

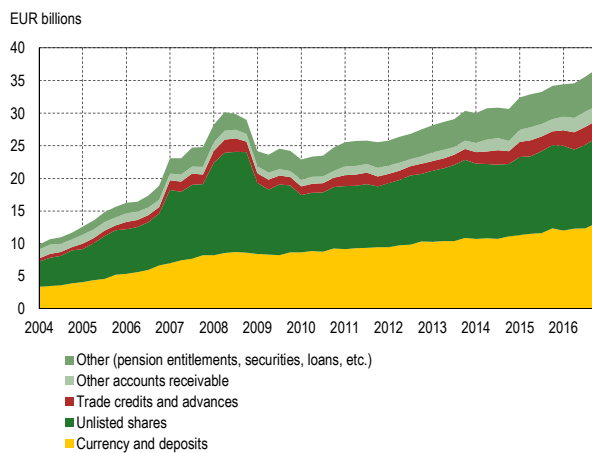
### ANNEX 3. Overview of Household Financial Assets

This Annex to the Lithuanian Economic Review presents an overview of household financial assets and an analysis of their dynamics and structure. These assets are compared country to country within the context of the region, and possible links to household consumption are discussed. In Lithuania, financial assets<sup>10</sup> grew substantially over the past 12 years. By the end of 2016, they amounted to 95.1 per cent of the GDP, while in 2004, at the beginning of this period, this indicator only reached 58.3 per cent. Both their size and the opportunities they offer can make financial assets quite a significant economic indicator, however, how this indicator is linked to the economic processes unfolding in Lithuania has not been studied sufficiently. The wealth effect states that increasing assets can stimulate growth in consumption. Conducted analysis points to the possibility that the financial assets held by Lithuanian households may somewhat contribute to the growth of consumption.

#### 1. Principal indicators for household financial assets

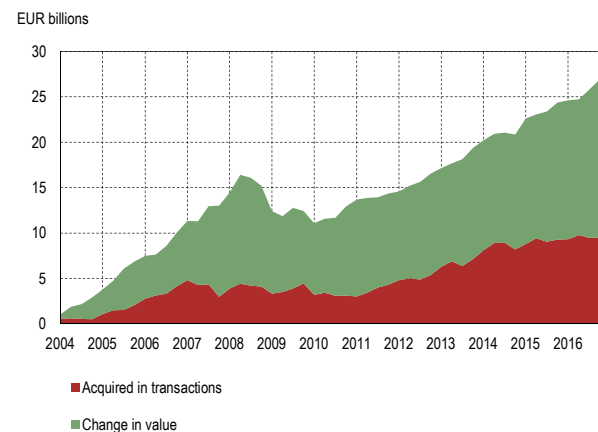
Over the last 12 years, the financial assets held by households multiplied by a factor of nearly 4. From the first quarter of 2004 to the fourth quarter of 2016, household financial assets grew from 9.8 billion to EUR 36.7 billion (See Chart A, Table A). Just over the past year, financial assets increased by 7.5 per cent or more than EUR 2.5 billion. A major part of the financial assets held in Lithuania are composed of currency and deposits (35.7%) as well as unlisted shares (35.6%). These asset groups increased by a factor of over 3.5 and were the main contributing factor to the growth of the country's household financial assets. The growth of these asset groups were first of all the result of a growing Lithuanian economy. However, capital flows from abroad, i.e., personal transferrals, wages and EU funding, also had an impact. From the smaller asset groups, trade credits and advance payments, pension rights and other receivables (e.g., earned or allocated but not paid out wages, dividends, social benefits) also contributed substantially to increasing financial assets.

Chart A. Household financial assets by type



Sources: Bank of Lithuania and Bank of Lithuania calculations.

Chart B. Cumulative growth of household financial assets by source of growth



Sources: Bank of Lithuania and Bank of Lithuania calculations.

In a favourable economic environment, increasing value of enterprises considerably contributed to the growth of household financial assets. The 64.7 per cent increase in household financial assets over the course of 2004–2016 can be attributed to increasing asset value, while financial assets acquired by households through transactions account for the remaining share of growth (see Chart B). The said rise in asset value is tied to the increasing value of unlisted shares, which accounted for 61.7 per cent of total growth of financial assets. One reason behind the growth of the value of unlisted shares were the profits generated by various enterprises, profits that were accumulated within the enterprises themselves and contributed to an increase in the value of their equity capital (see Chart C). Unlisted share prices grew at a particularly rapid rate during the economic upswing (in 2007 and 2008), however, this growth was soon corrected during the global financial crisis of 2009 (see Chart D). Unlisted share prices only began to grow again more significantly in 2015. Incidentally, the dynamics of financial asset indicators attributed to transactions demonstrate that the impact of unlisted shares during the reference period was actually negative, i.e., more shares were transferred than were acquired, and this reduced financial assets by 23.4 per cent. Significant transactions contributed to the amounts held in deposits, trade credits, advance payments and pension rights. Development of other types of financial assets were relatively insignificant.

Compared to the other Baltic States, financial assets grew more slowly in Lithuania over the past 12 years and resulted in a smaller percentage of the GDP: 95.1 per cent in Lithuania, 107.3 per cent in Latvia and 117.9 per cent in Estonia

<sup>10</sup> The annex mainly deals with gross financial assets, i.e. financial liabilities are not subtracted from financial assets. Household financial liabilities are increased by loans for the acquisition of real assets (e.g. real estate), but the statistics of the real assets is not available, so only the net financial assets (financial assets minus financial liabilities) may not convey the true financial situation of households.

(See Table A). However, asset structure in all three countries was similar, with the predominant assets being cash and deposits as well as unlisted shares. Estonia stood out with a larger proportion of unlisted shares (58.0% of the GDP) as well as insurance and pension rights (15.1% of the GDP), and Latvia with private lender loans (7.6% of the GDP). It is likely that some of these standout statistics are the result of differences in national legal frameworks. For example, in Estonia, reinvested profit is tax exempt, which, instead of dividend payouts, incentivises the accumulation of assets within enterprises. This, in turn, can lead to a relatively larger proportion of unlisted shares, and a smaller proportion of cash and deposit assets.

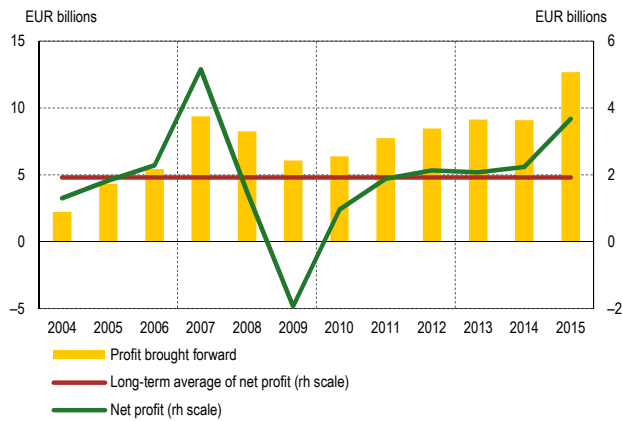
Table A. Household financial assets in the Baltic countries

	Q4 2016		Q1 2004		Growth from Q1 2004
	EUR billions	% of GDP	EUR billions	% of GDP	Per cent
<b>LITHUANIA</b>					
Financial assets	36.7	95.1	9.8	58.3	273.3
Currency and deposits	13.1	33.9	3.4	20.1	286.1
Unlisted shares	13.1	33.8	3.8	22.6	242.8
Trade credits and advance payments	2.6	6.9	0.5	3.0	420.0
Other receivables	2.2	5.7	1.4	8.1	59.8
Other	5.7	14.8	0.8	4.5	659.2
Financial liabilities	11.8	30.6	1.2	7.1	884.7
Net worth	24.9	64.5	8.6	51.2	188.3
Household consumption (past 4 quarters)	25.1	64.4	10.9	64.4	126.7
GDP (past 4 quarters)	38.6	100.0	16.9	100.0	128.8
GDP deflator	–	–	–	–	57.5
<b>LATVIA</b>					
Financial assets	26.9	107.3	5.6	52.8	377.7
Currency and deposits	9.3	37.0	2.2	20.7	320.3
Unlisted shares	6.5	25.9	2.3	21.5	182.8
Trade credits and advance payments	0.3	1.4	0.0	0.3	981.3
Other receivables	4.5	17.9	0.7	6.4	561.4
Other	6.3	25.1	0.4	3.9	1406.7
Financial liabilities	6.8	27.1	1.7	15.8	301.8
Net worth	20.1	80.3	3.9	36.9	410.3
Household consumption (past 4 quarters)	15.5	61.4	6.5	61.4	135.5
GDP (past 4 quarters)	25.0	100.0	10.7	100.0	134.8
GDP deflator	–	–	–	–	68.5
<b>ESTONIA</b>					
Financial assets	24.7	117.9	4.1	45.0	508.5
Currency and deposits	7.3	35.1	1.8	19.7	312.7
Unlisted shares	12.1	58.0	1.6	17.5	668.2
Trade credits and advance payments	–	–	–	–	–
Other receivables	0.8	3.8	0.3	3.2	172.4
Other	4.4	21.1	0.4	4.5	982.4
Financial liabilities	9.8	46.6	1.9	21.5	404.2
Net worth	14.9	71.3	2.1	23.5	603.7
Household consumption (past 4 quarters)	11.1	52.6	5.0	55.5	123.5
GDP (past 4 quarters)	20.9	100.0	9.0	100.0	132.2
GDP deflator	–	–	–	–	72.3

Sources: Eurostat, Bank of Estonia, Bank of Latvia, Bank of Lithuania and Bank of Lithuania calculations.

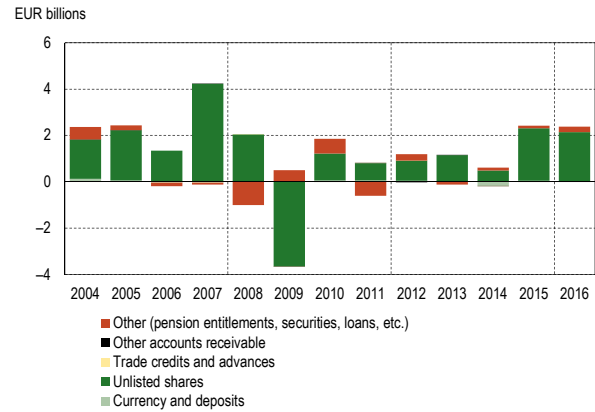
Household financial obligations grew at a more rapid rate in Lithuania than in Latvia or Estonia. From the first quarter of 2004 to the fourth quarter of 2016, household financial obligations increased by a factor of almost 10, amounting to EUR 11.8 billion. This growth is attributable to the long-term loans, which was mostly composed of mortgages. Over this same period, Latvian household financial obligations increased by a factor of four and obligations in Estonia increased by a factor of five. However, Estonia's household obligations, relative to the country's GDP, were greater than Lithuania's. This can be explained by the fact that Estonian household borrowing from credit institutions became a prevalent practice slightly earlier than in Lithuania. In the first quarter of 2004, household financial obligations in Estonia amounted to 21.5 per cent of its GDP, Latvian obligations amounted to 15.8 per cent of the country's GDP, and in Lithuania – just to 7.1 per cent. Currently Lithuania's financial obligations amount to 30.6 per cent of its GDP, Latvia's – to 27.1 per cent and Estonia's – to 46.6 per cent.

Chart C. Enterprise profit (except for individual enterprises)



Sources: Bank of Lithuania and Bank of Lithuania calculations.

Chart D. Dynamics of household financial asset value by type



Sources: Bank of Lithuania and Bank of Lithuania calculations.

## 2. The link between household financial assets and consumption

Economic theory stipulates that the growing financial assets held by households can contribute to the growth of consumption. Classical economic theory (constant income and life-cycle hypothesis) states that wealth and disposable income affect consumption (Modigliani, Brumberg 1954; Friedman 1957). With increasing wealth, owners are more likely to spend more on consumption. This is known as the wealth effect. In empirical studies of household assets, a distinction is often made between real (typically represented by real estate) and financial assets. This distinction comes into play because the nature of both asset categories and possibilities for using them to increase consumption. Earlier studies have supported the assumption that increasing financial assets are positively linked to increasing consumption in the euro area (Sousa 2009), the developing economies of Asia and South America (Peltonen et al. 2012) and developed economies, and that the effect of financial assets on consumption is greater than that of real assets, even though there are exceptions, for example, the US and the UK (Slacalek 2009). A previous study of Lithuanian consumer spending over the long-term has shown that consumption expenditure is dependent on disposable income and slightly on assets held (Vetlov 2004), however, household assets were represented in this study by GDP, which does not necessarily indicate household assets accurately.

Nonetheless, the effect financial assets have on consumption and the nature of this relationship is not always viewed in agreement. Increasing household asset value may encourage greater consumption, but different types of assets might not have an equal effect on consumption or perhaps not affect it at all. This is a consequence of certain asset characteristics such as liquidity, usability as collateral, divisibility and so on.

In this annex, the relationship between household financial assets and consumption was determined by using a model typically applied in the measurement of the wealth effect (Kishor 2007; Iacoviello 2011), a model that distinguishes between financial and real assets:

$$C = f(Y, FT, NT, \dots),$$

here C is the final consumption expenditure of households, Y represents disposable income, FT represents household financial assets, and NT represents household real assets, which is shown by the real estate index. The effect is calculated by applying a FMOLS (fully modified least squares) model, which solves endogeneity and serial correlation problems. Additionally, calculations also include household net financial assets, household liabilities and a dummy variable for the financial crisis period from the fourth quarter of 2008 to the first quarter of 2010.<sup>11</sup> Financial assets, net financial assets and liabilities variables were lagged by one period because statistical data for these assets reflects the situation at the end of the reference period. Quarterly seasonally adjusted data was used. This data was provided by Statistics Lithuania, OBER-HAUS UAB and the Bank of Lithuania. The reference period is from the fourth quarter of 2003 to the fourth quarter of 2016. All data, except for the dummy variable, is included as natural logarithms, thus results should be read as percentage change.

The results of the calculation (see Table B) demonstrate that based on the regular wealth effect model, neither financial assets, nor real estate have a statistically significant effect on consumption in Lithuania (equation 1). Apart from this, the income coefficient in this equation is particularly high – greater than 1, and this means that when income grows by 1 per cent, consumption grows by a greater percentage. Results were only improved slightly by the dummy coefficient used for the period of the recession (equation 2). If the financial asset variable is replaced by net financial assets (by subtracting financial obligations from financial assets), the coefficients begin to display results that are more in line with economic

<sup>11</sup> Some studies include more variables, e.g., interest rates, unemployment, confidence indicators. These variables may show consumer opinions on the economic environment, which may affect consumer behaviour. In this study, results could not significantly be improved using the said indicators

theory (equation 3 and 4). The income coefficient is statistically significant and close to but less than 1. Net financial assets and real estate have positive coefficients, however, only the first is statistically significant.

Financial liabilities are mostly made up of purchases of real assets, which are, in turn, composed mostly of housing and not financial assets. However, no reliable data about real assets is available, which is why we do not know the value of net real assets. It is thus logical to only include gross financial assets and liabilities in the model without net financial assets (equation 5). This model structure slightly improves the determination coefficient (adjusted R<sup>2</sup>). Income, financial assets and real estate coefficients are positive and statistically significant. These results do not in any essentially way contradict earlier studies conducted in other countries. The financial liabilities coefficient is also statistically significant, but it is negative. Financial liabilities and consumption may be inversely linked because as liabilities increase, consumers tend to become more frugal in order to fulfil their liabilities, and new liabilities are mostly entered into in order to fund housing purchases, which are not included in calculations of consumer spending.

Table B. Models for household consumption

Explanatory variables	Consumption models					
	1	2	3	4	5	6
<b>Disposable income</b>	1.67 *** (0.24)	1.34 *** (0.19)	0.88 *** (0.23)	0.83 *** (0.16)	0.86 *** (0.12)	0.82 *** (0.11)
<b>Real estate</b>	0.00 (0.07)	0.02 (0.05)	0.08 (0.05)	0.09 ** (0.04)	0.18 *** (0.03)	0.17 *** (0.03)
<b>Net financial assets</b>			0.26 *** (0.07)	0.21 *** (0.05)		
<b>Financial assets</b>	-0.01 (0.07)	0.06 (0.05)			0.35 *** (0.05)	0.32 *** (0.05)
<b>Financial liabilities</b>					-0.15 *** (0.02)	-0.12 *** (0.02)
<b>Dummy variable</b>		-0.04 ** (0.02)		-0.03 ** (0.01)		-0.02 ** (0.01)
<b>Constant</b>	-7.65 *** (1.89)	-5.23 *** (1.43)	-3.04 * (1.69)	-2.19 * (1.19)	-3.10 *** (0.86)	-2.57 *** (0.75)
<b>Adjusted R<sup>2</sup></b>	0.89	0.93	0.94	0.96	0.96	0.96

Source: Bank of Lithuania calculations.

Note: standard deviations are presented in parentheses; \*p < 0.1; \*\*p < 0.05; \*\*\*p < 0.01.

In summary, it can be said that the financial assets held by Lithuanian households can contribute somewhat to the growth of consumption. Calculations of the wealth effect on consumption show that financial assets, just like disposable income and real estate, are statistically significantly linked to consumption, however, results depend on whether calculations include household financial liabilities. Analysis of the results demonstrates that the growth of financial assets and consumption is slightly more closely linked than the growth of real estate and consumption. The effect of financial assets is about two times greater than the effect of real estate. Different reactions to the impact of financial and real assets might depend on the choice of data for representing the real estate held by households, asset liquidity, distribution of assets between household, etc.

Calculations show that in the long-term, a 1 per cent increase in the financial assets held by households can produce a 0.3 per cent change in consumption. This is quite a significant result. In studies of a similar nature, smaller coefficients are produced; however, financial assets are often only defined as listed shares. In this study, financial assets were defined to include deposits, currency, receivables and pension obligations. Such a definition affects much more households and thus has an effect on the results produced.

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