealand, O. P. Attanasio and M. Székely (1) engaged in comparative analysis of household savings in Latin America and Southeast Asia using household surveys, Y. Kitamura, N. Takayama and F. Arita (6), and T. Ishikawa (5) investigated Japanese practices.

Household budgeting data are used in the analysis of European household saving habits as well. Basing her research on household budget surveys, A. Guariglia (4) focused on the UK household saving behaviour in 1991–1996, using the Tobit regression and finding that concerns about deterioration of the situation in the future are the core motivation for household saving. Building on income and expenditure surveys, A. Börsch-Supan (2) explored the saving habits of German households, inferring that they agree with the life cycle theory.

M. Moreno-Badia (12) used the synthetic cohort approach when dealing with the household savings situation in Ireland based on Irish household budget data. This research correlates the outcomes of surveys in 1994 and 1995, and in 1999 and 2000. The author has found that at the beginning of their professional carrier or the most active age people save less than people at retirement. The findings of this paper show that fundamentals of the classical life cycle theory are absent in Ireland. Moreover, despite real property making up the largest share of household assets, adjustments in the real estate value do not change saving habits.

Few studies have been devoted to East European household saving behaviour. M. Shrooten and S. Stephan (14) used a dynamic panel data model to study specifying factors of savings in Eastern Europe[17] and EU15. Correlation of the obtained results has led to a conclusion that the saving rate in all countries changes slowly and goes up when income is higher. The findings of the study show that the public sector savings predominate over the private sector ones. The authors note that the same factors affect private savings in both Eastern Europe and EU15 and that the methodology used for calculating household savings in EU15 is useful also with respect to East European countries.

According to authors' knowledge, Estonia has so far been the only Baltic State where household saving behaviour has been studied on the basis of household budget micro data. Researchers D. Kulikov, A. Paabut, and K. Staehr (7) have considered the Estonian household savings at the micro data level using a cross-section regression-based model. This paper estimates the impact of different variables (e.g. place of household residence, affiliation to a social or ethnic group, etc) on household savings. The authors conclude that real estate owned by

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[17] Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia and Slovenia.

households does not affect their saving behaviour, while durable goods in their possession figure as a significant factor minimising savings. Disposition to save is notably affected by household involvement in financial markets, e.g. the financial assets obtained and financial obligations of households reduce their savings. D. Kulikov, A. Paabut, and K. Staehr (7) found that middle-aged people save less and that the impact of university education on household savings is negative.

2.3.1 Data used

This paper uses CSB microeconomic data from the 2005 and 2006 household budget surveys.(10; CSB database) The household budget survey samples for 2005 and 2006 were 7 429 and 9 004 households respectively. The samples were smoothly distributed in terms of both main territories and time. Of the initial sample, around 51% and 55% of households participated in the 2005 and 2006 surveys respectively. Thus the survey participation rate was rather low.

In order to rely on sample survey results as the basis of assessing all Latvian households, statistical weights constructed to adjust potential deviations in the effective sample have been used. The process of deriving sample weights is as follows.(10)

The probability of including households in the survey and the design weights corresponding to it and to be adjusted consistently with each strata[18] of the actual response level for each week are calculated.

The weights are calibrated accounting for demographic data.

The survey comprises the following main blocks:
– household composition;
– household dwelling;
– household self-assessment of economic situation;
– household income;
– household consumption expenditure.

According to the outcomes of the household budget survey[19], in 2005 the average household size was 2.55 people. The average monthly disposable income per household member was 110 lats in 2005, with the average monthly consumption per household member at 128 lats. The survey data demonstrate that in 2005 on average households spent more than earned, and consequently, household savings in this period were negative. This is confirmed by macroeconomic data as well (see Chapter 2.2).

The CSB data release on household budget survey presents factors that give a partial insight into household saving situation in 2005.(10)

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[18] Main strata are Riga, six large cities (Daugavpils, Jelgava, Jūrmala, Liepāja, Rēzekne and Ventspils), other towns and the rural area.

[19] This chapter captures only the results of the 2005 household budget survey because as from 2006 the CSB terminated to publish indicators of disposable income.

The conditions for households to obtain consumer credits improved and they willingly took the opportunity. In compliance with the methodology for budget surveys, during the sample period households reported in their expenditure statements a full amount of the value of consumer goods purchased on credit or through financial leasing at the moment the transaction was concluded, irrespective of the settlement with the lender concluding over a longer horizon.

In purchasing durable goods, households used also their accumulated income.

A survey cannot directly correlate net income of one month with consumption expenditure, as observation periods of different length are used in their recording.

Income is a sensitive issue, and households and their members are rather circumspect to provide complete answers.

Chart 14 shows that in 2005 the largest disposable income per household member in Latvia was in Riga (146.12 lats). The household consumption expenditure rate per household member was the highest in Riga as well. It is not surprising that the widest income and expenditure gap was also observed for Riga where an average monthly excess of expenditure over income per household member stood at 23.92 lats. On a regional basis, households in the Latgale region are less wealthy on average, whereas in Zemgale region their budgets were best balanced in terms of income and expenditure in 2005.

Chart 14
Monthly disposable income and consumption expenditure per household member in Latvia and regions in 2005 (in lats)
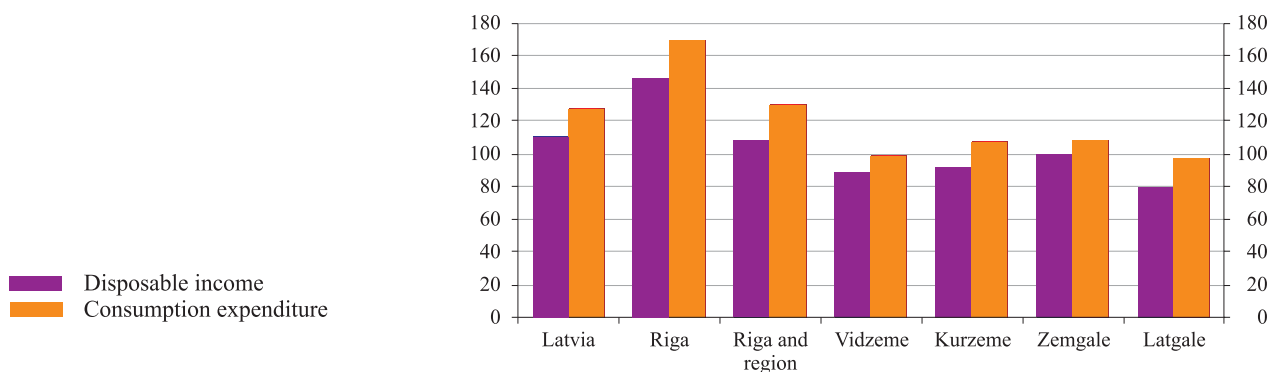
Source: (10).

Disposable income was primarily formed of wages and salaries. In Latvia in 2005, it accounted for 65.3% of household income on average (see Chart 15). Considering the population aging trend in Latvia, transfers accounted for almost one fourth of household income (including 75% on account of pensions).
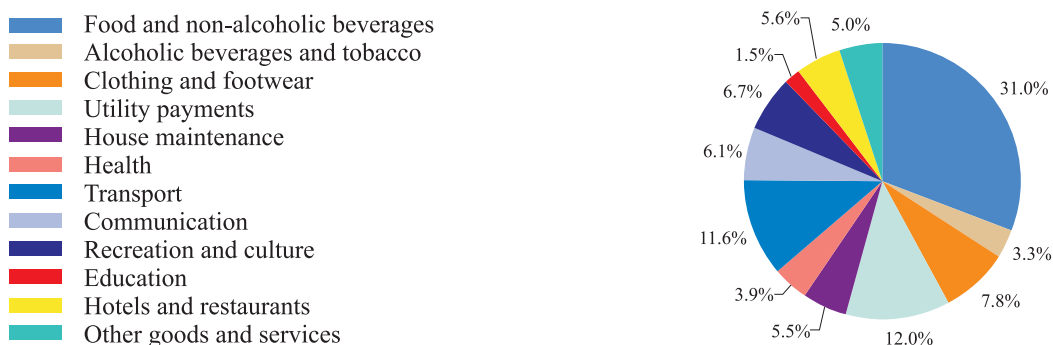
21

Chart 15
Structure of disposable income in 2005

Wages and salaries
Net income from business activities
and self-employment
Income from property and rent
Transfers
Other income

0.4%
24.1%
0.2%
9.9%
65.4%
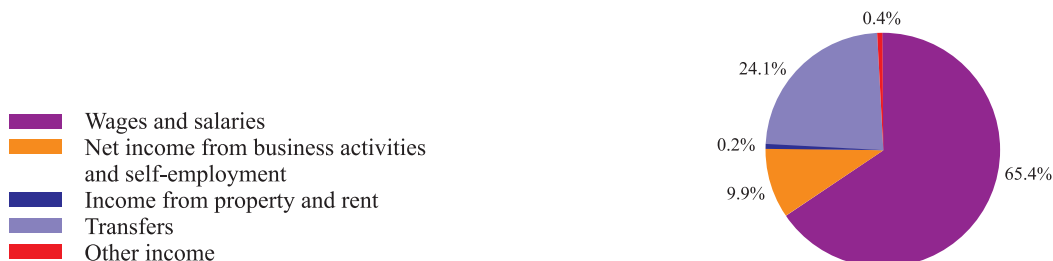
Source: (10).

The assessment of household budget expenditure demonstrates that Latvia's population spent one third of their budget for food, beverages and tobacco, with utility payments and transport expenses as the next largest household budget expenditure items (12.0% and 11.6% of total consumption expenditure respectively; see Chart 16).

Chart 16
Structure of consumption expenditure in 2005

Food and non-alcoholic beverages
Alcoholic beverages and tobacco
Clothing and footwear
Utility payments
House maintenance
Health
Transport
Communication
Recreation and culture
Education
Hotels and restaurants
Other goods and services

5.6% 5.0%
1.5%
6.7%
6.1%
11.6%
3.9%
5.5%
12.0%
7.8%
3.3%
31.0%

Source: (10).

2.3.2 Data weaknesses and strengths

The household budget survey does not cover the entire economy but only a specific sample. In order to conduct a comprehensive analysis and render its results applicable to the entire economy, statistical weights constructed by the CSB are used.

The method of statistical weighting used by the CSB and based solely on the demographic aspect is not complete either. When dealing with this issue, it should be noted that the richest groups in society are as a rule poorly represented in household budget surveys, for wealthy people are more reluctant to participate. That is why the final household budget survey data, even though demographically weighted, are most likely distorted.

Another problem unlikely to be addressed by applying statistical weights is truthfulness and accuracy of respondents when filling in questionnaires and providing the answers. The answer regarding respondents' income level is an area of

particular risk. As a rule, people are unwilling to disclose the amount of their income (rich people more likely so) despite data confidentiality guarantees.

Even though the household budget surveys have some weaknesses and related problems that can reduce the credibility of inferences, it should be noted that in general household budget surveys are a unique and rich source of information about Latvia's microeconomic environment. Consequently, the employment of such data in the study can be justified, although findings and derived relationships therein should be approached with utmost precaution due to data weaknesses above.

2.3.3 Model structure and basic hypotheses

For the purpose of studying the household saving process in Latvia, a cross-section model expressed by the following formula has been introduced:

$$\log(s_i) = \alpha + \beta_1 \log(YH_i) + \beta_2 \log(Y_i^{\min}) + \sum_{j=1}^{n} \lambda_j X_{i,j} + \varepsilon_i \qquad [1]$$

where $\log(s_i)$ denotes logarithmic savings ($\log(s_i) = \log(Y_i / C_i)$) of the ith household calculated as the ratio of household income (Y_i) to household consumption expenditure (C_i) in the given period; YH_i is per capita income level of the ith household; $Y_i^{\min}$ is the amount of money needed, according to household's assessment, to make both ends meet; $X_{i,j}$ stands for other variables explaining household saving habits (quantitative, e.g. dwelling space, and dummies, e.g. place of residence); ε_i is the equation error of that part of savings that cannot be explained by the model variables.

With regard to household income per household member, a hypothesis that this factor should significantly and positively affect the household's saving rate while the minimum needed income should have a negative effect on savings is advanced. The base model also includes several variables ($X_{i,j}$ in equation [1]) that could potentially explain the differences of saving behaviour among households. These variables can be grouped according to the information they carry about various aspects characterising households.

Non-financial wealth of households. Regretfully, the database used here does not produce a definite indicator capturing non-financial wealth of households; nonetheless, an attempt to assess the latter indirectly has been made. Building on various factors (the duration of house building period, size of dwelling space, region, and real estate prices in the given period), an indirect estimate of household non-financial wealth has been derived and included in the model for savings. This indicator is expected to have a negative effect on household savings, since perception of households' own wealth reduces their willingness to save.

Employment status of the main household income earner. The employment status is an important household-descriptive factor, often a primary one to determine household budget planning strategies. On the one hand, households with an

employer as the main income earner are expected to spend less than those where the main income earner is an employee. This trend may stem from entrepreneurial risks that amplify uncertainty about income projections in the future. On the other hand, it is quite likely that the income information provided by employers is less complete and may underpin lower than actual income level data.

Higher level of education attained by a household member. The education level of household adults undeniably influences household budget planning behaviour. A hypothesis has been advanced that households with their members holding university degrees or having secondary education tend to save less since they feel more secure in the labour market and therefore are less inclined to insure against a job loss or lasting unemployment tentatively leading to a substantial drop in income.

Households and the demographic factor. The following demographic factors can influence the household saving behaviour: the age and sex of the main household income earner, presence of children, and children's age. One shall not expect either a positive or negative effect of these factors. They should be related to specifications of individual countries. For example, the life cycle theory (economically active people tend to build more wealth until the age of 30–40, thereafter reducing savings to the minimum rate at the old age) proved applicable to the US and Canada, but was not useful for the countries in Europe. Children can also influence household savings in various ways: on the one hand, household members may be inclined to save more (e.g. for university education or starting capital of their children) while on the other hand, the presence of a child may reduce the saving rate of lower income households.

Households and the geographic factor. The geographic factor is also included in models of this type. The dislocation of households, whether in the city or countryside, may also influence its behaviour. Saving habits may vary depending on the region.

Self-assessment of household economic situation. Undeniably a subjective indicator, the household self-assessment of their economic situation is extremely important, since household behaviour is directly linked to their subjective perceptions about the economic environment in which they exist. Should the household economic situation improve, they would be able to allocate more funds for saving, whereas under deteriorating economic conditions the saving rate should decelerate and as a result dampen the effects of negative changes on households. This result is not constant if the so-called money illusion is considered, i.e. the actual economic situation is greatly overestimated when households conduct self-assessments. Even though a household spends more due to the illusion that its economic situation has improved, what it actually does is the eroding of saved funds and increasing of debt burden.

Household durable goods. This indicator can characterise the lifestyle of a household and hence also its saving habits. Cars in the possession of a household, including the new ones, have been chosen as the respective proxy. Regarding this indicator, the following hypothesis was advanced: possession of a car considerably increases consumption expenditure of a household and, consequently, reduces household saving potential.

2.3.4 Results of saving model

The coefficients of the model described in the previous chapter are estimated using the data sets of 3 516 households from the household budget surveys of 2005 and 4 025 households from the respective surveys of 2006 as well as aggregating both samples since the estimated coefficients for both years are in the main similar (see Table A1) suggesting the stability of results and enabling the employment of an aggregated sample which substantially increases the number of observations used in the model. Statistical weights have been used in the estimation of model coefficients.

Additionally, the aggregated data of 2005 and 2006 have been used in estimating six more models:
– three models estimated for households with low, median and high income per household member (2 514, 2 514 and 2 513 observations respectively);
– three models estimated for three different types of households by age of the main income earner in groups aged 15–39, 40–59, and 60 and over (1 789, 2 820, and 2 832 observations respectively).

The results obtained are presented in Tables A1, A2, and A3. The analysis of the aggregated two year data set is conducted therein according to the blocks of variables referred to in the previous chapter.

Household income and wealth. The household income has a positive impact on the amount saved: the larger the income per household member, the stronger is the household tendency to save more. The minimum needed income for household members to make ends meet has a negative effect on savings. Where the minimum needed income increased by 10%, the household consumption/spending grew by 2.6% on average[20], reflecting household requirements for higher life standards. The given result is quite uniform for different groups of households.

The inclusion of non-financial wealth indicators in the model is not justified. On the one hand, it can be due to insufficiently qualitative information about real estate prices, whereas on the other, the non-financial wealth effect may not be decisive enough indicator of household saving behaviour to be estimated within an econometric model.

However, the model includes indicators that do not capture real estate prices, yet they can capture the problem at least in part. The model estimation results suggest that the household dwelling space is a significant indicator with a negative impact on household saving rate. Two explanations are possible. According to the first, higher housing maintenance costs increase household consumption expenditure and reduce saving opportunities, while the second suggests that the effect of non-financial wealth is stronger. The estimated coefficients demonstrate that each extra square meter of space increases consumption expenditure by 0.2%. At the same time, the

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[20] Here and hereafter in the text, the coefficients are treated as the impact on household consumption expenditure with subsequent impact on the household saving potential. The model specification does not allow for directly assessing definite impact on savings as this ratio does not have linear relationship.

length of inhabiting the same dwelling space determines relatively lower household member spending, reducing it annually by 0.1% on average.

Employment status of the main household income earner. According to the estimated coefficients, a Latvian household with a pensioner as the main income earner tends to spend less (by 2.4% on average) than a household where the main income earner is an employee (at an equal income per household member). The result is likely to have emerged due to retired people declaring their income most openly. Meanwhile, the situation is contradictious with regard to the household breakdown by income group: low-income households with a pensioner as the main income earner spend by 6.3% less on average than those with an employee as the main earner; at the same time, the spending of middle-income households with a pensioner as the main income earner is by 6.2% higher on average.

Households with an employer as the main income earner spend by 10.9% more on average than those with an employee as the main earner. This finding may be a result of incomplete employers' income information. According to the estimated coefficients, employment status does not produce statistically significant effect on high-income households.

Education level of household members. The results suggest that households whose members have graduate degrees save relatively less than those with less educated household members. In contrast to households with a householder having lower educational level, Latvian households with their members having higher educational attainment spend by 21.9% more on average, while expenditure of households with members having secondary or vocational education is by 9.8% higher on average. This result is of particular importance where the income level per householder in households with their members having graduate degrees is low (they spend by 28.3% more; see Table A2) or if the main income earner is aged under 59 (they spend by 26.1%–26.9% more on average; see Table A3).

It is consistent with the advanced hypothesis about a relatively higher educational attainment noticeably reducing the risks related to the labour market participation when households are less inclined to insure against a job loss or lasting unemployment and, consequently, a drop in income.

The impact of educational level on saving habits of Latvian households is similar to that in Estonia[21], yet the influence of education on disposable income is weaker (on average for all households with their members having a higher educational attainment spending increases by around 11% compared with households where householders' education is below the median.

Households and demographic factor. Households with a relatively older main income earner save more and this tendency becomes more pronounced with the age of the main income earner. This supports the assumption that households with the same income level per household member but older main income earner spend relatively less and hence save more.

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[21] Here and hereafter in the text, the comparison with the estimated indicators for the Estonian economy is based on (9).

The number of children in the household is a significant saving-controlling factor only for low-income households and has a negative impact on saving behaviour by increasing household expenditure by 3% per each child on average. In Estonia, the presence of children has a particularly negative effect on savings in households of all income levels and pushes up household expenditure by 5.4% on average.

It is interesting to note that in contrast to Estonia, the gender of the main income earner in Latvia is not an underpinning factor for notable differences in household saving behaviour and as such is not included among the model variables. In Estonia, households with a female as the main income earner, similar income, and other household descriptive factors spend by 2.7% more on average, thus determining a lower saving rate of such households as well.

Households and the geographic factor. The saving rate of urban households is lower (as they spend by 5.7% more on average) than that of rural households (particularly with regard to low-income and middle-income households whose consumption expenditure is by 6.2%–6.5% higher on average). The situation is similar in Estonia where rural households spend by 1.9% less on average than analogous urban households. The household breakdown by income group in Estonia, at the same time, is more homogeneous.

Speaking of regional variances, the findings of the research show that people outside Riga save relatively more. Compared with other regions, Riga households spent by 8.1%–17.5% more on average in 2005 and 2006, and the indicator was steadier for high-income households. In Estonia, opposite findings were recorded, since households in Estonia's capital spend by 2.1% less on average than elsewhere in the country. The geographic factor is of particular importance for high-income population, both in Latvia and Estonia.

Changes in the economic situation of households. Those households whose economic situation improves tend to contain savings compared with those whose economic assessment does not change, and, *vice versa*, when households see that their economic situation is going to deteriorate, they try to minimise consumption expenditure and increase saving. With the economic situation improving in 2005 and 2006, the Latvian household expenditure increased by 9.9% on average, while those under worsening economic conditions reduced their spending by 3.9% on average.

When economic conditions deteriorate, only high-income households record an increasing savings rate which is related to confined consumption by 4.9% on average. Although positive economic changes affect saving habits across households of all income types, they are most pronounced for middle-income and low-income households whose consumption rises by 14.3% and 13.1% respectively.

Passenger cars in household possession. Cars owned by households substantially reduce savings across all income groups. It is particularly pronounced for low-income and middle-income groups, and slightly less for households in the high-income group. Such a situation is observed both in Latvia and Estonia (see Chart 17). The respective indicator influences the household consumption growth to a larger extent in Latvia than in Estonia (on average up to 73% of households in the middle-income group if a new car is purchased).
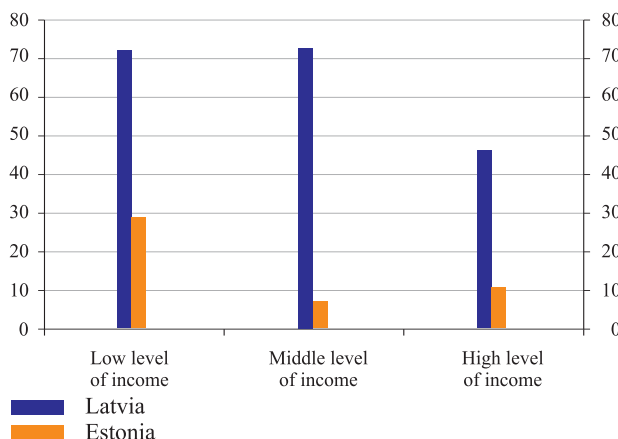
27

Chart 17
Impact of used and new cars in the possession of households on consumption expenditure (in %)

17.a Used cars
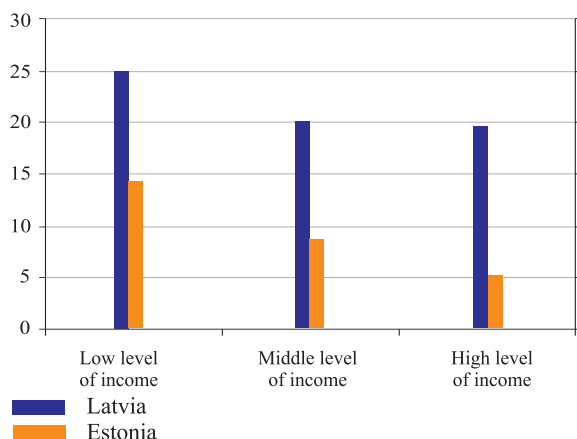
17.b New cars

Sources: authors' calculations and (7).

2.4 Financial Institutions and General Government

All sectors of the economy are mutually interconnected therefore there is a possibility for the financial sector including the central bank and the general government to affect the economic growth, both directly and indirectly, even in a free market economy (see Charts 18 and 19). The direct impact is primarily related to the decisions by financial institutions and the general government relative to savings and investment, e.g. in construction projects. Meanwhile, the indirect impact is related to monetary and fiscal policy.

Chart 18
Gross savings, gross capital formation and net lending/borrowing of financial institutions (in % of GDP)

Source: Eurostat.

28
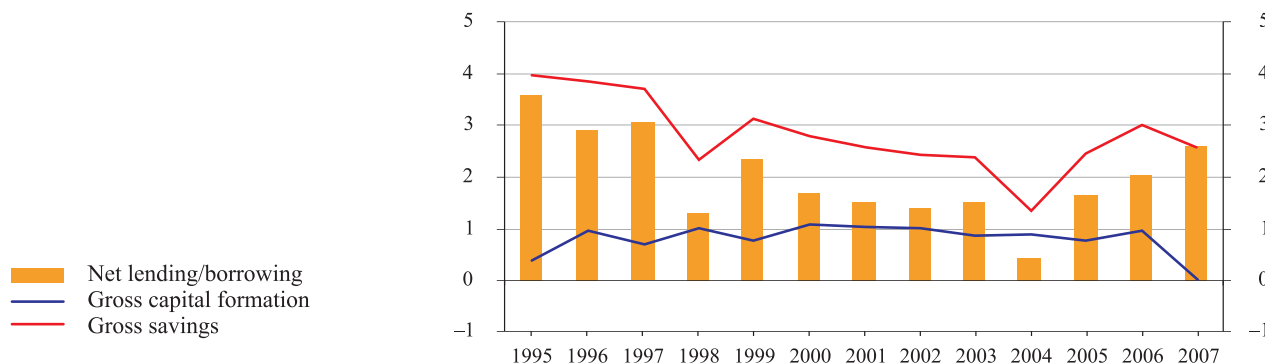
Chart 19
Gross savings, gross capital formation, and net lending/borrowing of general government (in % of GDP)
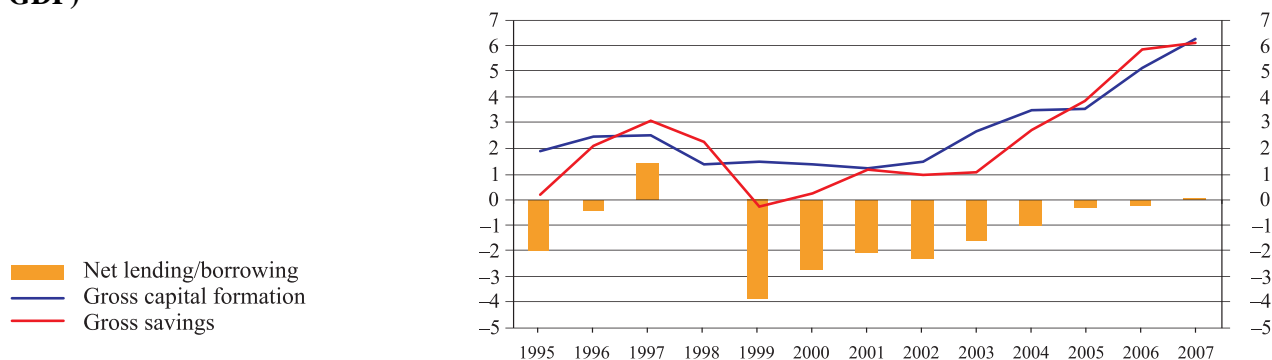

Net lending/borrowing
Gross capital formation
Gross savings

Source: Eurostat.

General government gross savings in Latvia have increased substantially in recent years; Chart 19 demonstrates that it had been rather in view to government investment plans than generating a state budget surplus. Although the need for capital replacement and infrastructural upgrading cannot be excluded, from the position of economic sustainability the general government consolidated budget plan in the situation of rapid growth should be with a surplus and pro-cyclical fiscal policies should be avoided, thus minimising the external (current account deficit) and internal (labour market tensions and upward inflationary pressures) risks as well as enabling accruals for periods of economic downturn.

As a result of sluggishness in the global and domestic economy and financial market turbulence in the autumn of 2008, the state budget deficit rose dramatically and could no longer be financed by domestically available funds. International financial support notwithstanding, the ongoing economic crisis and the need for public administration reforms urged the government to considerably cut budget expenditure despite a negative effect of this move on the domestic demand in the short run.

CONCLUSIONS

Over the sample period, gross savings in Latvia was medium and investment among the highest in European countries. These facts can be assessed positively as suggesting future development oriented policies; at the same time, a detailed analysis by economic sector and industry, as well as the investment structure disclose uneven tendencies. National savings cover only the replacement of fixed assets and the economic growth is primarily based on borrowing.

The analysis conducted demonstrates the absence of sustainable policy across all institutional sectors. During the period of buoyant income growth, both households and the government spent more than earned, thus supporting the cyclicality of economic development. By inducing the more buoyant lending growth, financial institutions gave a new impetus to pro-cyclical behaviour of households. The operation of non-financial corporations was likewise oriented toward domestic demand and as such spurred imbalanced economic development.

Despite the dynamic economic growth of previous years, overall saving rate, that of households in particular, was extremely low. Since 2006 and 2007, household saving rate was negative, i.e. their consumption was beyond their income, and consumption and investment needs were in part financed by borrowing. As a result, the increase in the household debt was substantial. In a situation of high debt and negative saving rates, households are subject to insolvency risks due to economic or personal shocks to a greater extent than ever. This, in turn, may significantly undermine the stability of the banking sector and growth sustainability of the Latvian economy.

In order to explore household saving behaviour, a cross-section model has been built. The model coefficients were estimated using CSB household budget survey data for 2005 and 2006 (a sample comprising 7 541 observations). The model results obtained separately for 2005 and 2006 showed that due to similarities in the estimated coefficients both samples can be aggregated. This move ascertains sustainability of the findings and notably increases the number of observations included in the model. Six more models grouping households by income level and main income earner's age were additionally estimated.

The estimated coefficients demonstrate that the larger the income per member of the household, the higher is the household's saving rate. On the other hand, the minimum income needed for households not to feel needy has a negative impact on savings. It captures householders' requirements for higher life quality.

According to the estimated coefficients, Latvian households with a pensioner as the main income earner tend to spend less than those where the main income earner is an employee (at an equal income per household member). Meanwhile, households with an employer as the main income earner tend to spend more than those with an employee as the main earner. This finding may be a result of incomplete income information provided by households, employers in particular.

Latvian households with their members holding university degrees or having secondary education spend more on average than households with less educated members. A relatively higher level of education most likely reduces labour market

participation related risks when householders are less inclined to insure against a job loss or lasting unemployment tentatively leading to a substantial drop in income.

The model findings confirm that the older the main income earner, the more households tend to save. At the same time, the number of children is important only for low-income households and negatively influences saving habits, pushing up household spending by 3% per child on average.

The saving rate of Latvian households in urban areas is lower (they spend by 5.7% more on average) than in rural areas. Speaking about regional distinctions, the findings of the paper suggest that people outside Riga save relatively more. Compared to other regions, households in Riga spent by 8.1%–17.5% more on average in 2005 and 2006, this result being more stable for high-income households.

Cars owned by households substantially reduce savings across all income groups. This is particularly pronounced for low-income and middle-income groups, and slightly less for households in the high-income group. The respective indicator influences household consumption growth to a larger extent in Latvia (on average up to 73% of households in the middle-income group if a new car is purchased) than in Estonia.

With the household economic situation improving, they tend to reduce their savings compared with those whose assessment of the economic situation does not change, and, *vice versa*, if households perceive deterioration in economic conditions, they tend to cut on consumption expenditure thus making savings. When the economic situation improved in 2005 and 2006, households in Latvia boosted spending by 9.9% on average, while households whose economic standing worsened reduced their consumption by 3.9% on average.

APPENDICES

Table A1
Model results based on logged variables (all households)

	2005, 2006	2005	2006
Constant	−3.382***	−2.905***	−3.874***
Income		0.539***	0.686***
Minimum needed income	−0.264***	−0.222***	−0.274***
Length of residence in a dwelling	0.001***	0.001**	0.000
Dwelling space	−0.002***	−0.001***	−0.001***
Employment status – pensioner	0.024*	0.021	0.040*
Employment status – employer	−0.109***	−0.015	−0.152***
Secondary or vocational education	−0.098***	−0.121***	−0.060**
University education	−0.219***	−0.257***	−0.176***
Age	0.002***	0.002***	0.004***
Number of household members	−0.003	−0.005	−0.006
Children up to 15 years of age	0.010	−0.039***	−0.009
Pre-school or primary school goers	−0.049***	−0.068***	−0.026
Secondary or vocational school students	−0.053***	−0.072***	−0.083***
University students	−0.113***	−0.136***	−0.142***
Urban	−0.057***	−0.029	−0.110***
Riga and region	0.094***	0.047**	0.133***
Kurzeme	0.121***	0.126***	0.115***
Latgale	0.081***	0.081***	0.131***
Vidzeme	0.175***	0.114***	0.170***
Zemgale	0.138***	0.145***	0.151***
Household economic situation deteriorated	0.039***	0.022	0.057***
Household economic situation improved	−0.099***	−0.068***	−0.105***
Used car in possession	−0.234***	−0.202***	−0.256***
New car in possession	−0.534***	−0.499***	−0.583***
Number of observations	7 541	3 516	4 025
R^2 adjusted	0.372	0.293	0.469
F-statistic	186.971	61.746	149.142

*, **, and *** denote statistical significance of coefficients at 10%, 5% and 1% level respectively.

Table A2

Model results based on logged variables (all households) and by income level per household member

	Income level per household member (2005, 2006)			
	Total	Low	Middle	High
Constant	−3.382***	−3.816***	−2.005***	−4.022***
Income	0.626***	0.764***	0.481***	0.586***
Minimum needed income	−0.264***	−0.340***	−0.306***	−0.138***
Length of residence in a dwelling	0.001***	0.000	0.001**	0.001***
Dwelling space	−0.002***	−0.001***	−0.001***	−0.001***
Employment status – pensioner	0.024*	0.063***	-0.062***	−0.035
Employment status – employer	−0.109***	−0.209***	−0.121***	0.021
Secondary or vocational education	−0.098***	−0.038*	−0.127***	0.036
University education	−0.219***	−0.283***	−0.257***	−0.067
Age	0.002***	0.002***	0.001*	0.004***
Number of household members	−0.003	−0.019*	0.062***	−0.061***
Children up to 15 years of age	0.010	−0.029***	−0.020	0.010
Pre-school or primary school goers	−0.049***	−0.110***	−0.047***	0.011
Secondary or vocational school students	−0.053***	−0.079***	−0.073***	−0.098***
University students	−0.113***	−0.247***	−0.166***	−0.080***
Urban	−0.057***	−0.062***	−0.065***	−0.051***
Riga and region	0.094***	0.025	0.144***	0.140***
Kurzeme	0.121***	0.067***	0.053***	0.166***
Latgale	0.081***	0.043*	0.018	0.182***
Vidzeme	0.175***	0.061**	0.104***	0.193***
Zemgale	0.138***	0.068***	0.135***	0.181***
Household economic situation deteriorated	0.039***	0.023	0.001	0.040***
Household economic situation improved	−0.099***	−0.131***	−0.143***	−0.062***
Used car in possession	−0.234***	−0.248***	−0.201***	−0.195***
New car in possession	−0.534***	−0.721***	−0.727***	−0.467***
Number of observations	7 541	2 514	2 514	2 513
R^2 adjusted	0.372	0.519	0.282	0.269
F-statistic	186.971	113.920	42.151	39.478

*, **, and *** denote statistical significance of coefficients at 10%, 5% and 1% level respectively.

Table A3
Model results based on logged variables (all households) and the age of main income earner

	Age groups (2005, 2006)			
	Total	15–39	40–59	60+
Constant	–3.382***	–3.688***	–3.602***	–2.765***
Income	0.626***	0.682***	0.650***	0.477***
Minimum needed income	–0.264***	–0.283***	–0.251***	–0.182***
Length of residence in a dwelling	0.001***	0.000	0.001***	0.000
Dwelling space	–0.002***	0.000	–0.002***	–0.003***
Employment status – pensioner	0.024*	0.241***	0.087***	–0.007
Employment status – employer	–0.109***	–0.170***	–0.057***	0.098***
Secondary or vocational education	–0.098***	–0.090***	–0.129***	–0.109***
University education	–0.219***	–0.261***	–0.269***	–0.190***
Age	0.002***	0.003*	0.002*	0.004***
Number of household members	–0.003	–0.032***	0.002	0.013
Children up to 15 years of age	0.010	–0.035***	–0.005	0.022
Pre-school or primary school goers	–0.049***	0.011	–0.077***	–0.110***
Secondary or vocational school students	–0.053***	–0.083***	–0.080***	–0.158***
University students	–0.113***	–0.153***	–0.154***	–0.041
Urban	–0.057***	–0.106***	–0.080***	–0.025
Riga and region	0.094***	0.081***	0.153***	0.065***
Kurzeme	0.121***	0.159***	0.133***	0.069***
Latgale	0.081***	0.096***	0.153***	0.081***
Vidzeme	0.175***	0.199***	0.178***	0.051**
Zemgale	0.138***	0.216***	0.115***	0.096***
Household economic situation deteriorated	0.039***	0.050***	0.033**	0.043***
Household economic situation improved	–0.099***	–0.141***	–0.091***	0.039*
Used car in possession	–0.234***	–0.252***	–0.211***	–0.181***
New car in possession	–0.534***	–0.402***	–0.708***	–0.667***
Number of observations	7 541	1 789	2 920	2 832
R^2 adjusted	0.372	0.469	0.426	0.241
F-statistic	186.971	66.797	91.385	38.512

*, **, and *** denote statistical significance of coefficients at 10%, 5% and 1% level respectively.

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