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**LIETUVOS BANKAS**  
EUROSISTEMA

# **Lithuanian Economic Review**

**September 2022**

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## ENERGY PRICE SHOCK IS FORCING TO REVISE ECONOMIC GROWTH AND INFLATION PROJECTIONS FOR 2023

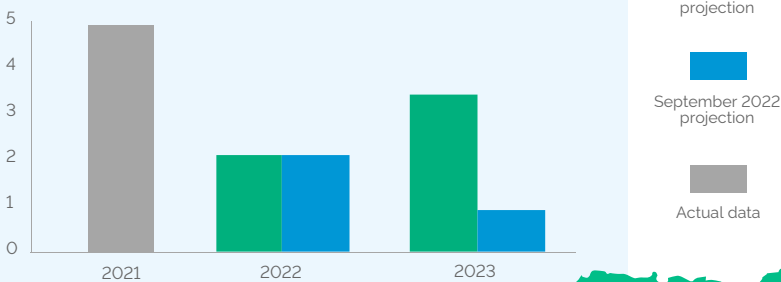
Economic development will be weaker than previously expected and price growth will remain elevated for a longer term

Lithuania's economic growth slowed down due to energy market tensions

The upward shift in inflation forecasts is mainly driven by higher energy prices

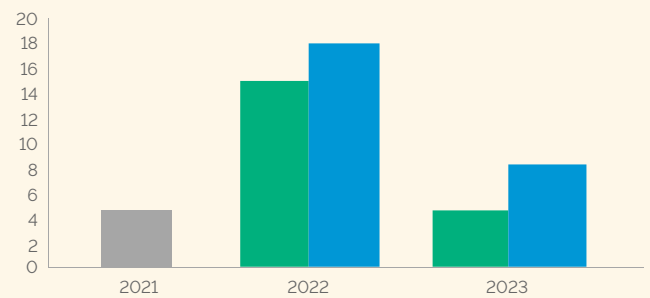
### Projected GDP developments

Annual percentage change



### Projected inflation developments

Annual percentage change



## GDP



### EXPORTS

Export developments will be unfavourable due to sluggish investment, a slowdown in the growth of demand and lack of market share gains



### CONSUMPTION

Rising prices of energy resources and food, and normalisation of monetary policy will limit consumption



### DETERIORATING CONFIDENCE AND INVESTMENT ENVIRONMENT



### DETERIORATING CONSUMER EXPECTATIONS

## INFLATION



### ENERGY

Suspension of gas supplies to the EU and sanctions will increase tensions in the energy market



### INDUSTRIAL GOODS

Higher producer prices will have an impact on price developments of industrial goods



### SERVICES

As economic activity slows down, pressure on service prices should ease



### FOOD

Food prices will rise further due to the sharp increase in energy prices

## NEGATIVE BALANCE OF RISKS TO ECONOMIC DEVELOPMENTS HAS WORSENERD

- Fiscal policy response to steep energy prices
- Joint decisions at EU level on energy resources
- Accelerating green energy transition
- Favourable migration trends



- Rising costs of energy raw materials, especially electricity
- Disruptions in the supply of energy raw materials
- Projected more rapid than expected decline in trading partners' economic growth
- Monetary policy tightening is expected to be faster than today, worsening financial conditions
- Greater negative impact of uncertainty
- Challenges of the EU Mobility Package
- Inflation expectations
- Extremely tight labour market

Risk assessment: rapidly rising prices of energy raw materials would have a considerable negative impact on the Lithuanian economy (read more in the Lithuanian Economic Review)

## Lithuania's economic development and outlook

26 September 2022

**Russia's war against Ukraine, the renewed pandemic in China and monetary tightening in many major economies due to extreme inflationary pressures are dampening global economic growth.** Russia's war against Ukraine, which started at the end of February, has significantly increased the prices of key energy and food raw materials. While prices of some energy and food raw materials have returned to the pre-war levels, other raw materials, in particular natural gas, remain at significantly higher levels and are particularly detrimental to the development of European economies. Due to the lack of generation and the algorithm used in the Nord Pool power exchange, many European countries have high final electricity prices set by natural gas-fired power plants, which has a significant negative impact on their competitiveness. China's zero-COVID-19 policy is due to the slow vaccination of the population. It has a negative impact on Chinese consumption and production, slowing down the country's economic growth and contributing to the persistent bottlenecks in supply chains. These factors have also contributed significantly to the global inflationary shock. It has forced most central banks in developed and developing countries to normalise monetary policy. Such central bank actions send signals that inflation expectations will not be allowed to drift away from the inflation levels consistent with price stability, even if they have a dampening effect on economic activity.

**The effects of Russia's war against Ukraine and extremely high inflation are dampening economic activity in Lithuania.** Lithuania's GDP contracted by 0.5% in the second quarter of 2022 compared to the previous quarter. The main contributing factor to this economic expansion is the sharp decline in real exports of goods and services. It was almost 5% lower than in the previous quarter. The main factors affecting the export trend were the sanctions on trade with Russia and Belarus, which restricted exports of transport services, the closure of AB ORLEN Lietuva for planned repairs and the temporary closure of AB LIFOSA due to the sanctions. Household consumption also fell significantly as a result of very high inflation. It was more than 2.5% lower than in the previous quarter, even in the context of relatively favourable developments in household disposable income. The war and accelerating inflation have worsened household sentiment and expectations, further reducing their willingness to consume. For example, consumer confidence in August this year was close to its lowest level in a decade. Further difficulties in Lithuania's economic development are also evident in other recent higher frequency indicators. Business sentiment, after the significant deterioration in March, has remained significantly unchanged for almost half a year. Meanwhile, monthly data on business turnover in the largest sectors of the economy, namely, industry, construction, trade and services, show signs of declining activity between June and July. These unfavourable factors can only be partly offset by the forecast of a 10% increase in this year's harvest.

**Labour market tensions did not ease in the second quarter of 2022.** The number of employed persons increased significantly during this period. In particular, the number of employees increased, but the share of self-employed also rose significantly. The surge in employment was driven by a strong increase in the labour force, especially for women. This is attributed to a particularly positive net migration balance. In January-August of this year, around 43,000 more people entered Lithuania than left. It is likely that the majority of immigrants are war refugees from Ukraine, who are successfully integrating into the Lithuanian labour market. The rapid growth of the labour force has not increased the unemployment rate, which dropped to 5.2% in the second quarter of this year, the last time such a low unemployment rate was recorded in Lithuania was before the global financial crisis in 2008. With fewer unemployed and more working persons, the country is facing a persistent labour shortage. Vacancy statistics for the second quarter of 2022 show that labour supply continues to fall short of rising demand, and the labour market situation in the country remains very tight: the job vacancy rate (the ratio of vacancies to total jobs) was 1.9%, almost on par with the record of 2% recorded in the third quarter of 2008 and the first quarter of 2022. Very high tension in the labour market has a significant impact on the

country's rapid annual wage growth of almost 14%. However, rising energy costs are likely to limit the ability of companies to increase wages at a very fast pace. According to the monthly labour income data (seasonally adjusted) published by Sodra, labour income growth slowed down significantly in May-July.

**The effects of Russia's war against Ukraine and its further course will be the main factors shaping the development of the Lithuanian economy in the coming years.** The nature of this factor means that the country's economic outlook is currently shrouded by a high degree of uncertainty. The extreme volatility of energy commodity prices, in particular natural gas, has a negative impact on household and business sentiment and expectations, leading to more cautious household consumption and limiting the willingness of businesses to invest. This will dampen economic growth in both Lithuania and its main trading partners. Foreign demand for Lithuanian goods and services is projected to decline in 2022 and, although it is expected to start recovering from early 2023, it will not reach the level that existed before Russia's invasion of Ukraine during 2023. This evolution of external demand, together with the negative impact of high energy prices on competitiveness, will be the main contributors to the sluggish export growth. The less favourable development of the exporting sector is one of the main factors contributing to the weaker-than-expected development of investment, especially in 2022. However, the expected significant increase in government investment and the need for companies to reduce electricity and fossil fuel costs will allow investment to pick up this year and the next. Inflationary pressures, which will persist for longer than previously thought, will constrain domestic consumption not only in the main trading partners, but also in Lithuania. Even though nominal wages will continue to grow, higher inflation will lead to a decline in real wages and salaries in both 2022 and 2023. This, together with the expected normalisation of monetary policy leading to an increase in interest rates, will be the main factors limiting the growth of household consumption in Lithuania in 2022 and the decline in 2023. It is important to note that such assessment of developments in household consumption includes the measures to mitigate the effects of inflation and high energy prices adopted by the Government until 31 August 2022. If the Government decides on additional measures, household consumption would follow a more favourable path.

**Lithuania's real GDP is projected to increase by 2.1% in 2022 and 0.9% in 2023.** At the same time, it should be noted that this outlook for Lithuania's economic development is subject to a high degree of uncertainty, and the balance of currently observable risks is even more negative than it was at the time of the June projections, i.e. there is a significantly higher probability of a downward revision than an upward revision in future economic projections. If the severely adverse risks materialise, the country's economic growth could slow by up to 3.8% percentage points in 2023 and inflation could be up to 5.1% percentage points higher than in the baseline scenario.

**Inflationary pressures have increased as risks related to gas supply have materialised.**

Following Russia's restriction of gas supplies to Europe, gas prices on the markets in August were more than five times higher than in the same period a year earlier. As gas is used as a feedstock for electricity and heat energy generation, it also contributes significantly to the increase in electricity and heat energy prices. The increase in gas prices on the market has led to a significant increase in demand for solid fuels, mainly firewood, as an alternative energy source. This has further boosted the already rapidly rising prices of solid fuels, with solid fuel prices up 166% year-on-year in August. Energy prices for customers are forecast to rise at an average annual rate of 56% this year. Energy price increases will moderate next year but will remain a key driver of inflation. Overall, the revision of energy price forecasts for both 2022 and 2023 has had the largest impact on the revision of inflation projections. As for food prices, which have made a significant contribution to inflation in recent months, they will also be affected by changes in the energy markets. Although global food commodity prices fell in August and were already only 8% higher than in the same period a year ago, food prices are projected to rise at an average annual rate of 21% this year, while next year food price growth is expected to moderate, but remain fairly strong at 10%, taking into account the fact that commodity price changes do not reach

consumers immediately and that the cost of food commodities is significantly influenced by the sharp increase in energy prices. Meanwhile, growth in the core inflation components such as industrial goods and services stabilised in August. While subdued economic growth will ease the pressure on core inflation, growth in industrial goods in particular will be supported by a significant increase in producer prices, with producer prices for manufacturing, excluding refined energy products, 30% higher in August than a year earlier. Thus, while the prices of some commodities such as oil, food and metals are currently depressed on world markets compared to their peak at the outbreak of the war, record high energy prices will accelerate the increase in both energy prices for customers and the cost of other consumer goods and services. Against this background, average annual inflation is projected at 18.3% in 2022 and 8.4% in 2023.

#### Outlook for Lithuania's economy

	September 2022 forecast <sup>a</sup>			June 2022 forecast		
	2021	2022 <sup>b</sup>	2023 <sup>b</sup>	2021	2022 <sup>b</sup>	2023 <sup>b</sup>
Price and cost developments (annual percentage change)						
Average annual HICP inflation	4.6	18.3	8.4	4.6	15.2	4.6
Gross domestic product deflator <sup>c</sup>	6.6	16.6	6.8	6.6	15.2	5.0
Wages	10.6	12.7	6.3	10.6	11.9	8.1
Import deflator <sup>c</sup>	11.6	22.2	4.4	11.6	19.9	4.5
Export deflator <sup>c</sup>	5.7	15.4	6.8	5.7	13.7	5.6
Economic activity (constant prices; annual percentage change)						
Gross domestic product <sup>c</sup>	4.9	2.1	0.9	4.9	2.1	3.4
Private consumption expenditure <sup>c</sup>	7.3	1.0	-0.8	7.3	5.4	3.8
General government consumption expenditure <sup>c</sup>	0.6	0.3	0.0	0.6	1.5	-1.3
Gross fixed capital formation <sup>c</sup>	7.0	3.0	3.4	7.0	4.1	3.5
Exports of goods and services <sup>c</sup>	15.9	6.4	1.6	15.9	7.4	2.9
Imports of goods and services <sup>c</sup>	19.4	7.5	1.3	19.4	9.8	2.8
Labour market						
Unemployment rate (annual average as a percentage of labour force)	7.1	6.3	7.1	7.1	7.3	7.2
Employment (% , annual percentage change) <sup>d</sup>	1.2	4.0	-0.6	1.2	0.6	0.3
External sector (percentage of GDP)						
Balance of goods and services	4.2	-1.3	0.9	4.2	-1.9	-0.9
Current account balance	1.3	-6.6	-2.1	1.2	-4.5	-3.8
Current and capital account balance	2.7	-4.7	-0.2	2.7	-2.5	-1.8

<sup>a</sup> The macroeconomic projections are based on external assumptions, constructed using information made available by 22 August 2022, and other data and information made available by 31 August 2022.

<sup>b</sup> Projection.

<sup>c</sup> Adjusted for seasonal and workday effects.

<sup>d</sup> National accounts data; employment in domestic concep

## 1. International environment

**The global economy is currently facing new shocks that are expected to almost halve the 6.1% growth rate in 2021 under the IMF's baseline scenario to 3.2% this year, reaching 2.9% in 2023.**<sup>1</sup> First, Russia's aggression against Ukraine has led to higher commodity prices<sup>2</sup> and geopolitical uncertainty. Second, China continues to pursue a zero-COVID-19 policy, which contributes to the continued disruption of global supply chains. This policy, together with the country's heavily indebted real estate sector, poses risks related to slower economic growth and financial stability. Third, the vast majority of central banks in advanced and emerging economies are normalising monetary policies, thereby tightening financial conditions. In addition to these trends, the IMF sees significant risks<sup>3</sup> to global economic development, one of which – a sudden stop of Russian gas supplies to Europe – has already materialised. As a result, the global economy could slow down by up to 0.6 percentage points this year compared to the baseline scenario.<sup>4</sup>

**Russia's intense hostilities against Ukraine, which broke out at the end of February, have considerably increased the volatility of prices of key energy and food raw materials and have had a negative impact on global economic developments. Although commodity price growth (see Chart 1) has stabilised, uncertainty about their future evolution persists.** The average European gas price in the second quarter of 2022 was €101/MWh, more than four times the average price in the second quarter of 2021.<sup>5</sup> Under the ECB's alternative scenario, if Russia were to stop supplying gas to Europe, the price would rise to €202/MWh in 2022.<sup>6</sup> However, it is important to note that this scenario does not foresee the possibility of substituting gas from Russia, although so far the substitution has been relatively successful.<sup>7</sup> When the Russian aggression started, the situation in the oil market was similar, with Brent crude oil prices averaging around USD 113 per barrel in the second quarter of 2022, while the average price in the second quarter of 2021 equalled USD 69 per barrel.<sup>8</sup> At the beginning of the third quarter, Brent crude oil prices returned to the levels at the end of February due to the strengthening of the US dollar and the weakening outlook for the Chinese economy. The oil market is expected to remain stable in the near future.<sup>9</sup> The first months after the Russian invasion were also marked by heightened uncertainty about the sufficiency of wheat supply.<sup>10</sup> However, wheat prices fell between June and August (around 60% from the peak in March-May), returning to the levels seen before the outbreak of the hostilities. The prospects of a good harvest and the agreement between Ukraine and Russia (mediated by the United Nations and Turkey), which ensures partial exports of raw material from the war-torn country, have contributed to the price decline.

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<sup>1</sup> International Monetary Fund, [WEO Update](#), July 2022.

<sup>2</sup> For example, the CRB Commodity Index was around 17% higher at the beginning of September 2022 than at the beginning of January 2022, while the S&P GSCI Commodity Index increased by around 11% over the same period.

<sup>3</sup> Other risks to the global economy identified by the IMF include geopolitical escalation linked to the hostilities in Ukraine, which could provoke new tensions in global supply chains; new COVID-19 variants would lead to the reintroduction of restrictions on economic activity; and a possible divergence of inflation expectations would encourage central banks to raise interest rates even more rapidly and lead to a tightening in financial conditions.

<sup>4</sup> International Monetary Fund, [WEO Update](#), July 2022.

<sup>5</sup> International Monetary Fund, [WEO Update](#), July 2022.

<sup>6</sup> [ECB macroeconomic projections](#), September 2022. The cut-off date for projections is 22 August.

<sup>7</sup> Information provided by the European Commission at the [Extraordinary Transport, Telecommunications and Energy Council](#).

<sup>8</sup> [Energy Information Administration](#) data.

<sup>9</sup> [ECB macroeconomic projections](#), September 2022.

<sup>10</sup> Wheat accounts for about 20% of the world's calorie intake.



## Commodity prices have stabilised, although they remain elevated.

Chart 1. Evolution of the S&P GSCI Commodity Index<sup>11</sup>



Sources: Yahoo Finance and Bank of Lithuania.

**The euro area has been significantly affected by the surge in energy prices, especially gas, caused by Russia's aggression against Ukraine. Its economic growth is projected to reach 3.1% in 2022, while in 2023 and 2024 it is expected to be 0.9% and 1.9%.** Average annual inflation in the monetary union is expected to reach 8.1% this year (the highest since the creation of the monetary union) but should decline to 5.5% in 2023 and to 2.3% in 2024.<sup>12</sup> While inflationary pressures amid oil and food prices should stabilise, there is considerable uncertainty about inflation developments due to the disruption of gas supplies from Russia. Another important factor is that headline inflation in the euro area rose to 4.0% in July, implying that the impact of higher commodity and energy prices is increasingly visible in price developments of final goods and services.<sup>13</sup> High inflation leads to worsening household expectations about the future economic outlook and the Purchasing Managers' Index (PMI) signal slower growth in both the industrial and services sectors. In addition, net exports are not expected to contribute to economic growth in 2022 due to the weakening of the euro against the US dollar and higher prices of imported energy.<sup>14</sup> Despite these negative factors, euro area growth will benefit from the historically low unemployment rate (6.6% as of July) and from the investments of the Recovery and Resilience Facility.

**Despite major challenges in ensuring energy supply, in particular gas supply, and the negative impact of increased energy prices on economic developments, Germany's GDP is projected to grow by 1.2% this year, although the probability of a recession is high and stands at 25%.<sup>15</sup>**

The German Consumer Climate Indicator (GCI) was at a lower level in August than at the beginning of the COVID-19 pandemic, while the manufacturing sector's PMI has been declining steadily since February

<sup>11</sup> The S&P GSCI Commodity Index weights are as follows: energy commodities (61.7%), industrial metals (10.65%), precious metals (4.5%), agricultural commodities (15.88%) and cattle (7.25%). Energy commodities have a higher weighting in this index than, for example, in the Dow Jones-UBS Commodities Index.

<sup>12</sup> [ECB macroeconomic projections](#), September 2022.

<sup>13</sup> International Monetary Fund, [WEO Update](#), July 2022.

<sup>14</sup> [ECB macroeconomic projections](#), September 2022.

<sup>15</sup> International Monetary Fund, [WEO Update](#), July 2022.

2022. Due to its high dependence on imported energy sources,<sup>16</sup> for the first time in two decades, Germany's current account turned negative in May this year.

**Thanks to the zero- COVID-19 policy and challenges in the indebted real estate sector, China's economy is expected to grow by 3.3% in 2022, the slowest rate since 2020.**<sup>17</sup> The zero-COVID-19 policy is due to the slow vaccination rate of the population. For example, only 51% of the population over the age of 80 has received both doses of the vaccine. The country's leaders are expected to follow this policy direction, and any adjustment is unlikely at least until the Congress of the Communist Party in October this year.<sup>18</sup> Such COVID-19 policy has a negative impact on China's consumption and output, resulting in a slowdown in the country's economic growth. In addition, there are structural challenges and risks to financial stability due to the indebtedness and stagnation of the real estate (RE) sector.<sup>19</sup> The slowdown in global economic growth, which is also strongly influenced by China, is contributing to the decline in oil and other commodity prices.<sup>20</sup> Such trends may contribute to an improvement in net export performance and slower rise in inflation in economies dependent on imports of oil and other raw materials. On the other hand, the zero- COVID-19<sup>21</sup> policy also contributes to the continued disruptions in supply chains and the excess demand that is still present, for example, in the US.<sup>22</sup> Thus China has both inflationary and deflationary effects on global economic developments.

**The global inflationary shock is forcing most central banks in developed and developing countries to normalise monetary policy (see Chart 2), which slows economic growth in the short term.** According to the IMF, at the end of 2021 and early 2022, most of the world's central banks have started to tighten monetary policy in the face of unabated inflationary pressures.<sup>23</sup> Nevertheless, the IMF estimates that the real interest rate in advanced economies is still lower than before the COVID-19 pandemic due to spiralling inflation, and financial conditions are not very tight.<sup>24</sup> However, most of the world's central banks have sent very clear signals through their monetary policy decisions that inflation expectations will have to be in line with inflation rates consistent with price stability, thus ensuring macroeconomic stability in the medium and long term. As a result, the decisions to ensure price stability in the medium and long term can be expected to continue.

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<sup>16</sup> Since the outbreak of hostilities (until May), Germany has reduced its imports of Russian oil from 35% to 12% and those of coal from 50% to 8%. The country remains heavily dependent on Russian gas supplies, which account for 35% (55% at the start of the war) of total gas imports.

<sup>17</sup> According to the IMF, excluding the pandemic year 2020 from the timeline, China's 3.3% annual growth rate is the slowest in four decades.

<sup>18</sup> [European Commission summer economic forecast](#), July 2022.

<sup>19</sup> As of July, China's new construction real estate prices declined for the third consecutive month. Real estate in China is the most important form of store of wealth, therefore, the impact of falling prices is multiplying into declining household consumption and business investment. In addition, financial undertakings use real estate as collateral, so a fall in its value could also put the financial sector under strain.

<sup>20</sup> For example, prices of copper, zinc, nickel, aluminium, etc. have fallen.

<sup>21</sup> In line with this policy, strict quarantine measures are introduced at city or even regional level if a COVID-19 hotspot is identified.

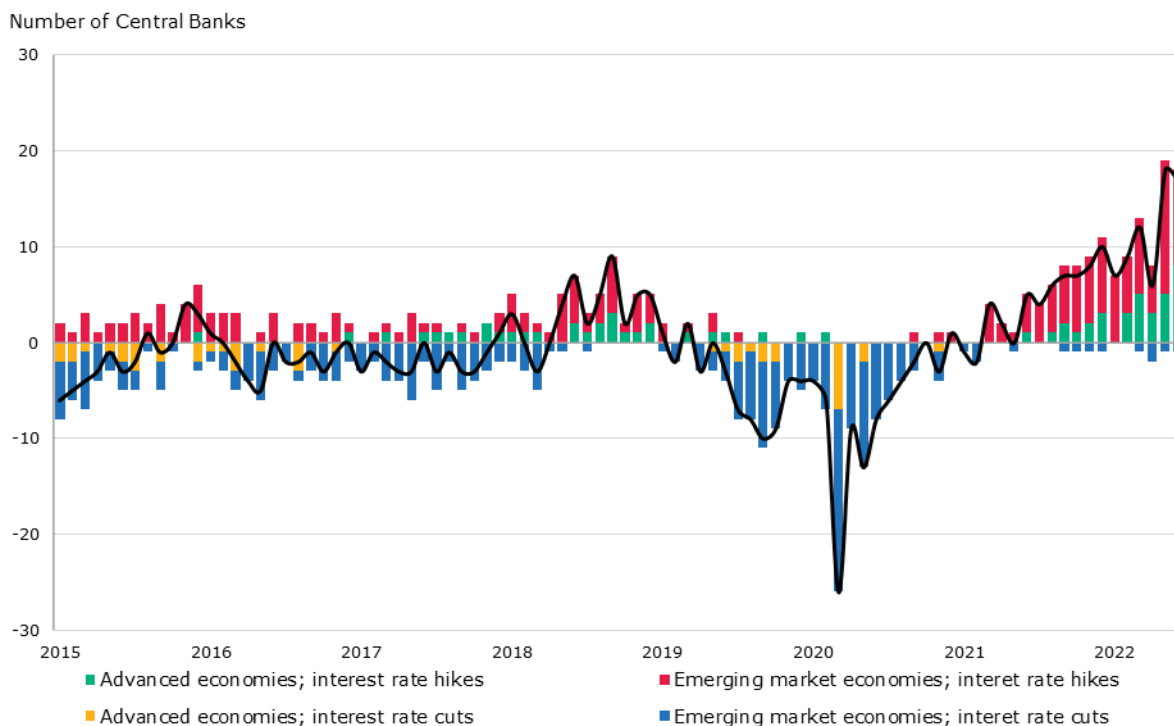
<sup>22</sup> [Speech](#) by the Chair of the Federal Reserve System Jerome H. Powell.

<sup>23</sup> According to [BIS Annual Report 2022](#), 85% of the world's advanced economies had inflation rates of 5% or more as of June this year.

<sup>24</sup> International Monetary Fund, [WEO Update](#), July 2022.

## Most of the world's economies have started to tighten their monetary policy.

Chart 2. Monetary policy decisions in advanced and emerging market economies



Sources: Bank of Lithuania and IMF.

Notes: The negative number in the panel represents the number of banks that cut interest rates, while the black line shows the difference between the number of banks that increased interest rates and the ones that cut them.

**As a result of soaring inflation and monetary policy normalisation, US economic growth is expected to slow down to 2.3% in 2022, compared to 3.7% in the IMF's April forecasts for the US.** The US central bank has raised interest rates at each monetary policy meeting since March; in June and July interest rates were increased by 0.75 percentage points (an extraordinarily rapid pace of normalisation). Currently, the Federal Funds Target Rate is at 2.25–2.5%. This will reduce household consumption, which accounts for around 70% of US GDP. In addition, the rapid normalisation of monetary policy is strengthening the US dollar: the dollar index, which measures the value of a currency against other<sup>25</sup> currencies, is at its highest level since 2002 – a trend that is depressing US exports and the earnings of the country's largest companies. However, support economic growth should be supported by a strong labour market (as of July, unemployment stood at 3.5%), household savings<sup>26</sup> and government investment in renewable energy sources following the adoption of the Inflation Reduction Act.

<sup>25</sup> The US dollar index measures its value against a currency basket comprising the euro (57.6%), the yen (13.6%), the pound sterling (11.9%), the Canadian dollar (9.1%), the Swedish krona (4.2%) and the Swiss franc (3.6%).

<sup>26</sup> International Monetary Fund, [WEO Update](#), July 2022.

## 2. Monetary policy of the Eurosystem

**Over the past six months, the ECB Governing Council has taken significant decisions to accelerate the normalisation of monetary policy.** Rising euro area inflation and the outlook for higher inflation in the future have prompted a further normalisation of monetary policy with a view to bringing inflation back to 2% in the medium term. At the June meeting, it was decided to suspend net purchases under the asset purchase programme (APP) as from 1 July. The Governing Council also determined that the conditions for the ECB to start raising its key interest rates were met.

**On 21 July 2022, the ECB Governing Council raised interest rates for the first time in more than a decade and approved the monetary policy Transmission Protection Instrument.** Key interest rates were increased by 0.5 percentage points, which means that the negative interest rate environment has been escaped (for more details on the reasons for and effects of interest rate hikes, see Box 1). In order to ensure the effectiveness of monetary policy transmission, the Governing Council adopted a new instrument to protect policy transmission. This instrument will allow the Eurosystem to make secondary market purchases of securities of euro area countries that are experiencing a deterioration in financing conditions that is not justified by fundamentals, thus helping to ensure a smoother transmission of monetary policy decisions to all euro area countries.

**On 8 September 2022, interest rates were increased again in response to the continuing rapid rise in inflation.** Price pressures have continued to pick up in recent months and have spread across more sectors, with the ECB's September projections suggesting that inflation will remain above 2% in 2023–2024 (see Chart 3). For these reasons, key interest rates have been increased by 0.75 percentage points to accelerate the transition to the interest rate level that will help ensure that inflation returns to 2% in the medium term. The Governing Council also determined that it would continue to raise interest rates over the next few meetings in order to dampen demand and to prevent the emergence of rising inflation expectations. The Governing Council stressed that interest rate decisions would continue to depend on available data and would be taken at each meeting.

**Financial markets have priced a gradual increase in interest rates over the coming years (see Chart 3).** With the ECB Governing Council starting to raise interest rates and still considerable uncertainty about the future inflation outlook, financial market participants expect a further gradual increase in interest rates. Financial market futures suggest that interest rates could reach a level of 2.0%-2.5% in 1-2 years.

## Key ECB interest rates have started to rise.

Chart 3. Actual interest rates, euro area inflation and market expectations

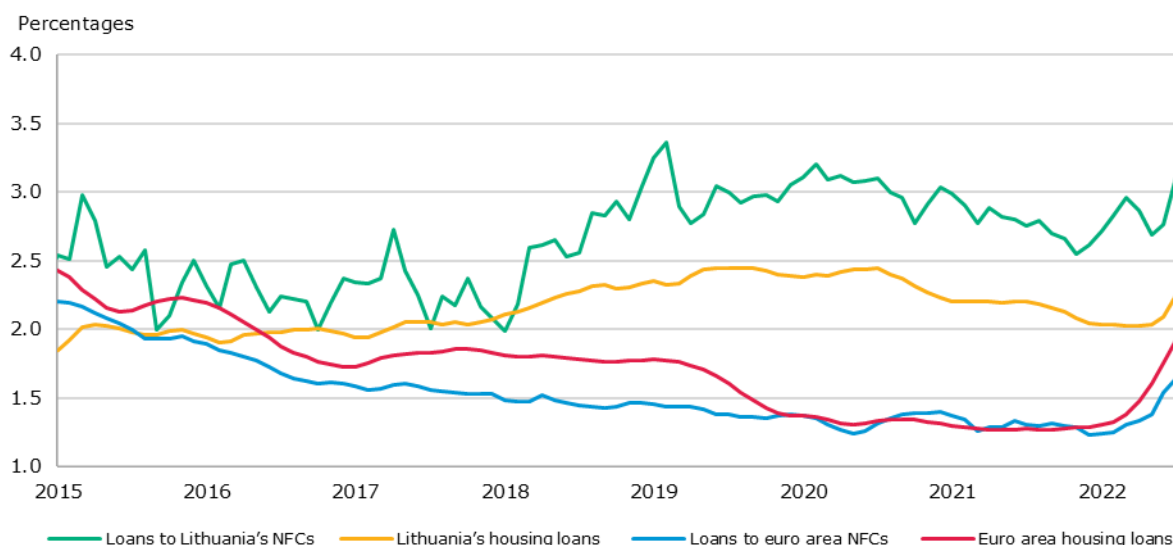


Sources: ECB and Refinitiv.  
Note: Data as of 8 September.

**Euro area banks started to raise lending rates following the normalisation of the monetary policy and increased uncertainty about the economic outlook.** In the euro area, lending rates have been declining steadily since 2015, but the trend reversed at the beginning of this year when lending rates started to rise (see Chart 4). In Lithuania, average interest rates on new mortgage loans and loans to non-financial corporations (NFCs) have also risen slightly from the beginning of 2022. While average interest rates in Lithuania remain above the euro area average, the gap has narrowed significantly this year. The future dynamics of lending rates will depend on the pace of monetary policy normalisation and the financial situation of the economy and banks.

## Financing conditions in the euro area have started to tighten.

Chart 4. Average interest rates on new MFI housing loans and loans to NFCs

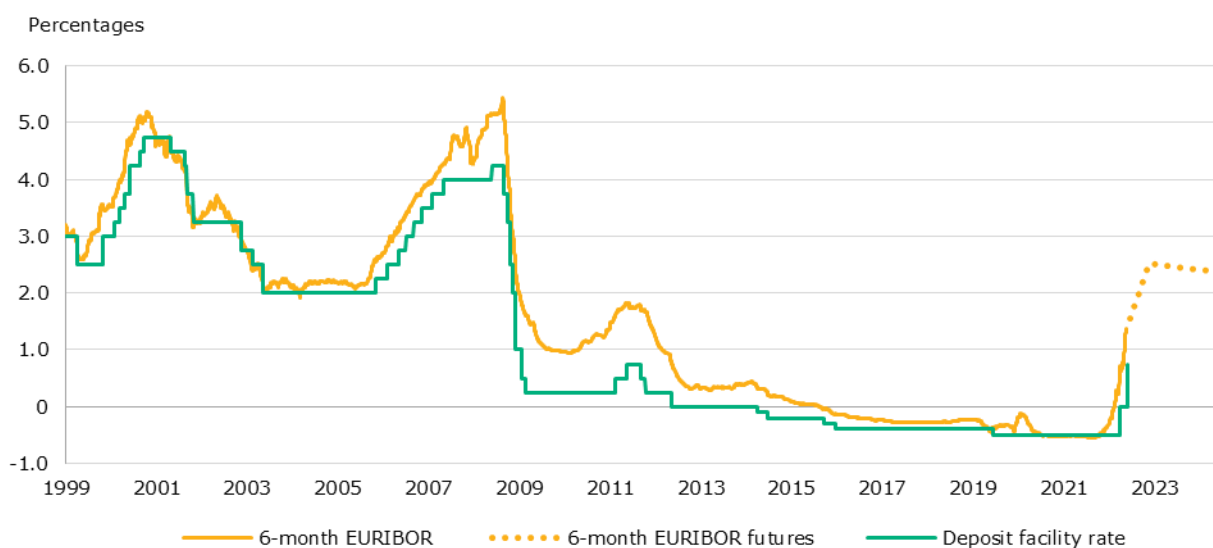


Sources: ECB and Bank of Lithuania calculations.  
Notes: 3-month moving average. Excluding revolving loans and overdrafts. The latest observations are for July 2022.

## Box 1. Rationale for the decision to raise interest rates and impact channels

**The ECB started raising interest rates in July 2022 after more than a decade.** They were increased by 0.5 percentage points in July, thus breaking out of the negative interest rate environment, and by a further 0.75 percentage points in September. Further normalisation of the monetary policy stance is expected in the future. While the key ECB interest rates were above 4% some 15 years ago, financial markets currently estimate that interest rates could reach a level of around 2.0%–2.5% in 1–2 years' time (see Chart A). These expectations are certainly subject to change, but structural adjustments in recent decades (such as slowing productivity growth, increase in savings and population ageing) have pushed down the interest rates necessary for sustainable economic growth.<sup>27</sup>

Chart A. Current interest rates in the euro area and financial markets' expectations of their future dynamics



Sources: Refinitiv and Chatham.

Note: The data were updated in accordance with the decisions of 8 September.

**The ECB Governing Council took these decisions in the light of the significant increase in euro area inflation and the prospects for higher inflation in the future.** Much of the price increase is driven by the sharp rise in energy prices, but even excluding the direct impact of energy price hikes, core inflation is above the ECB's 2% target. This suggests that inflationary pressures are spreading and gradually shifting to the prices of various consumer goods and services and that higher inflation is not only due to short-term factors but also to inertial factors and processes. A prolonged period of such price increases could lead to inflation expectations that are out of line with the target. This in turn would make it more difficult for inflation to return to the ECB's inflation target.

**Rising interest rates will affect many sectors.** The ECB's interest rate hikes and the markets' expectations of further increases have pushed up the cost of borrowing for the Lithuanian Government (Lithuania's ten-year government bond yields have increased by 3 percentage points since the beginning of the year). The dynamics of the EURIBOR rate (usually 3 or 6 months), which is closely linked to the key ECB interest rates (see Chart A), are relevant to holders of housing loans. This will lead to a gradual increase in loan repayments, which will increase the population's costs of repaying their existing loans (see Table A) as well as reduce the willingness to take out new loans. Allocating a larger share of income to loan repayments would reduce people's ability to use their income for consumption. Rising interest

<sup>27</sup> Read more about the drivers of falling interest rates [here](#).

rates are likely to contribute to lower business investment. As interest rates increase, some of the least profitable projects would not be developed as they would become less attractive. This could reduce investment and business expansion, but in the longer term it would help to rebalance economic growth and improve the state of the economy and the financial system. Higher interest rates could also lead to larger nominal income from new deposit facilities or investments in fixed-income instruments (e.g. government and corporate bonds).

Table A. Average monthly payments of outstanding Lithuanian housing loan\* at different EURIBOR values

EURIBOR, per cent	Total interest rate on housing loans, per cent	Loan instalment, EUR	Increase in instalment, EUR
0	2	230	–
0.5	2.5	242	12
1	3	254	24
2	4	280	50

\*EUR 50 thousand, 22-year residual maturity, 2% margin.

**While higher interest rates will have a dampening effect on economic activity, ignoring the inflation target could have far more severe consequences, especially in the longer term.**

Diminished confidence in the Eurosystem's pursuit of the 2% price stability objective in the medium-term could lead to an unmanageable inflation spiral. Residents and businesses would believe that prices would continue to rise and expect further price increases, therefore, businesses would continue to raise prices, resulting in rushed consumption before goods and services become more expensive. With growing demand, companies would borrow more and search for more employees, thus raising wages. All this would lead to even higher prices for goods and services and higher expectations for the future, resulting in a loss of confidence in the central bank's ability to bring inflation back to the target, so price stability could only be achieved through a very rapid rise in interest rates. For this reason, it is important to pre-empt such a scenario by raising interest rates earlier and gradually rather than late and very quickly.

**Other central banks started the interest rate hike cycle earlier, but there were important reasons for this.** Both the Bank of England and the Federal Reserve System started earlier to tighten monetary policy by halting quantitative easing and raising interest rates. Such behaviour is consistent, as these economies are showing far more signs of heating up than the euro area. For example, in these economies wages rise faster, unemployment rates are much lower and core inflation is often higher. On the other hand, overly aggressive interest rate hikes could worsen financing conditions and unduly dampen economic growth too much. It is therefore essential to strike the right balance, taking into account the specific situation of the economy when making monetary policy decisions. It is also noteworthy that when a central bank applies monetary policy measures, inflation is only affected after a certain period of time: studies show that the effect is usually strongest after 12–18 months.

### 3. Real sector<sup>28</sup>

**The Lithuanian economy expanded faster than expected in the first half of 2022.** After expanding by 1.2% in the first quarter compared with the previous quarter, the economy contracted by 0.5% in the second quarter. These economic developments caused Lithuania's GDP to be 3.5% higher in the first half of 2022 than a year earlier. Value added increased in most economic activities. The fastest growth was recorded in manufacturing; arts, entertainment and recreation; information and communication; professional, scientific and technical activities; and administrative and support service activities. By contrast, the activities with the most development difficulties were trade, transport and real estate operations. The sanctions against Russia and Belarus, the EU Mobility Package and difficulties in acquiring trucks were the main factors affecting activity in the transport sector. The development of real estate operations was constrained by the declining activity in the RE market. It should be noted that the growth of value added in manufacturing in the second quarter of the year was limited by the performance of several companies, i.e. production at AB ORLEN Lietuva was suspended for planned repairs and AB LIFOSA was temporarily closed. In the first half of 2022, Lithuania's economic activity continued to expand above its potential and the output gap remained positive. This is reflected both in the persistent labour market tensions and in one of the highest inflation rates in the EU, partly due to the greater ability of businesses to transfer rising costs to customers than in other EU Member States. These economic developments mean that the economic growth outlook for this year is not revised, but that growth will slow down significantly in 2023. Real GDP is projected to be 2.1% higher this year than in 2021 and to grow by 0.9% next year. This economic scenario is underpinned by a further deterioration in the risk balance, as it became even more negative than it was in June. The risk balance worsened mainly due to the particularly high uncertainty about energy prices in the next six months. Other prominent downside risks include very high inflationary pressures and decisive action by monetary policymakers to contain it, the further development of Russia's war against Ukraine, the imposition of sanctions against the aggressor and the response to them, the ongoing COVID-19 pandemic and the fight against it, as well as further escalation of global recession topic, which is deteriorating business and consumer confidence.

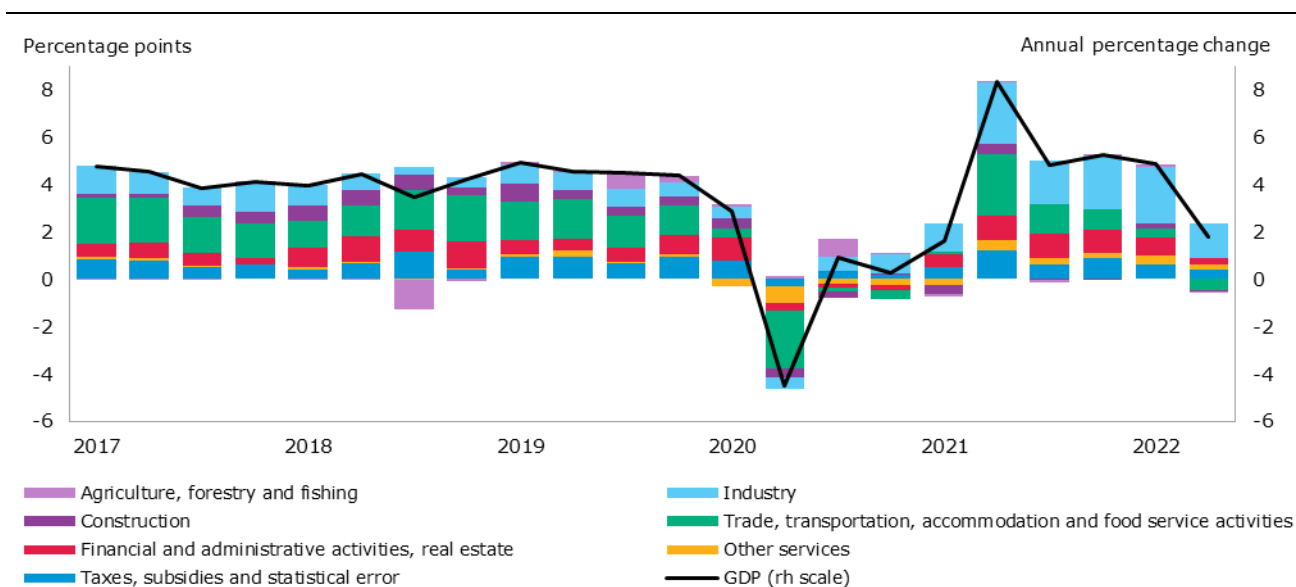
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<sup>28</sup> Unless otherwise stated, the data analysed in this section are calculated at constant prices and adjusted for seasonal and workday effects.



## The Lithuanian economy expanded faster than expected in the first half of 2022.

Chart 5. Contributions to GDP growth by the production approach



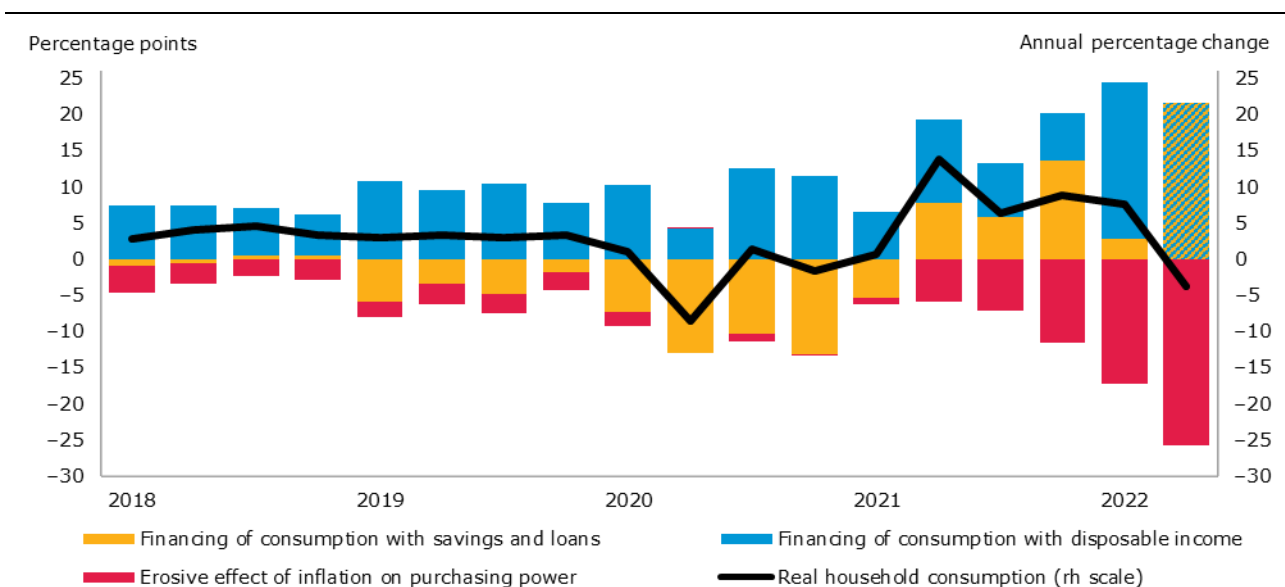
Sources: Statistics Lithuania and Bank of Lithuania calculations.

### Rapid increases in the prices of goods and services restrained household consumption in the first half of 2022.

It increased by 0.1% in the first quarter of 2022 and contracted by 2.6% in the second quarter. The adverse impact of soaring prices on household consumption was limited by rapidly rising household income. According to the Bank of Lithuania estimates, nominal household disposable income in the first quarter of 2022 was around one-sixth higher than a year earlier. As its growth outpaced inflation rates during this period, real household disposable income also increased. The main contributor to the increase in household disposable income has been the increasing wage bill, which was boosted by both employment growth and wage increases (see Section 4 for more details). Rising property income also contributed significantly to household income growth, which was also influenced by the greater ability of businesses to transfer rising costs to customers, due to a favourable business cycle in Lithuania compared to other EU Member States, thus maintaining relatively good profitability ratios of companies. The strong growth in household disposable income is expected to continue throughout this year. However, even with rising incomes, household sentiment and expectations are deteriorating. The consumer confidence indicator in August this year was close to its lowest level over the past decade. Households' expectations for the economic development in the next 12 months are particularly unfavourable and are the worst since the global financial crisis. This will partly contribute to a more cautious attitude towards consumption in the second half of the year, for example, the willingness of households to make larger purchases in the near future has decreased substantially. Nevertheless, it should be noted that although household expectations have deteriorated considerably, their assessment of the current financial situation is still quite favourable and significantly above the historical average. As a result of these factors, household consumption is expected to increase by 1.0% in 2022 and decrease by 0.8% in 2023.

## Household disposable income continues to grow at a particularly rapid pace in 2022.

Chart 6. Contributions to real household consumption developments



Sources: Eurostat, Statistics Lithuania and Bank of Lithuania calculations.

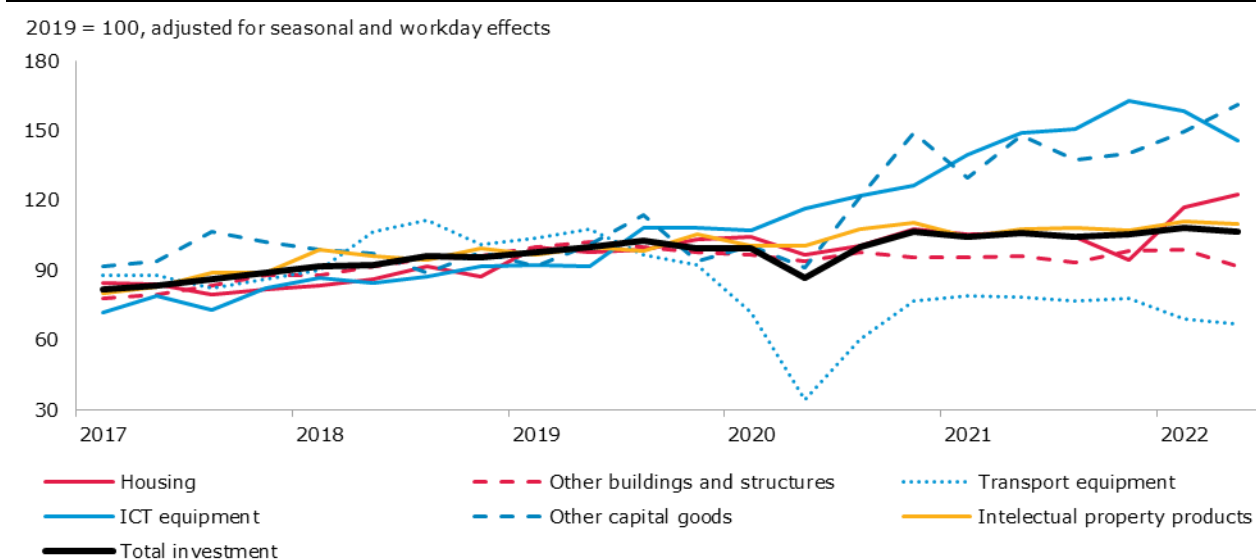
Note: Due to the lack of available data, the contributions to financing of consumption with savings and loans and financing of consumption with disposable income are not estimated for the second quarter of 2022.

### Export growth remains relatively strong, but sluggish investment may constrain its future expansion.

Exports increased by 2.8% in the first quarter of this year compared to the previous quarter and declined by 4.8% in the second quarter. This decline was mainly due to the suspension of production at AB ORLEN Lietuva for planned repairs, the temporary closure of AB LIFOSA and severely restricted exports of transport services due to the imposition of sanctions on trade with Russia and Belarus (for more on foreign trade, see Section 5). The trends in exports of other higher value-added goods and services remained relatively favourable. As a result, exports of goods and services in the first half of 2022 were 13.6% higher than a year earlier. However, while export developments were relatively favourable, high uncertainty about the further development of the economies of the main trading partners and the course of Russia's war against Ukraine reduced incentives for companies to invest. After increasing by 2.8% in the first quarter of this year compared to the previous quarter, investment fell by -1.5% in the second quarter. Investment in civil engineering buildings and structures, partly constrained by the continuing increase in project construction estimates, and in transport equipment were the ones to fall the most. The decline of the latter is linked to the entry into force of the EU Mobility Package at the beginning of this year and the persistent difficulties in acquiring the necessary number of vehicles. Investment in information and communication technology (ICT) equipment also declined, albeit to a noticeably lesser extent. Only investment in housing and other capital goods has grown. The former increased due to strong demand, which was influenced by households' concerns about the depreciation of existing savings. Meanwhile, higher investment in other capital goods was fuelled by increased incentives for businesses to use energy more efficiently due to higher electricity prices. Although business sentiment has remained significantly unchanged for almost half a year now, following a significant deterioration in March, the growing number of negative factors for the economy and business development, such as uncertainty about energy prices or the escalation of global recession topic, will limit companies' willingness to invest, except for projects aimed at more efficient energy consumption and production. These factors point to a rather sluggish development of investment: 3.0% in 2022 and 3.4% in 2023.

**High uncertainty about the further development of the economies of the main trading partners and the course of Russia's war against Ukraine have reduced incentives for companies to invest.**

Chart 7. Contributions to real investment growth



Sources: Statistics Lithuania and Bank of Lithuania calculations.

## Box 2. Impact of energy supply disruptions in the euro area on the Lithuanian economy

**After launching the war against Ukraine, Russia has started to manipulate the supply of energy raw materials, such as oil, natural gas and coal, to Europe, triggered by the support expressed by European countries for the Ukrainians.** With many European countries actively supporting Ukraine, Russia has started to restrict energy supplies to the European market. Initially, Russia unilaterally declared that European countries would have to pay for Russian natural gas supplies in Russian roubles. Following the refusal of some countries, natural gas supplies were suspended for Denmark, Finland, Bulgaria, the Netherlands, Poland and Latvia, as well as restricted for Germany. Subsequently, Russia further restricted natural gas supplies to European countries to around one fifth of available capacity and, from the beginning of September, completely cut off gas supply through the Nord Stream pipeline. Given the existing high uncertainty in the energy market, the ECB's September projections included an adverse scenario that attempted to assess the impact of energy supply disruptions on the euro area growth and inflation.<sup>29</sup> This box provides a risk assessment of the impact on economic growth and inflation in Lithuania under the ECB's adverse scenario.

**The ECB's adverse scenario is based on the assumptions of output constraints, higher energy prices, increased uncertainty, weaker international trade and deteriorating financial conditions.** The key assumption in this ECB scenario is that Russia completely stops energy exports to the euro area countries. This would potentially force euro area countries to ration their natural gas consumption and possibly restrict production in energy-intensive sectors, leading to a significant increase in market energy prices, reduced trade and intensified supply chain disruptions. In the case of oil and natural gas, prices would be significantly higher than in the baseline scenario<sup>30</sup> (see Table A). Similarly,

<sup>29</sup> A downside scenario related to the war in Ukraine and energy supply cuts, June 2022. Online source: [here](#).

<sup>30</sup> Technical assumptions about interest rates, commodity prices and exchange rates, June 2022. Online source: [here](#).

higher energy and fertiliser prices and the risk of a halt in grain exports from Ukraine and Russia would also push up the prices of food raw materials.

Table A. Assumptions under the ECB's adverse scenario

(annual percentage deviation from the baseline scenario, unless otherwise specified)

	2022	2023
Price of natural gas		
(€/Mwh)	202.3	360.6
(Percentage deviation from the baseline scenario)	20.5	53.2
Oil prices		
(USD/barrel)	119.7	138.2
(Percentage deviation from the baseline scenario)	13.5	54.0
Food Prices	4.3	29.5

**A halt to Russian energy exports to the euro area would have a negative impact on both the euro area and the global economy.** The relatively limited substitutability of natural gas imports from Russia would lead to higher energy commodity prices and disruptions in the supply of natural gas would force euro area countries to limit their consumption of natural gas, which is likely to lead to a reduction in production by some economic activities, especially energy-intensive ones. This situation would once again increase disruptions in global supply chains and adversely affect international trade. This, together with the assumptions discussed above, would lead to external demand for euro area-produced goods and services being 0.7% and 4.6% lower in 2022 and 2023 respectively compared to the baseline scenario. The euro area economy would grow by 0.3 percentage points in 2022 and 1.8 percentage points in 2023 slower than under the baseline scenario.

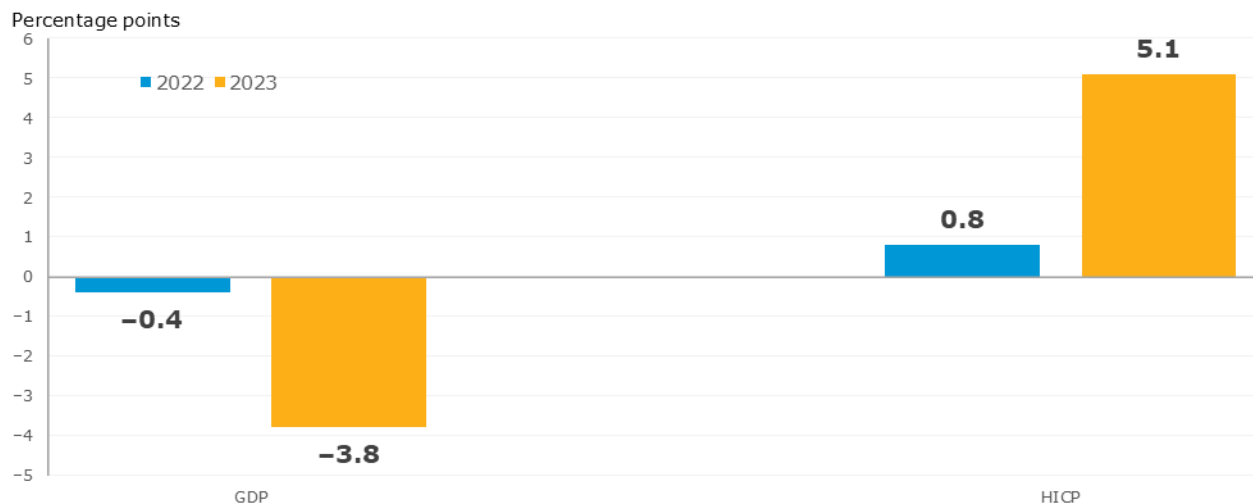
**Such economic development of Lithuania's main trading partner would also have a significantly negative impact on the Lithuanian economy.** Slower growth in the economies of Lithuania's main trading partners would reduce demand for Lithuanian goods and services in these countries. The worsening economic situation both abroad and in Lithuania would also increase uncertainty about future economic outlook and aggravate financial conditions, with rising risk premiums pushing up interest rates. The latter factors would have a damaging impact on the sentiment and expectations of households and businesses, reducing household consumption and the willingness of businesses to invest in business expansion. The combination of these factors would result in the Lithuanian economy growing 0.4 percentage points and 3.7 percentage points slower in 2022 and in 2023 respectively than forecasted in the September 2022 projections. In the longer term, the adverse impact of the suspension of Russian energy exports to the euro area countries is expected to diminish, mainly as a result of the global energy market adjusting to the situation and the success of the euro area countries in finding alternative sources of energy imports or substitution.

**Significant increases in commodity prices would keep inflation in Lithuania at high levels for an extended period.** Putting a halt to Russian energy exports to the euro area countries would significantly push up energy and food raw material prices both in Lithuania and across the EU. In addition, potential production disruptions due to energy shortages would intensify bottlenecks in supply chains and contribute to the cost of other commodities. These factors would outweigh the dampening impact on inflation from the decline in demand for goods and services due to less favourable economic developments in both 2022 and 2023. These factors would lead to inflation in Lithuania being 0.8 percentage points higher in 2022 and 5.1 percentage points higher in 2023 than projected in the September 2022 projections. However, it is important to note that, in the longer term, the contraction in

demand resulting from less favourable economic developments will have an increasing impact on price developments, leading to a decline in inflation.

**High energy prices could have a particularly negative impact on Lithuania's economy.**

Chart A. The impact of the suspension of Russian energy exports to the euro area countries on the Lithuanian economy and prices



Sources: ECB and Bank of Lithuania calculations.

**The assessment does not take into account some of the factors that could lead to economic developments that differ from those projected in the assessment.** It assumes that monetary and fiscal policy will not react to the downward impact of the perceived adverse shock. However, if policy makers in the affected countries take action to mitigate the negative effects of the suspension of Russian energy exports, this would lead to a more favourable development of the Lithuanian economy and prices. It is also particularly difficult to assess the potential scale of the production shutdown which will depend on the level of natural gas supply and stocks at the time, as well as on the weather conditions during the heating season, which may lead to a markedly different demand for natural gas than currently expected. These factors will also have an impact on electricity prices in Lithuania through natural gas prices, changes in which affect the competitiveness and operating decisions of Lithuanian companies.

## 4. Labour market

**Despite the heightened uncertainty caused by Russia's war against Ukraine, the state of the Lithuanian labour market in the first half of 2022 remained good.** Despite the slowdown in economic activity, the unemployment rate has continued to decline markedly, and the number of employed persons has been rapidly increasing. According to the latest data from the Statistical Labour Force Survey, the number of employed persons grew at a brisk pace of 5.6% in the second quarter of 2022. This annual growth rate is the highest since the data began to be published and almost three times faster than in the previous quarter. In particular, the number of employees has gone up, but the share of self-employed persons has also risen significantly. The surge in employment in Lithuania was driven by a strong growth in the labour force, particularly for women. The large influx of female war refugees from Ukraine led to a sharp increase in the female labour force participation rate, which reached 78.5%, 1.3 percentage points higher than a year earlier. The impact of favourable migration trends is also felt in the employment rate. In January–August this year, around 43,000 more people moved to Lithuania than left. It is likely that the majority of immigrants are war refugees from Ukraine who are successfully integrating into the Lithuanian labour market. According to the Ministry of Social Security and Labour, today nearly 17,000 people who fled the war in Ukraine are already working in Lithuania, which is almost half of the working-age arrivals. The Ukrainians who have arrived are mainly specialised in the services sector, which is also contributing to the rapid growth of employment in domestic market-oriented activities. This is reflected in the strong increase in employment in the non-tradable<sup>31</sup> sector.

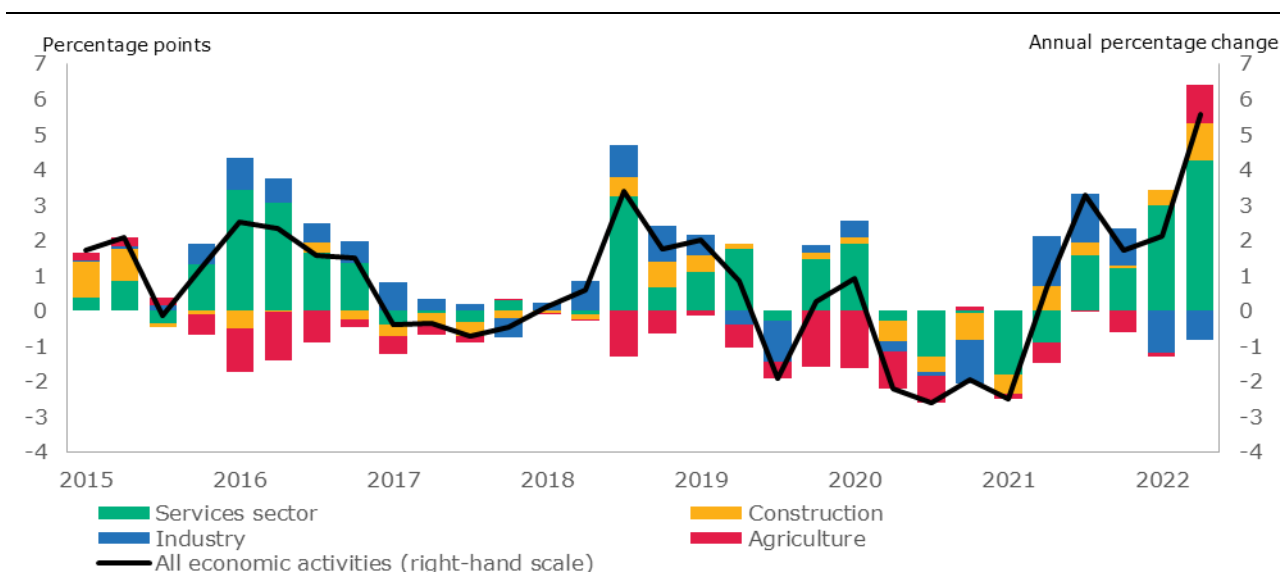
**The largest sector in terms of employment, the services sector, contributed the most to the record employment growth, especially trade, transport, accommodation and food service activities (see Chart 8).** The increase in hiring in these activities can be attributed to the effect of a low comparative base. It is the services sector that has been hardest hit by the second quarantine. Since the beginning of the second half of the last year, when the quarantine was lifted and the restrictions on contact activities were eased, the situation of the activities most affected by the pandemic started to improve. The current recovery in demand for services is matched by a growing demand for workers, which is the reason why employment is growing so rapidly in many economic activities of the services sector. This is also confirmed by the administrative data of the Social Insurance Fund (Sodra) on the number of persons insured. For example, since March this year, the number of persons employed in accommodation and catering, entertainment and recreation activities has started to recover after a relatively long period. Based on the September data, the number of people employed in the transport sector was about 14% higher than during the pandemic. The exceptionally high demand for transport workers this year is reflected in the increased number of quotas and their rapid use. For example, the services sector (which also includes transport activities employing third-country drivers) has been allocated around 38% more quotas this year than last year. According to the Migration Department, the quotas for facilitating the recruitment of foreigners in the services sector expired at the end of August.

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<sup>31</sup> The non-tradable sector covers all sectors except agriculture and manufacturing.

**The first half of this year saw a particular increase in employment in the services sector.**

Chart 8. Number of the employed by economic activity (contributions)

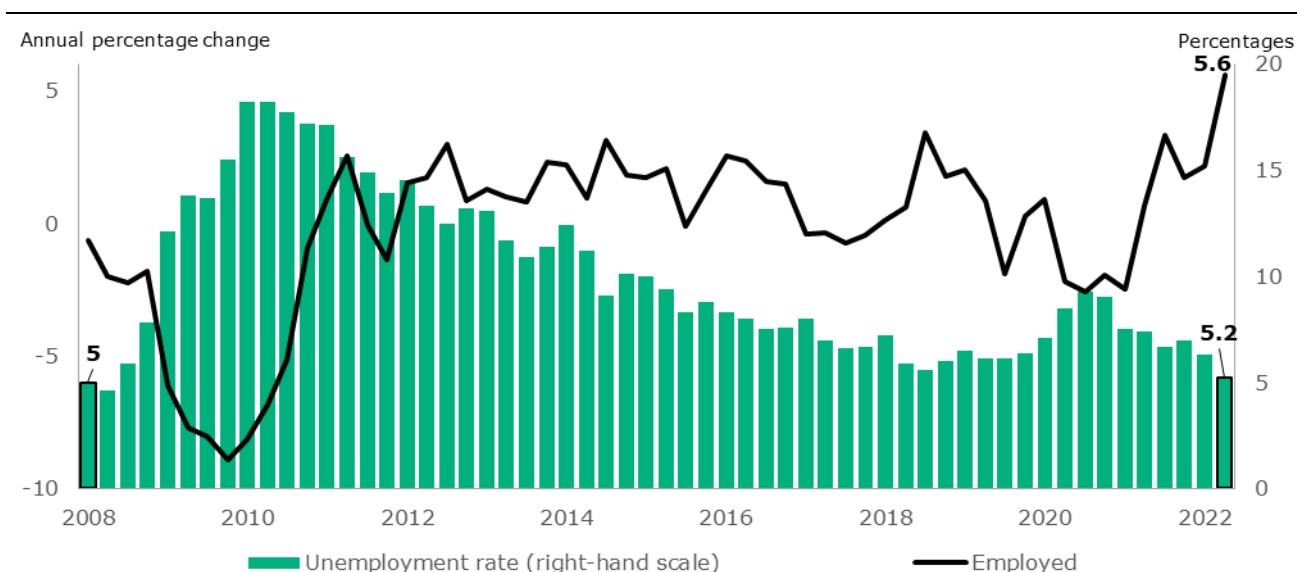


Sources: Statistics Lithuania and Bank of Lithuania calculations.

**Unemployment has fallen markedly as a result of a significant increase in employment.** In the second quarter of 2022, the national unemployment rate fell to as low as 5.2%, some 2.2 percentage points lower than a year earlier (see Chart 9). Although the number of unemployed persons has been declining steadily since the end of the pandemic year, the last time Lithuania recorded such a low unemployment rate was before the global financial crisis in 2008. The falling long-term unemployment rate also reflects the extremely high demand for workers. Over the year, the long-term unemployment rate declined by more than 0.5 percentage points, reaching its pre-pandemic level. Registered unemployment data also signal a very similar labour market situation. According to the Employment Service, the registered unemployment rate in Lithuania had been declining since the beginning of last year, but in July this year, due to seasonal factors (young people aged 16-24 who graduated from university engaged in job search, so the number of unemployed people in this age group has increased the most), there were around 8,000 more unemployed persons than in the previous month. After adjusting for seasonal effects, the number of registered unemployed in July was almost unchanged compared to June. During this period, registered unemployment reached 9.1%, or around 159,000 people, including around 6,000 Ukrainians who had fled the war in Ukraine and were looking for jobs in Lithuania.

**Unemployment fell to the level recorded more than 14 years ago, determined by a significant increase in the number of employed persons.**

Chart 9. Developments in the number of employed persons and unemployment rate



Sources: Statistics Lithuania and Bank of Lithuania calculations.  
Note: The latest observations are for the second quarter of 2022.

**With fewer unemployed people and more people being hired, the country is facing a persistent shortage of workers.** Job vacancy statistics for the second quarter of 2022 show that labour supply continues to fall short of the growing demand, and the situation on the labour market is still very tight: the job vacancy rate (the ratio of job vacancies to total jobs) stood at 1.9%, almost on par with the record level of 2% recorded in the third quarter of 2008 and the first quarter of 2022. During that period, the country recorded around 27,000 vacancies for employees, up by around a tenth a year ago. However, the extent of the labour shortage varies across economic activities, with many vacancies in high-skilled activities. The highest job vacancy rates in the second quarter of 2022 were found in public administration and defence, compulsory social security (4.4%), financial and insurance activities (3.2%) and information and communication (3.1%) companies. The high number of vacancies in high-skilled activities indicates that it is difficult for employers to find workers with the right skills, either because the qualifications, skills or experience of those employed do not match the employers' needs for the vacancies on offer, or because people with such qualifications are not interested in the working conditions and remuneration offered.

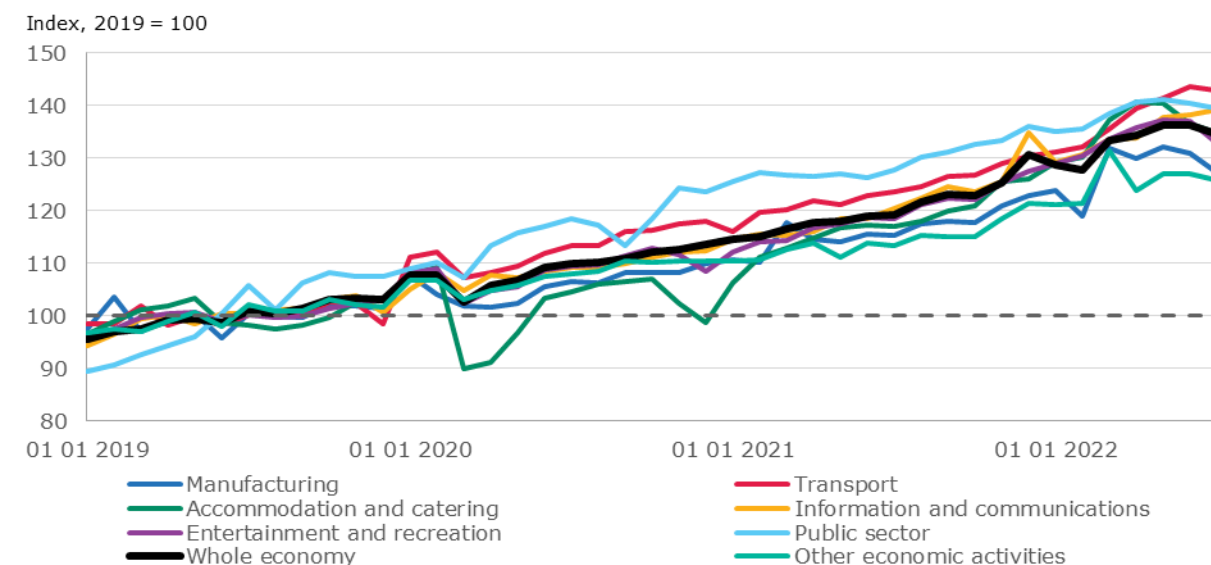
**The lack of labour supply and high demand have a major impact on wage growth in the country.** The wage spurt has continued in many economic activities since the beginning of the pandemic period (see Chart 10). In July, for example, employees in the transport sector earned almost one and a half times more than the average in 2019. The information and communication sector has not been lagging behind, with wages about 39% higher than in the same period three years ago. Although in the second quarter labour income increased at a more than double-digit annual rate in most economic activities, in April–June, the largest annual wage changes were recorded in accommodation and catering (20%) and entertainment and recreation (16%) activities. This can be attributed to the strong base effect, which leads to a much faster wage growth in these activities. In addition, the vacancy data show that the labour shortage in the contact-intensive sectors is still quite high. According to Statistics Lithuania, in the second quarter of this year, wages rose by 13.7% year-on-year. Wages in the private sector grew significantly faster than in the public sector, by 15.2% and 10.7% respectively. The latest



administrative July data from Sodra also show double-digit wage growth of 12.3%. However, labour income growth has stopped accelerating in May-July (see Chart 10).

### Wage growth has been decelerating from May to July.

Chart 10. Wage developments in economic activities



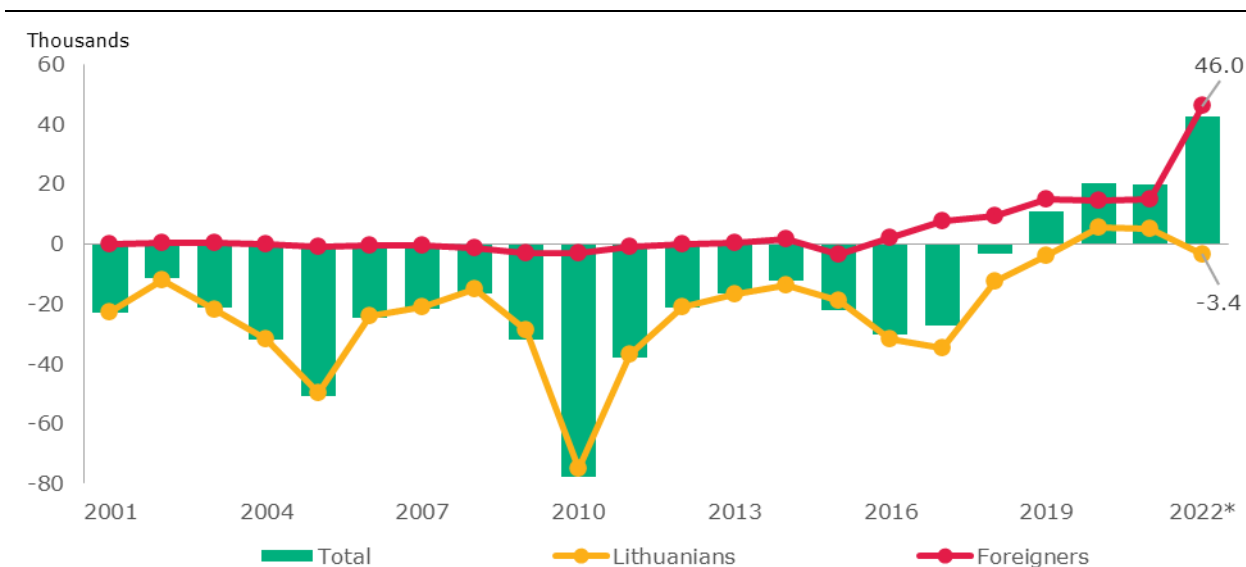
Sources: Sodra and Bank of Lithuania calculations.

Notes: Seasonally adjusted data, the latest observations are for July.

**As a result of positive trend in net migration and a more cautious assessment of the economic outlook labour market tensions should ease, but no significant deterioration in labour market conditions is expected.** The expected slower economic growth due to the negative impact of soaring energy prices will lead companies to be more cautious in their hiring decisions, which will have a negative impact on labour demand. Business hiring expectations deteriorated slightly in August, although they are still above the long-term average. If the electricity market remains tight, the number of companies facing labour shortages is likely to decrease in the near future. In addition, large flows of foreign immigrants should also contribute to the stabilisation of job vacancy rate this year. Despite the fact that the number of outflows of Lithuanian citizens is slightly higher than the number of arrivals, the balance of net migration of foreigners is positive (see Chart 11). The latter is influenced by the increase in immigration of foreign nationals, especially Ukrainians and Belarusians, due to the war in Ukraine. The decline in labour demand will be compounded in the future by the falling external demand, which will constrain the activities of exporting firms. And this will also have a negative impact on the labour market. Sluggish economic growth and higher energy costs will force Lithuanian businesses to reassess their need for employees and limit wage growth.

## The balance of foreign migration is record-high and outweighs the negative net migration of Lithuanian citizens.

Chart 11. Migration balance by nationality



Sources: Statistics Lithuania and Bank of Lithuania calculations.

\*January-August 2022, total sum.

### Box 3. Cross-sectoral analysis of labour shortages and wage growth

**In Lithuania, average wage growth has been above the long-term average for the last few years, with no significant slowdown in the pandemic years and continued to be strong even in the face of high geopolitical tensions and energy challenges.** This is because, among other factors, the current extremely tight labour market situation caused by labour shortages is a significant contributor to rapid wage growth. Labour market tensions are likely to have been exacerbated by the current state of the business cycle, where the output gap is positive, as well as by structural problems: job vacancies do not match the profile of the unemployed, workers' habits and employers' preferences may have changed, and some jobs continue to offer uncompetitive salaries.<sup>32</sup> This box examines in more detail the relationship between the growth of average wages and the shortage of workers.

**Since 2016, average wages have risen in all economic activities, but five activities stand out the most.** In scientific research and development, salaries rose above the overall average for the longest period of all activities between 2016 and 2022. This may be due to the collective agreement for the education and science sector signed in Lithuania in 2017,<sup>33</sup> which foresees a rapid increase in salaries between 2018 and 2022 to ensure competitive salaries for researchers and scholarships that would incentivise doctoral students.<sup>34</sup> Significantly increased support for Lithuania's research and innovation under the European Commission's Horizon 2020 may also have had a positive effect. Lithuania has received €205.6 million in funding throughout 2014–2020.<sup>35</sup> Meanwhile, in 2007–2013, the European Commission allocated €51.97 million<sup>36</sup>, i.e. four times less, under the Horizon 2020 predecessor, the 7th

<sup>32</sup> <https://www.imf.org/-/media/Files/Publications/SDN/2022/English/SDNEA2022001.ashx>

<sup>33</sup> <https://www.svietimoprofsajunga.lt/wp-content/uploads/2022/06/Lietuvos-svietimo-ir-mokslo-sakos-kolektyvine-sutartis-2017-11-22.pdf>

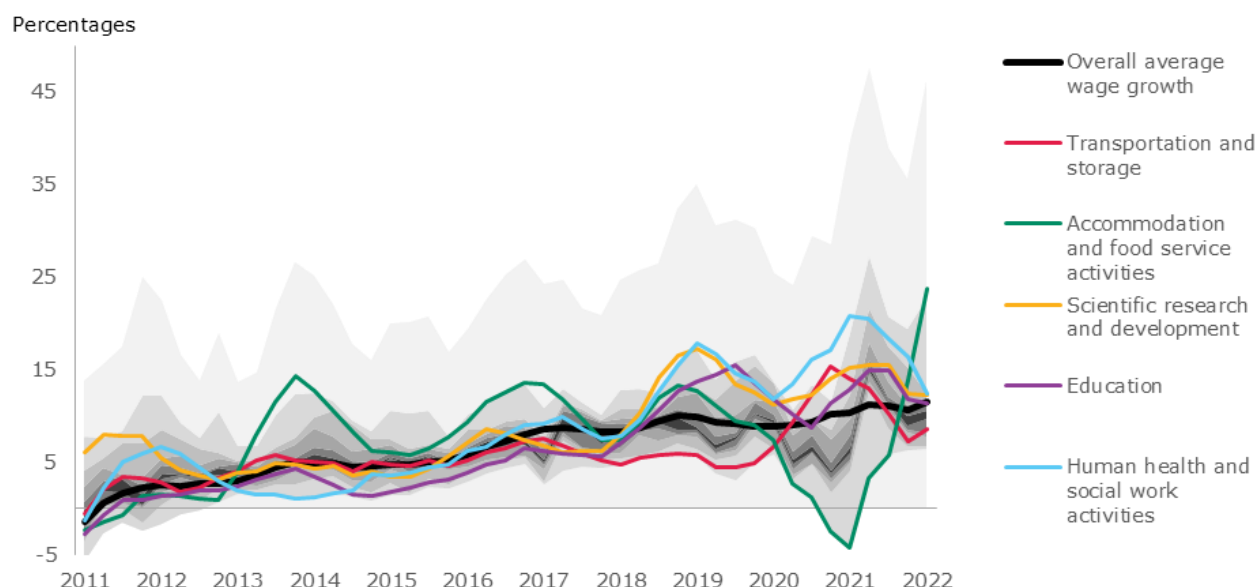
<sup>34</sup> <https://strata.gov.lt/images/tyrimai/2020-metai/mokslo-politika/20201221-mokslo-bukles-apzvalga.pdf>

<sup>35</sup> <https://webgate.ec.europa.eu/dashboard/sense/app/a976d168-2023-41d8-acec-e77640154726/sheet/0c8af38b-b73c-4da2-ba41-73ea34ab7ac4/state/analysis/select/Country/Lithuania>

<sup>36</sup> <https://webgate.ec.europa.eu/dashboard/sense/app/eaf1621c-67ce-4972-a07b-dddba31815c1/insightadvisor>

Framework Programme. Salary increases in human health and social work activities have been observed since mid-2018, when doctors and nurses received a pay rise as a result of the collective agreement on 1 May,<sup>37</sup> and in 2020, when health workers were paid bonuses for their work under the pandemic conditions. In the education sector, the fastest salary increases were recorded in 2019 and early 2021. The increase in 2019 is due to the decision to raise the salaries of employees in education by around 15–19%,<sup>38</sup> while the one in 2021 is due to the payment of pandemic bonuses.<sup>39</sup> The overall increase is also determined by the collective agreement<sup>40</sup> covering teachers, lecturers and other employees of educational institutions. In transport and storage activities, wage growth in 2020 was affected by higher investment and productivity gains<sup>41</sup>: the use of courier services, as well as transport services, increased considerably at the onset of the pandemic. In accommodation and food service activities, wages have been rising particularly rapidly since mid-2021. This can be attributed to a strong base effect, with significant staff reductions and wage reduction in 2020 due to the impact of the pandemic and its containment measures. Wages are therefore rising faster due to the low comparative base. One of the factors behind wage increases is higher value added. It should be noted that three of the economic activities with the fastest wage growth, i.e. scientific research and development, education and health care and social work, have higher value added: they pay relatively high wages, which, together with corporate profits, account for the largest share of value added.

Chart A. Average wage developments in Lithuania in 19 economic activities (4-quarter moving average)



Sources: Statistics Lithuania and Bank of Lithuania calculations.

Note: Only economic activities where the rise in wages was the highest are shown. The lightest background shows the distribution of average wage in all economic activities, and the darkest background represents the distribution of average wages in one twentieth of economic activities.

**Compared to 2011–2015, the rate of average wage growth more than doubled between 2016 and 2022.** This is due to a number of factors: first, labour productivity growth accelerated in 2016–2022 compared to 2011–2015, potentially improving the ability of companies to raise wages more rapidly. On the basis of the Verdoorn’s law,<sup>42</sup> it can also be assumed that the increase in labour productivity was

<sup>37</sup> <https://uzt.lt/wp-content/uploads/2019/04/Lietuvos-u%C5%BEmtumo-tendencijos-2018-m.-ir-ateities-prognoz%C4%97s.pdf>

<sup>38</sup> <https://www.lb.lt/lt/komentarai/t-siaudvytis-darbo-uzmokescio-augimo-kelias-issiskyre-privaciajame-ir-viesajame-sektoriuose>

<sup>39</sup> <https://www.lb.lt/lt/komentarai/atlyginimai-ir-toliau-didejo-per-antraji-karantina-darbo-rinka-paveikta-maziau>

<sup>40</sup> <https://www.svietimoprofsajunga.lt/wp-content/uploads/2022/06/Lietuvos-svietimo-ir-mokslo-sakos-kolektyvine-sutartis-2017-11-22.pdf>

<sup>41</sup> <https://uzt.lt/wp-content/uploads/2020/03/Transporto-ir-saugojimo-sektoriaus-tendencijos-2020-03-04.pdf>

<sup>42</sup> <https://epublications.vu.lt/object/elaba:1796635/1796635.pdf>

partly due to the increase in output production. Second, the minimum wage increased at a much faster pace between 2016 and 2022, more than doubling over the last six years, compared to an increase of around 40% between 2011 and 2015. However, the ratio of average wage and minimum monthly wage reduced, meaning that average wage grew faster than minimum monthly wage. It should be noted that changes in the minimum wage do not only affect the income of minimum wage recipients but also lead employers to revise the wages of other employees to some extent, i.e. about half of the total wage distribution up to the mean. This is done for the following two main reasons: to maintain a reasonable gap between an individual's wage or salary and the minimum wage; and because the minimum wage is often used as a kind of benchmark for determining wages and salaries, changes in the minimum wage provide a bargaining counter for renegotiating wages and salaries.<sup>43</sup> It is worth noting that in the case of Lithuania, changes in the minimum wage have the strongest impact on wage growth immediately after the introduction of the new minimum wage, with the effect weakening sharply in the following years.<sup>44</sup> Therefore, an increase in the minimum wage raises the share of persons who earn the minimum wage in the economy, accelerates the growth of wages close to the minimum wage and, as a spillover effect, has an impact on the overall growth of average wages. The third important reason for the accelerated wage growth between 2016 and 2022 is the higher labour market tightness.

**One of the indicators of labour market tightness – the ratio of job vacancies to the unemployed – is currently at its highest level in the last 15 years.** The state of the labour market can be gauged by the evolution of the Beveridge curve (see Chart B). Over the last two years, when the number of unemployed persons in Lithuania has been steadily declining, the job vacancy rate has been higher than usual. This means that the labour market is becoming tighter due to labour shortages. However, if we compare the current labour market situation with that of 2007–2008, it is likely that the shortage of workers is not as severe now as it was then: the 4-quarter moving average of the job vacancy rate in Lithuania was 2.08% before the onset of the Great Financial Crisis, while it is now slightly lower, at 1.93%. This means that the number of people who could be employed now is still greater than in 2008. Moreover, compared to 2008, the unemployment rate is now higher, which, together with the high vacancy rate, may reflect structural problems in the labour market: either the education system is not preparing workers with the right skills for the labour market, or the economy is not generating jobs that match workers' skills, and the recruitment of the unemployed is not working.

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<sup>43</sup> [https://www.ecb.europa.eu/pub/economic-bulletin/focus/2022/html/ecb.ebbox202203\\_04~dd90d8dbde.en.html](https://www.ecb.europa.eu/pub/economic-bulletin/focus/2022/html/ecb.ebbox202203_04~dd90d8dbde.en.html)

<sup>44</sup> [https://www.lb.lt/uploads/publications/docs/34731\\_fa847dc1148c514f7874971b4011ad30.pdf](https://www.lb.lt/uploads/publications/docs/34731_fa847dc1148c514f7874971b4011ad30.pdf)

Chart B. Lithuanian Beveridge curve (4-quarter moving averages)



Sources: Eurostat, Statistics Lithuania and Bank of Lithuania calculations.

## 5. External sector

**In the first half of 2022, Lithuania's export and import volumes continued to grow, but foreign trade volumes increased at a slower pace and are expected to decline in the second half of the year.** Based on seasonally adjusted national accounts data, real exports of goods and services increased by 4.2% and imports by 4.6% in the first half of 2022, compared to the second half of 2021. External demand for Lithuanian exports declined slightly in the first half of the year, but growth in exports remained positive due to a growing market share in trade in goods with the EU. In the first half of 2022, trade in goods was the main contributor to export growth, while trade in services declined. Exports of agricultural and food products have increased significantly, while the chemical industry also performed well. The increase in Lithuania's foreign trade in goods was supported by the re-export of mineral and energy products to EU countries in January-April, offsetting most of the decline in trade with the Commonwealth of Independent States. Imports continued to grow at a similar pace to the previous half-year, with mineral and energy products being the main growth driver in the first half of 2022. Imports of almost all other commodity groups increased at a slower pace, including investment goods, which are linked to future developments. Further developments in the external sector are closely linked to developments in the global economy, which remains shrouded by heightened uncertainty. Weakening growth of Lithuania's main trading partners will dampen demand for exports of Lithuanian goods and services, while higher commodity and energy prices will have a negative impact on import developments. The Bank of Lithuania forecasts that exports will grow by 6.4% and imports by 7.5% in 2022.

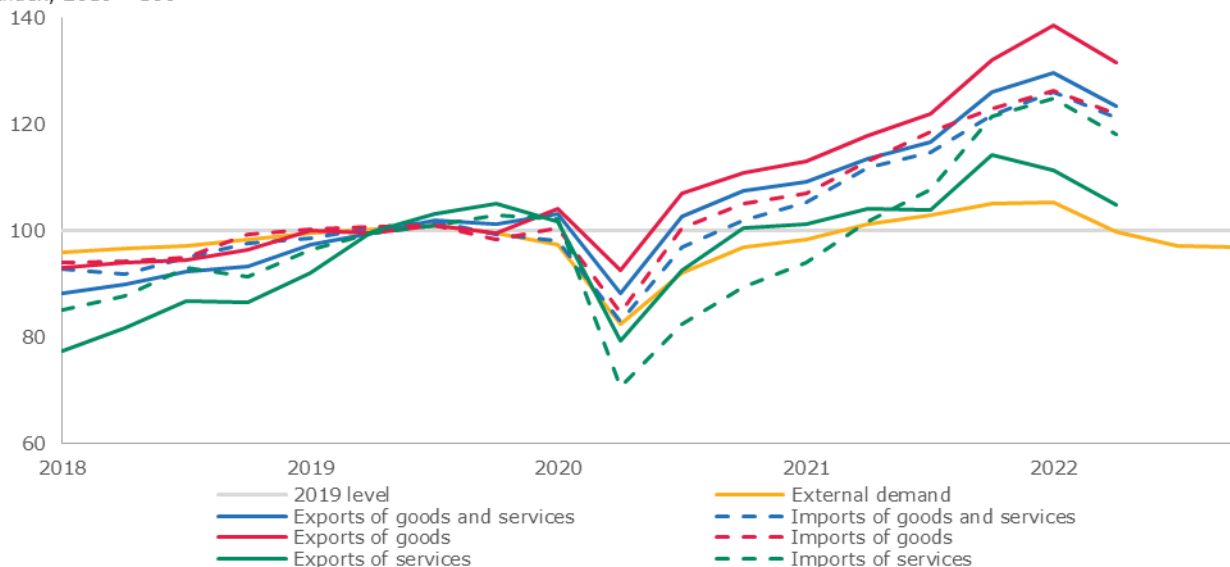
**The slowdown in global economy will negatively affect (reduce) the demand for goods and services produced in Lithuania.** Economic forecasts for 2022 are downgraded in many countries due to the negative impact of Russia's war against Ukraine on the global economy, higher inflationary pressures and risks associated with central bank interest rate hikes. Slower global economic growth will also slow down the development of world foreign trade, which will reduce foreign demand for Lithuanian goods and services (see Chart 12). Demand for Lithuanian exports has been declining since the second quarter, and a return to growth can only be expected in 2023. Accordingly, exports are expected to decline in the second half of the year and to grow at a slower pace in early 2023. This will have a direct impact on imports due to lower demand for raw materials, intermediate goods and capital goods, production of goods for export, and production capacity expansion. Import growth will slow down but will be positively influenced by domestic demand for mineral and energy products in the second half of 2022.

**The deteriorating global economic outlook in the second half of 2022 is leading to a decline in external demand for Lithuanian goods and services, which is negatively affecting export growth.**

Chart 12. Dynamics of Lithuania's foreign trade and external demand

(at constant prices, seasonally adjusted data)

Index, 2019 = 100



Sources: ECB, Statistics Lithuania, Bank of Lithuania and Bank of Lithuania calculations.

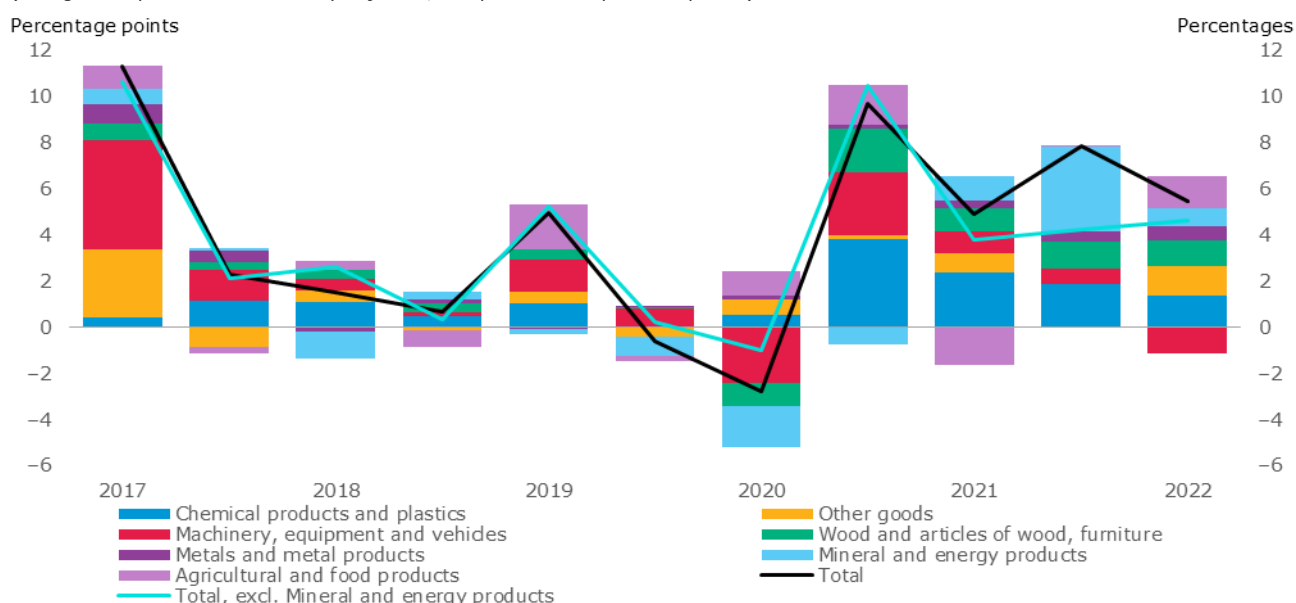
**Following a fall in supply of agricultural and food products and an increase in prices on world markets as a result of Russia's war against Ukraine, Lithuania has expanded its exports of agricultural and food products.** In the first half of 2022, at constant prices, agricultural and food products had the largest impact on the growth of commodity exports (see Chart 13). Exports of food products (e.g. milk and dairy products, food industry residues and animal feed) increased significantly in the second quarter.

**The chemical industry experienced various difficulties in this period.** Exports of anti-COVID-19 pandemic products fell due to subdued demand, while exports of fertilisers decreased due to the suspension of production by AB LIFOSA and a significant increase in the price of natural gas used in fertiliser production. Nevertheless, exports in this sector grew only slightly less than in the previous half-year. This was due to increased exports of rubber and plastic products, pharmaceuticals and enzymes. The suspension of AB ACHEMA operations due to cost increases is likely to lead to a further decline in fertiliser exports in the second half of the year. The suspension of production at AB LIFOSA will also contribute to this decline.

## Exports of all commodity groups except machinery, equipment and transport equipment increased in the first half of 2022.

Chart 13. Growth factors of real exports of goods

(change in export levels seasonally adjusted, compared to the previous period)



Sources: Statistics Lithuania and Bank of Lithuania calculations.

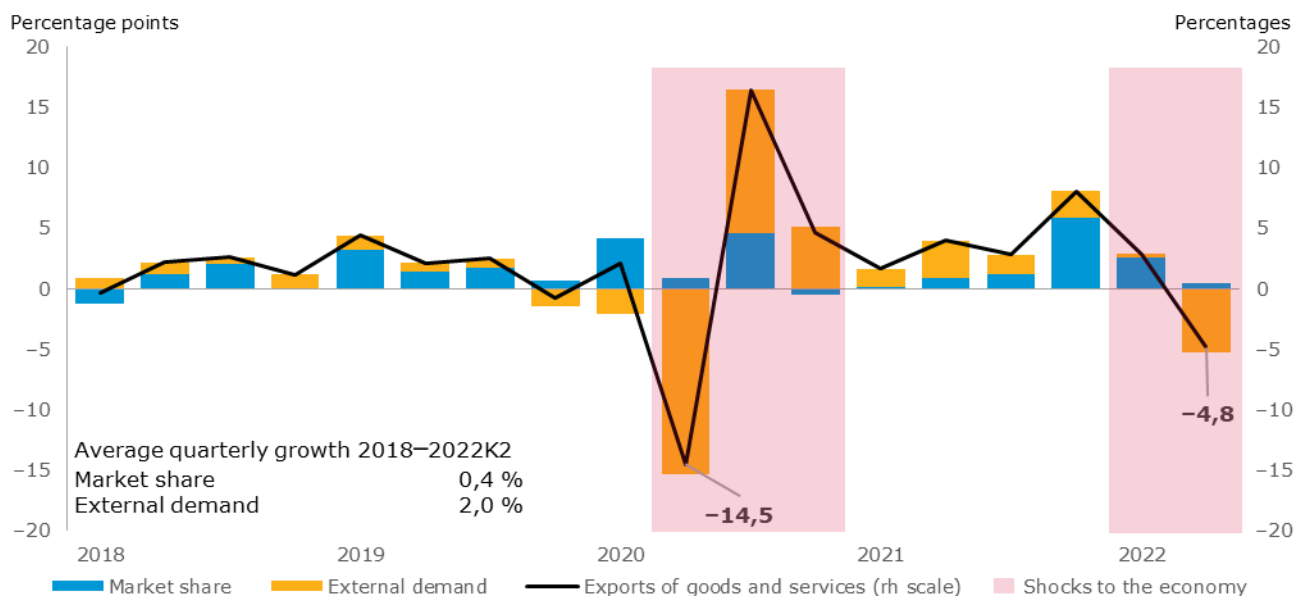
**Even in the face of disruptions in the supply of raw materials from Russia, Ukraine and Belarus, Lithuania's share of the export market has been growing.** Lithuania's share of the world merchandise export market declined in the third and fourth quarters of 2021, before increasing again in the first quarter of 2022. As the impact of the pandemic softened, the market share of trade in COVID-19 pandemic response products was lost, but Lithuania's trade in minerals and energy products increased considerably in early 2022. This is due to the re-export of gas imported via the Klaipėda LNG terminal. Despite the decline in Lithuanian exports in the second quarter of 2022 compared to the previous quarter (see Chart 14), Lithuania's market share in the world increased, albeit moderately. This is due to a larger fall in demand for Lithuanian goods and services. The loss of competitiveness due to the strong increase in energy prices will significantly limit the growth of export market shares in the short term.



**Lithuania's exports have historically grown faster than external demand, but the gap between the two has narrowed in the second quarter of 2022, indicating a stagnation in market share growth.**

Chart 14. Changes in Lithuanian exports, external demand and market shares

(at constant prices, seasonally adjusted data, quarterly change)



Sources: ECB, Statistics Lithuania and Bank of Lithuania calculations.

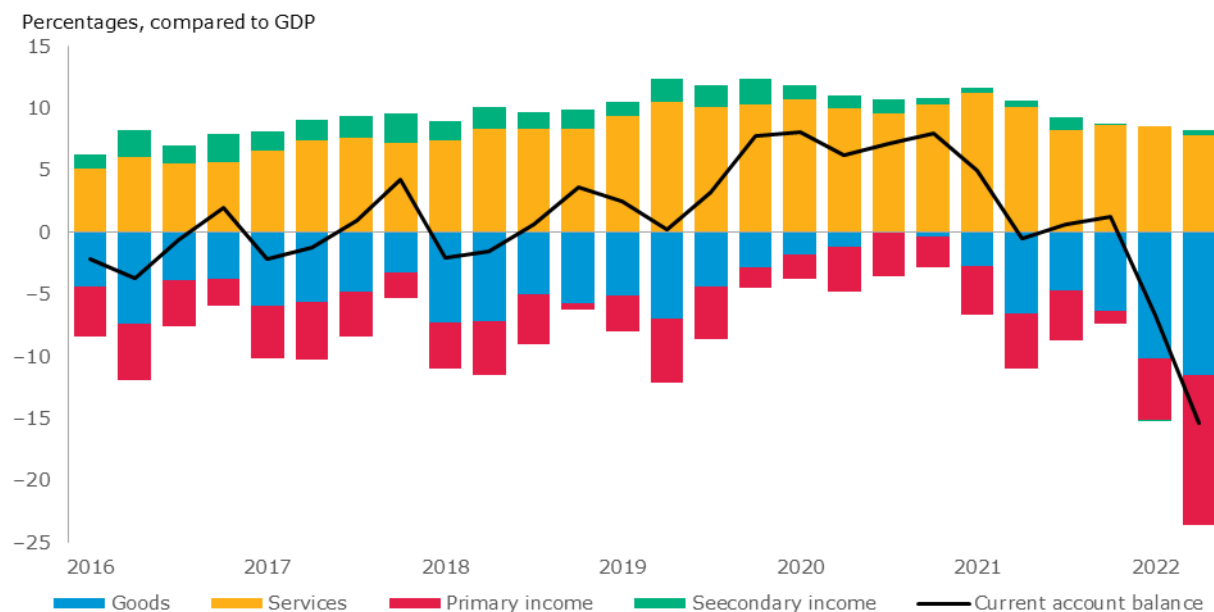
Note: The shock to the economy marks the observations made during the COVID-19 pandemic and the war in Ukraine.

**Trade in services fell in the first half of 2022, but not significantly.** The level of services exports went up considerably in the fourth quarter of 2021 but fell again in early 2022. These fluctuations are linked to the evolution of exports of transport services. Freight volumes suggest that a decline in exports of rail and maritime transport services can be expected in the first half of 2022, while the level of exports of road freight transport services is expected to go down less. These changes are related to trade restrictions with Russia and Belarus. Meanwhile, imports of services have continued to increase, albeit at a slower pace, with transport services accounting for most of the growth. Their share in the structure of imported services continues to grow, which can be linked to the entry into force of the mobility package requirements for the regular return of trucks to their country of origin.

## The widening of the current account deficit was mainly due to one-off factors.

Chart 15. Structure of Lithuania's current account balance

(nominal, seasonally adjusted data)



Sources: Statistics Lithuania, Bank of Lithuania and Bank of Lithuania calculations.

Note: The data for the second quarter of 2022 are based on the monthly balance of payments data.

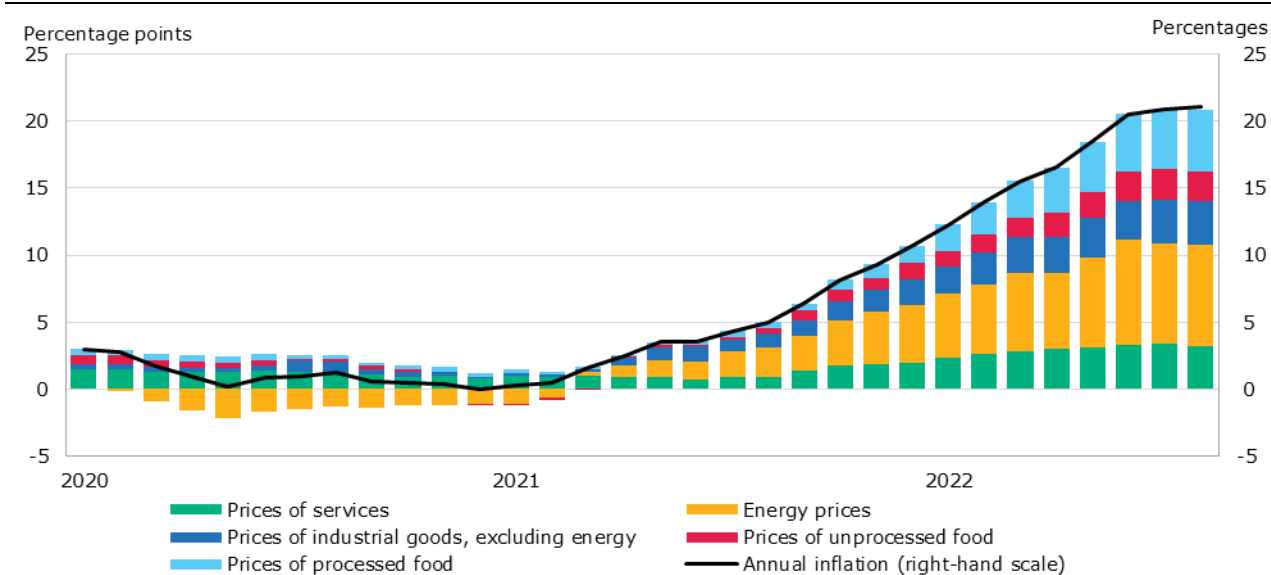
**Lithuania's current account deficit fell to historical lows in the second quarter of 2022, mainly due to one-off factors.** In the first quarter of 2022, the current account deficit widened, mainly due to trade in goods (see Chart 15). The rise in energy prices and the need to change sources of their supply as a result of the war in Ukraine have significantly increased the value of nominal imports. With exports continuing to grow at a slower pace than imports and rising prices exerting a stronger pressure on import prices, net exports declined. In the second quarter of 2022, the same factors led to a slight drop in net exports and a widening of primary income deficit. It is mainly driven by dividends paid by Lithuanian businesses to foreign investors (€1.6 billion according to preliminary data). The Lithuanian economy has been flourishing over the past few years and economic activity has not slowed down even in the face of the pandemic. The increase in profits determined by this growth allowed for increased production capacity, active implementation of automation processes and research, and the expansion of products or services offered. In June, market participants distributed part of their profits to foreign investors, which greatly widened the primary income deficit on the balance of payments. The current account balance will remain in deficit in the coming months and over the projection horizon. This will be mainly driven by the external trade balance, as well as declining current transfers from abroad.

## 6. Prices

**Russia's war against Ukraine has added to the pressure on inflation, which was already significantly increased before the war.** Annual inflation in Lithuania stood at 14% in February and 21.1% in August (see Chart 16). The increase in annual inflation was mainly due to higher energy and food prices. While global prices of some commodities such as oil, food and metals are currently depressed compared to their peak at the outbreak of the war, record high energy prices will push up both energy prices for consumers and the cost of other consumer goods and services. Against this background, average annual inflation is projected at 18.3% in 2022 and 8.4% in 2023.

**Inflation in Lithuania is mainly driven by rising energy prices.**

Chart 16. HICP inflation and its contributions

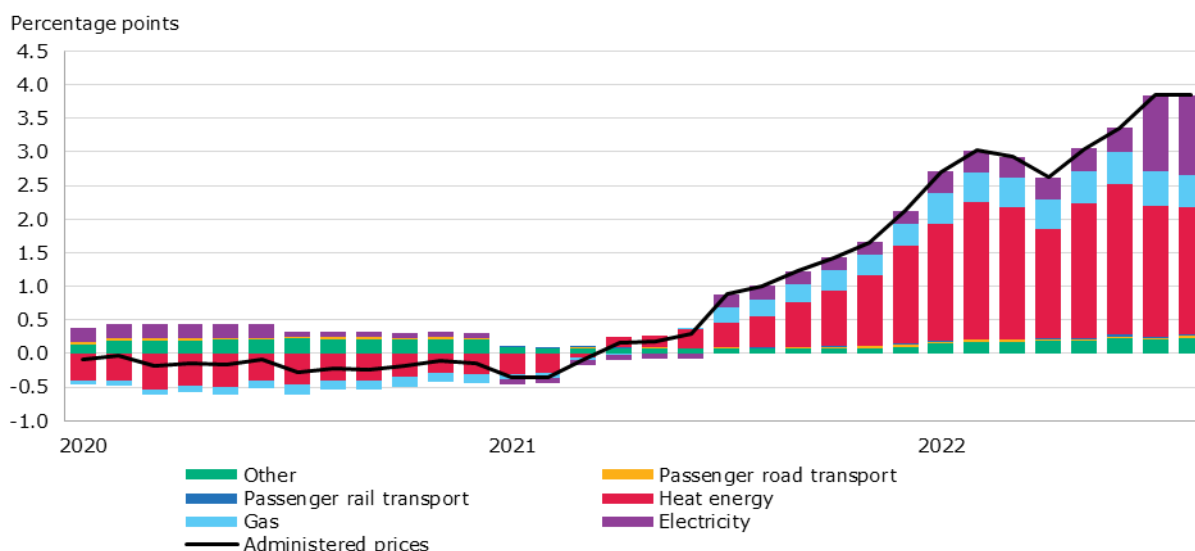


Sources: Statistics Lithuania and Bank of Lithuania calculations.

**Rising energy prices continue to be the main driver of inflation. They directly reflect the turmoil in energy markets caused by Russia's war against Ukraine.** With Russia restricting gas supplies to Europe and threats of possible gas shortages in winter, gas prices in Europe averaged around €236/MWh in August, more than five times higher year on year. Following the increase in natural gas prices on the market, gas prices for consumers were also revised upwards, which were 74% higher in August than a year ago. The use of gas as a feedstock for electricity generation has also contributed substantially to the rise in electricity prices on the market: electricity prices on the Nord Pool exchange in August were more than five times higher than in August last year. This also led to a rise in electricity prices for consumers, with electricity prices for consumers being up by 63% year on year in August. Heat energy prices are also affected by the changes in gas prices on the market, as gas is used to produce heat energy as well. Taking into account the prices of purchased biofuels and gas, heat energy prices rose by 89% year on year in August, contributing 1.9 percentage points to headline inflation. Of all administered prices, heat energy had the highest impact on annual headline inflation (see Chart 17). The increase in gas prices on the market led to a peak in demand for solid fuels, which mainly consist of wood, as an alternative energy source. This further boosted the already rapid rise in solid fuel prices, with solid fuel prices rising by 166% year on year in August. However, not all energy markets have seen recent price increases. Fears of a recession and a possible drop in demand have pushed oil prices down from USD 118 per barrel in June to USD 98 per barrel in August. The fall in oil prices was accompanied by a decline in the annual growth of fuel prices, which was 38% in August.

**Of the administered prices, heat energy prices have the largest impact on annual headline inflation.**

Chart 17. Impact of administered prices on annual headline inflation

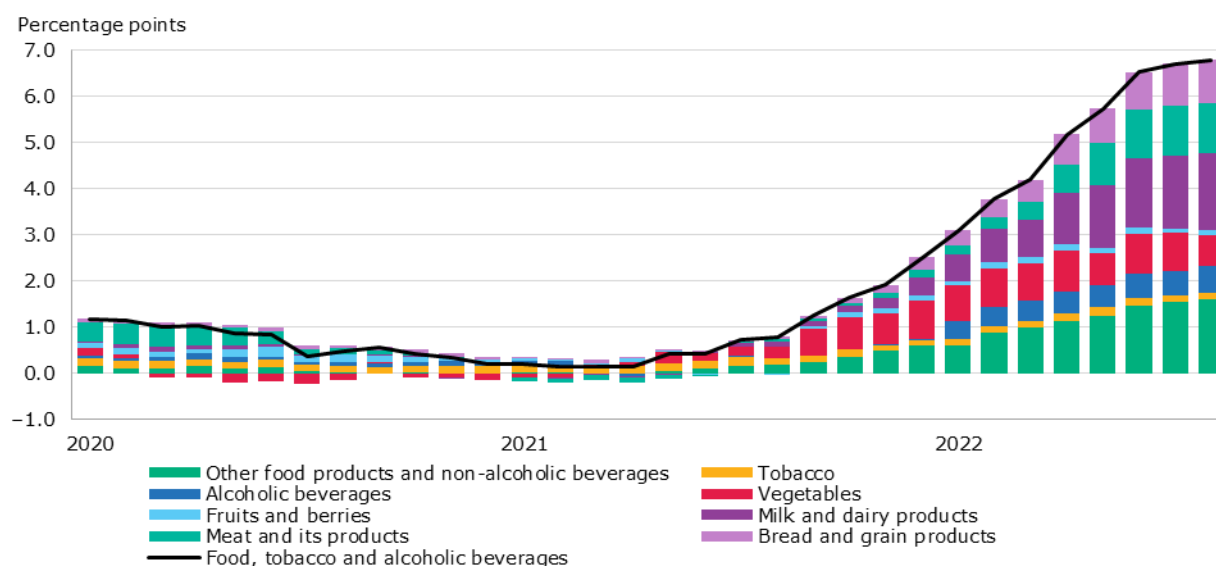


Sources: Statistics Lithuania and Bank of Lithuania calculations.

**Accelerating food prices have been a major contributor to the rise in inflation in recent months.** In August, food prices were almost one-third higher than in the same period a year ago, and as food accounts for around one-fifth of the consumer basket, the change in food prices has a significant impact on headline inflation. Dairy products, oils and other fats were among the food groups that have become particularly expensive, their prices in August were 47% and 40% respectively higher compared to the same period a year ago. The rise in dairy prices alone, mainly driven by a 76% year-on-year increase in milk farm-gate prices, contributed 1.7 percentage points to headline inflation in August (see Chart 18). In general, food price inflation is determined by the acceleration of global food commodity prices, which had already started to rise last year and went up even higher following the outbreak of the war. In addition to steep food commodity prices, other factors that increase the cost of food, such as higher prices for energy, fertilisers and animal feed, and rising wages, are also driving up food prices. However, global food commodity prices fell in August and were already only 8% higher than in the same period a year ago (23% in June). However, changes in raw material prices are not immediately felt by consumers. Moreover, while global food commodity prices have fallen compared to their peak at the outbreak of the war, the costs of food products will be significantly affected by inflated energy prices, therefore, food prices are expected to rise further.

## The increase in dairy prices is the main contributor to the rise in food prices.

Chart 18. Impact of food prices on annual headline inflation



Sources: Statistics Lithuania and Bank of Lithuania calculations.

**The development of the components of underlying inflation is different, with more upward pressure on prices of industrial goods than those of services.** The rise in energy and metal prices following the outbreak of war and the price of shipping by sea containers, which hit a record high in the third quarter of 2021, are pushing up the cost of producing goods. In August, producer output prices for manufacturing, excluding refined petroleum products, were around 30% higher than a year ago. This is passed on to prices of final consumer goods, with the annual price growth of 9.5% in August for non-energy industrial goods. The increase in producer prices will continue to affect the development of prices of industrial goods in the future, as the current decline in prices of metals and shipping by sea containers will not be reflected in producer prices for some time. In addition, their impact will be dampened by higher energy prices. The prices of another component of core inflation, i.e. services which are strongly linked to domestic economic developments, rose at an annual rate of 12.8% in August, similar to the 12.7% rate in July. This was significantly influenced by the increasing effect of a higher comparative base. The annual growth of prices of services should start to moderate following a slowdown in Lithuania's economic activity and driven by base effects.

### Box 4. What are the drivers of inflation and what do they say about the appropriateness of measures to mitigate inflation and its effects

As Lithuania is still recording a surge in inflation and the situation in the gas and electricity markets is posing new challenges, it is crucial to understand the drivers of inflation. Identifying these factors and assessing the extent of their impact can provide valuable insights for decision-making on measures to mitigate inflation and its effects.

**This box examines the drivers of inflation in Lithuania using regression analysis based on the specifications of Phillips curve models.<sup>45</sup> Both headline and core<sup>46</sup> inflation were analysed**

<sup>45</sup> The analysis is based on Benkovskis K., Kulikov D., Paula D. and Ruud L. (2009). Inflation in the Baltic countries. Occasional Paper Series, No 1–2. Online source: [here](#).

<sup>46</sup> Core inflation is the change in the HICP index excluding the most volatile components, such as energy, food, alcohol and tobacco.

separately, so the HICP<sup>47</sup> index and the HICP sub-index for core inflation<sup>48</sup> were used as dependent variables. In the econometric models of inflation factors, factors reflecting inflation inertia and expectations, demand pressures and supply shocks were included as independent variables. More specifically, the empirical models of Phillips curves are specified by including the following independent variables: (1) inflation lags, which are usually associated with inflation inertia; (2) a cyclical demand factor, represented by the variables of the output gap, the unemployment rate or labour market tightness;<sup>49</sup> (3) a set of variables reflecting supply shocks which can help explain the volatility of inflation, which is mainly due to external factors, such as changes in the prices of energy, food commodities, or imported prices; and (4) inflation expectations.<sup>50</sup> The models are estimated using quarterly data from 2010 to 2021.<sup>51</sup>

**The headline inflation model reveals a significant influence of external factors.** In order to assess the impact of external factors, the EU price index for food, including alcoholic beverages and tobacco (food.EU, COICOP code CP01), the price indices for imported energy (imp.energy), imported durable (imp.durable) and nondurable consumer goods were included as variables in the headline inflation model, and the variable for the unemployment rate (unemployment) was added to capture the cyclical demand factor.<sup>52</sup> The model also included the expectations variable and inflation lags. After removing the insignificant variables, the following equation was found to best describe headline inflation:

$$\text{inflation}_t = -0,004 + 0,51\text{inflation}_{t-2} - 0,34\text{inflation}_{t-3} - 0,04\Delta\log(\text{unemployment})_{t-1} + 0,35\Delta\log(\text{food.EU})_{t-1} + 0,17\Delta\log(\text{imp.durable})_{t-1} + 0,03\Delta\log(\text{imp.energy})_{t-1} + \varepsilon_t.$$

The model shows that a 1% increase in the quarterly growth rate of unemployment leads to a 0.04% decrease in quarterly inflation<sup>53</sup>, and vice versa: a 1% decrease leads to a 0.04% increase in quarterly inflation. The declining unemployment rate reflects the improving cyclical situation of the economy, with rising economic activity leading to higher demand for goods and services and faster price increases. Global prices of food, energy and other raw materials are also important for consumer prices in Lithuania, as changes in the former affect the cost of production, and hence the final prices of products that reach consumers. The impact of these factors on inflation in Lithuania is assessed by including in the model the price indices for EU food prices, imported consumer durables and imported energy, the coefficients of which are statistically significant in the regression equation above. It is estimated that a 1% increase in the growth rate of imported consumer durables leads to a 0.17% increase in quarterly inflation, and a 1% increase in the growth rate of imported energy leads to a 0.03% increase in quarterly inflation. However, it is important to note that a low coefficient value does not imply that the impact of imported energy prices on inflation is negligible, as the impact also depends on the magnitude of the change in the independent variable itself, namely the price of imported energy. Given the recent rapid rise in imported energy prices, energy price increases have been the main driver of inflation over the past couple of years (see Chart A). The EU food price impact estimates show that a 1% increase in the growth rate of EU food prices rate leads to a 0.34% increase in inflation in Lithuania. However, the high value of the coefficient is viewed critically, as it is likely to include some impact from other factors.<sup>54</sup> Moreover, the high value of

<sup>47</sup> COICOP (Classification of individual consumption by purpose) code – CP00.

<sup>48</sup> COICOP code – TOT\_X\_NRG\_FOOD.

<sup>49</sup> The labour market tightness indicator is calculated as the ratio of job vacancies to the unemployed.

<sup>50</sup> Residents' opinion on the extent to which prices will change in the next 12 months (results of the consumer survey, data from Statistics Lithuania).

<sup>51</sup> To ensure the stationarity of the time series used in the analysis, they were logarithmised (except for the labour market tightness and the output gap indicators), and the various model specifications were estimated by taking the first differences in the logarithmised series, which can in principle be interpreted as the growth rates of the respective indicators. Seasonality was removed from the variables on the basis of dummy variables.

<sup>52</sup> As the cycle is usually measured through the output gap, the output gap variable was included in the equation in the initial estimation, but the output gap variable was replaced by the unemployment rate variable, taking into account the criteria of robustness of the model and the correctness of the economic signs.

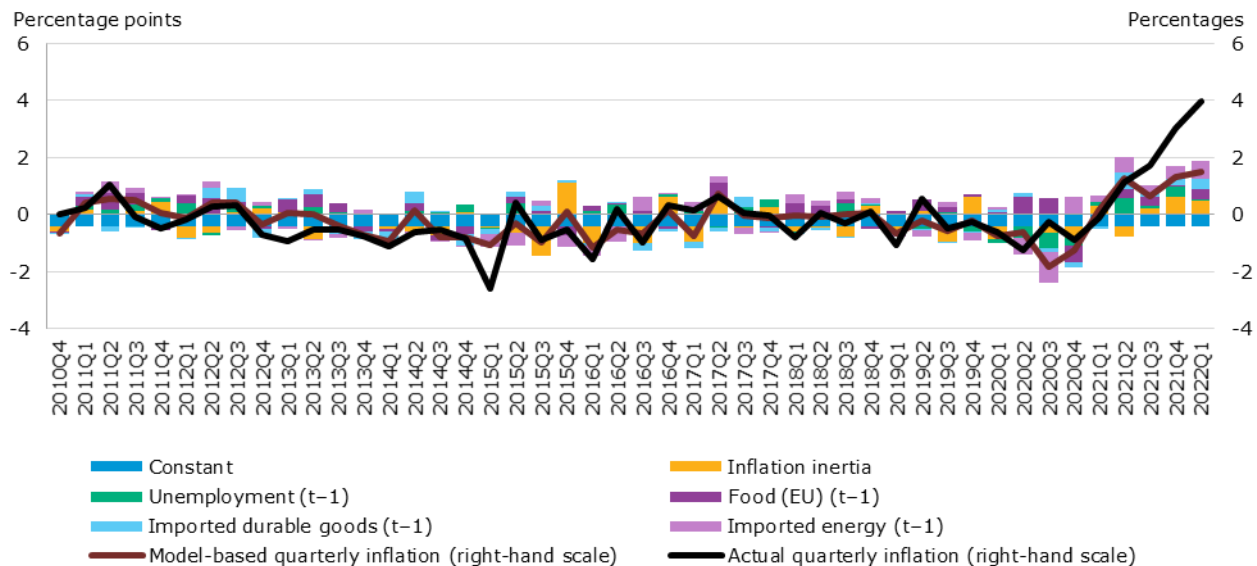
<sup>53</sup> Quarterly inflation measures changes in consumer prices over a quarter.

<sup>54</sup> Although the Variance Inflation Factor (VIF) multicollinearity test did not detect multicollinearity.

the coefficient does not imply that food price increases in the EU have been the main driver of inflation (see Chart A). Note, also, the clear increase in the share of inflation not explained by the model towards the end of the period under review, which confirms the uniqueness of the rise in inflation that started in mid-2021.

### Over the past two years, imported energy prices have been the main driver of inflation.

Chart A. Breakdown of quarterly headline inflation



Sources: Eurostat, Statistics Lithuania and Bank of Lithuania calculations.

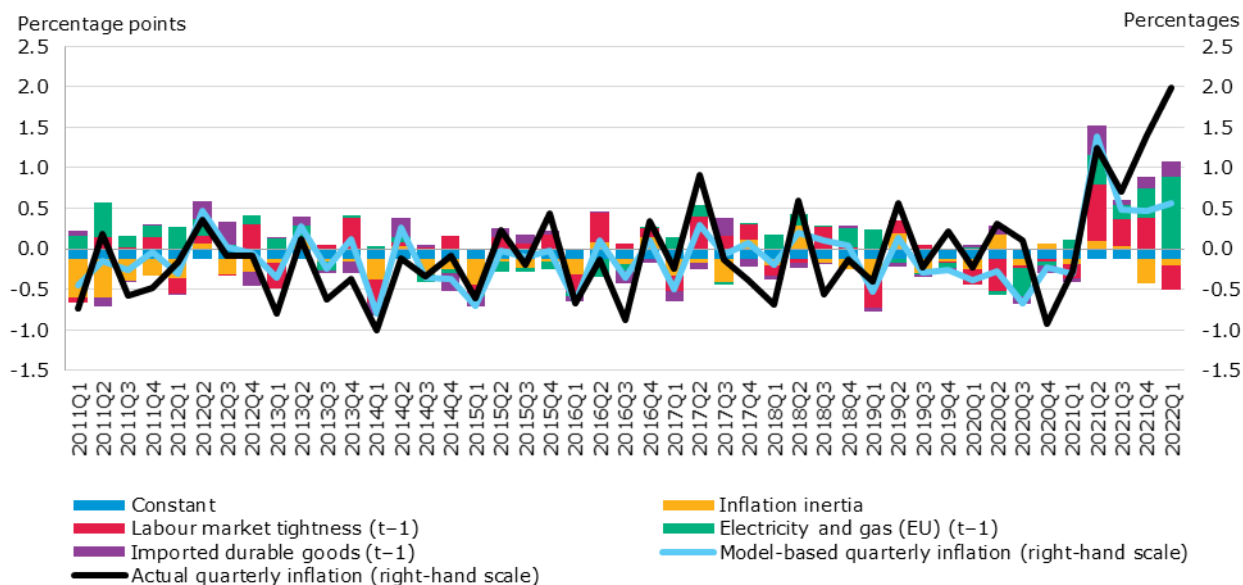
**Core inflation is significantly affected by domestic factors.** In line with the relevance criteria of the model, labour market tightness (tightness) was included as a proxy variable for cyclical demand, while the influence of external factors was assessed using the EU electricity and gas price index (el.gas.EU, COICOP code CP045), and the price indices for imported consumer durables (imp.durables) and consumer non-durables. The core inflation (core.inflation) model also included the price index for food, including alcoholic beverages and tobacco, but for Lithuania (not for the EU, as in the case of headline inflation). The model also includes the expectations variable and inflation lags. After removing the insignificant variables, the following model equation is found to describe core inflation:

$$core.inflation_t = -0,001 + 0,32core.inflation_{t-4} + 0,09\Delta tightness_{t-1} + 0,09\Delta \log(el.gas.EU)_{t-1} + 0,10\Delta \log(imp.durables)_{t-1} + \varepsilon_t.$$

As expected, changes in labour market tightness are found to have a major impact on inflation, with a 0.01 increase in the labour market tightness indicator resulting in a 0.09% increase in quarterly core inflation. Given the actual evolution of the independent variables in the model, the labour market tightness indicator has been the main determinant of core inflation for most of the period under review (see Chart B). In other words, this result shows that the dynamics of core inflation is significantly influenced by the country's position in relation to the business cycle phase, especially in terms of the labour market situation. Core inflation responds similarly to changes in the other identified significant variables: a 1% increase in the growth rate of electricity and gas prices in the EU leads to a 0.09% increase in core inflation, while a 1% increase in the growth rate of imported consumer durables leads to a 0.1% increase in core inflation. However, the impact of electricity and gas prices on core inflation was the strongest in the first quarter of this year, when energy prices were rising rapidly.

**Core inflation is mainly driven by domestic factors, i.e. labour market tightness, represented by the cyclical demand factor.**

Chart B. Breakdown of quarterly core inflation



Sources: Eurostat, Statistics Lithuania and Bank of Lithuania calculations.

**The insights gained from this analysis could be useful in considering and selecting appropriate measures to reduce inflation and mitigate its impact on individuals and businesses.** The

regression analysis shows that over the last couple of years headline inflation has been mainly influenced by external factors (imported energy prices), but domestic factors have also contributed to its increase (especially core inflation). Taking into account the drivers of inflation revealed by the regression analysis, it appears that the ability of the Lithuanian authorities to effectively influence external factors is limited, but they may affect domestic factors. When considering domestic factors, there is often a temptation to combat inflation by reducing certain tax rates (e.g. VAT), but international practice and insights from economic literature show that the impact of tax rate cuts on the final consumer is small,<sup>55</sup> but in fiscal terms it usually leads to a significant loss of income. It would therefore be more rational to focus efforts on mitigating the impact of inflation on individuals and businesses. It is noteworthy that this should not be done through measures that would increase labour market tightness (e.g. through excess support or excess spending, which would strongly increase domestic demand), because the analysis shows that high labour market tightness is a significant contributor to inflation.

In the short term, the following principles are proposed for considering measures to address the current high inflation and its impact: (1) to pursue a focused social policy, channelling resources to the most vulnerable; (2) to improve systemic and automatic social support mechanisms, whereby support reaches the population only when their living conditions meet pre-defined criteria; (3) energy price increases enhance incentives to use less energy and/or to do so more efficiently and existing measures should not eliminate these incentives; (4) fiscal measures should not lead to excess demand in the economy as it fuels inflation; (5) propose improvements to the Nord Pool exchange algorithm; (6) energy shock affects businesses differently, therefore, when considering support for businesses, the focus should be on the most energy-dependent and affected sectors; the time factor is important, the major shock started in July this year. In the longer term, it is proposed to: (1) invest in electricity generation to decouple

<sup>55</sup> Benedek R., Mooij R., Keen M. and Wingeder Ph. (2015). Estimating VAT Pass Through. Working Paper Series, 15/214. Online source: [here](#).



electricity prices in Lithuania from fossil fuels; and (2) encourage lower energy consumption by increasing the country's energy efficiency.

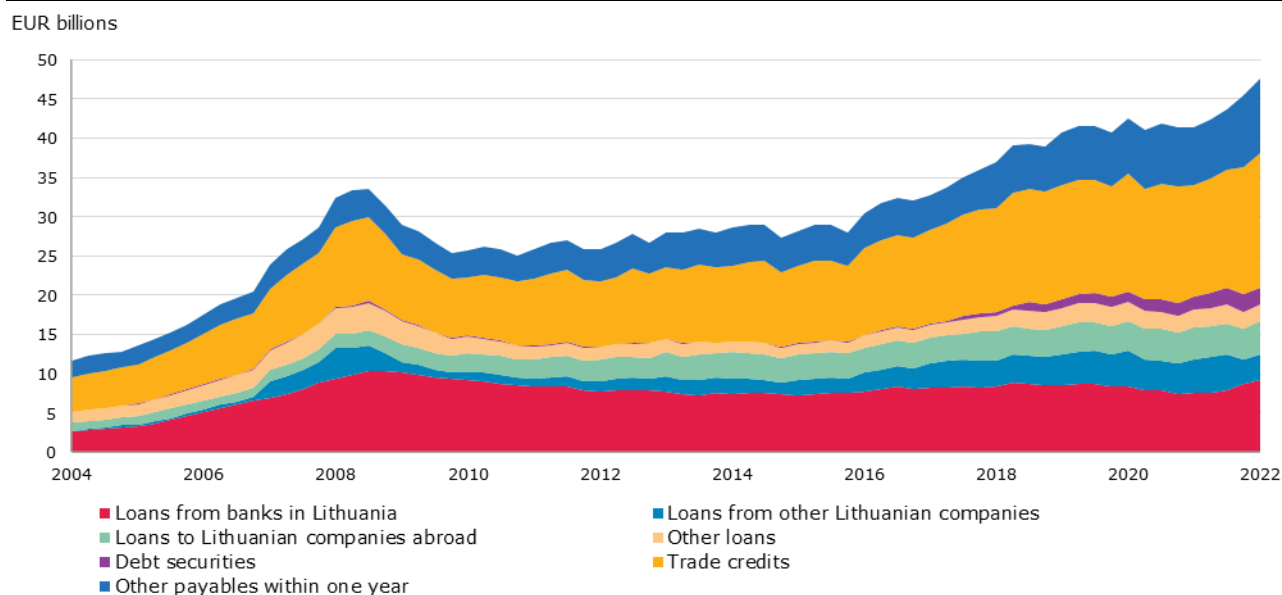
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## 7. Financing of the economy

**With inflation rising rapidly, financial liabilities of NFCs and households have been growing at an accelerating pace, but uncertainty about credit developments is exacerbated by the risk of a slowdown in economic activity due to the war.** According to the latest data from the Bank of Lithuania, in the first quarter of 2022, financial liabilities of Lithuanian residents amounted to €15.2 billion and increased by 9.9% on a half-yearly basis (the annual growth of financial liabilities of households stood at 15.7%.) The main contributor to the overall increase in household financing was a significant increase in financing from financial institutions: in the first quarter of 2022, the amount of loans held by households was 12.8% higher than a year ago. During the period under review, financial liabilities of NFCs increased by 8.9% on a half-yearly basis to €47.6 billion (the annual growth of corporate financial liabilities stood at 14.9%) (see Chart 19). Trade credit financing of companies grew significantly, mainly driven by deferred settlements with Lithuanian households and foreign residents, which increased by 41.6% and 38.9% respectively year on year. In the first quarter of 2022, compared to the corresponding quarter of the previous year, financial assets of households grew at a faster pace than their liabilities, resulting in a 3.1% increase in net financial assets (the difference between financial liabilities and assets). Financial liabilities of NFCs grew faster than their financial assets over the same period: the steady decline in deposits of NFCs since the beginning of 2022 is mainly due to the fact that companies have been replenishing their stock which was depleted during the pandemic, paying more for imported raw materials and products due to higher inflation, and the government support measures to businesses provided during the pandemic are nearing the end. As a result, the net financial assets of NFCs fell by 81.3%.<sup>56</sup> High inflation and diminishing funds accumulated by companies during the COVID-19 pandemic are likely to continue to condition bigger demand for credit for working capital in the future, but the uncertainty caused by the war and the risk of a slowdown in economic activity may lead to a reduced need of companies to borrow for investment purposes.

**Corporate financing has increased significantly, especially in the non-bank sector.**

Chart 19. Structure of NFC liabilities



Source: Bank of Lithuania.

<sup>56</sup> Excluding listed and unlisted shares, financial liabilities of NFCs exceeded their financial assets by €3.7 billion in the first quarter of 2021 and by €6.7 billion in the first quarter of 2022 (net financial assets were negative).

**With the flows of lending for house purchase, consumption and other purposes following an upward trend, the portfolio of loans granted by MFIs to households moved along the same path in the second quarter of 2022.** The flow of new loans to households granted by MFIs in the second quarter of 2022 was 15.0% higher than in the previous quarter and 24.0% higher than the average quarterly flow in 2021. The increasing flow of loans was mainly driven by consumer and other loans, which grew by 40.0% during the second quarter of 2022 in the context of historically high inflation and as newcomers enter the consumer loan market. The flow of new housing loans was 7.0% higher in the period under review compared to in the first quarter of 2022. The increase in these loans in the recent months was mainly a result of the rapid rise in house prices and the need to borrow bigger amounts. As the flow of loans to households increased, the growth of the portfolio of loans to households granted by MFIs also accelerated: the portfolio was 11.5% bigger in June 2022 than a year ago (0.2 percentage points bigger than in March) (see Chart 20). The growth of the portfolio was underpinned by housing loans, which grew at the annual rate of 12.2%, i.e. 0.1 percentage points lower than in March, but still one of the fastest rates since 2009. The annual growth rate of the portfolio of consumer and other loans stood at 8.5% over the same period (2.1 percentage points higher than in March). The number of housing, consumer and other loans granted during the period was 7.3 and 123.9 thousand respectively, and their average amount was €81.2 and €4.0 thousand respectively. Compared to the same period a year ago, the number of housing loans decreased by 10.1% and their average amount increased by 18.0%. The number and average amount of consumer and other loans increased by 19.1% and 2.7% respectively.

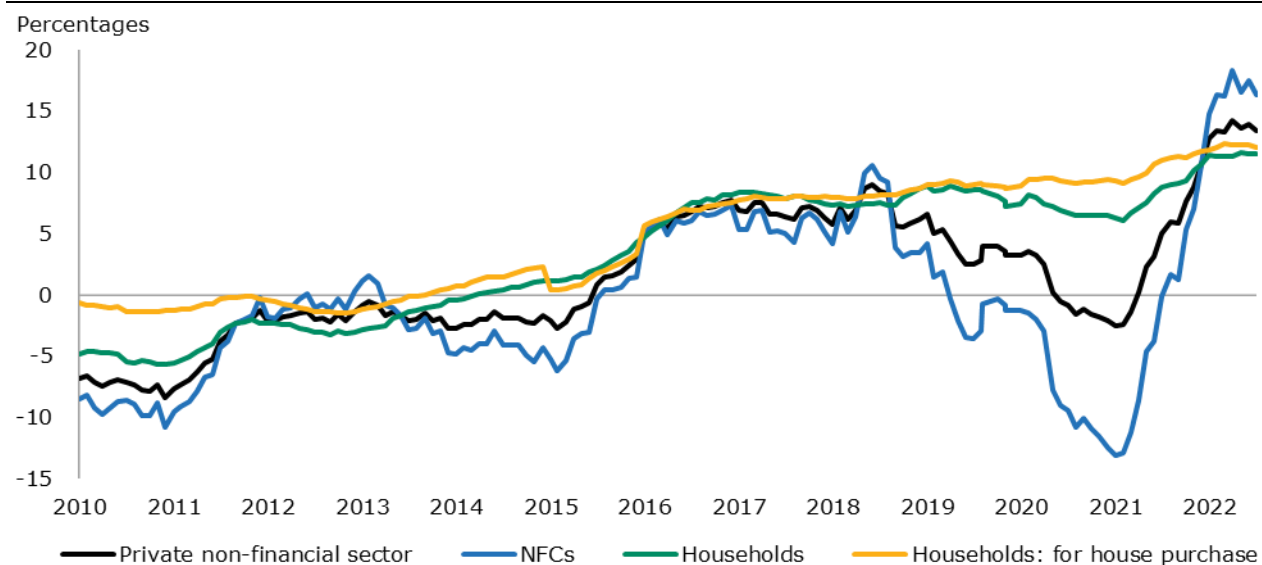
**The growth of the portfolio of loans granted by MFIs to NFCs in the second quarter of 2022 was even more explosive than in the first quarter, both due to an increase in new loan flows and to the low comparative base effect.** In the second quarter of 2022, the flow of loans granted by MFIs to NFCs increased and was 38.9% higher than in the first quarter and 24.2% higher than the average quarterly flow in 2021. Although business expectations are still muted due to heightened uncertainty, the flow of new loans remains elevated, supported by the termination of government assistance and the greater need for working capital due to price increases. The total portfolio of loans granted by MFIs to NFCs in June 2022 was 17.5% higher year on year (1.3 percentage points higher than in March).<sup>57</sup> The main contributors to the annual growth rate of the total portfolio were the portfolios in the transport and storage, electricity, gas, steam and air conditioning sectors, which grew by 45.5% and 44.9% respectively. The number of loans granted to NFCs during the period amounted to 9,200, with the average amount of €126.9 thousand. Compared to the same period a year ago, the number of loans to NFCs went down by 13.0% and their average amount increased by 14.7%.

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<sup>57</sup> The accelerated growth is partly due to the merger of the group's business leasing subsidiary OP Finance into OP Corporate Bank in October 2021. Removing this factor would result in a 5.6 percentage point lower annual growth of the loan portfolio of NFCs that would amount to 11.9% in June 2022.

**The continued rapid growth in housing credit is driving the rapid pace of household financing, while the corporate loan portfolio continued to grow strongly in the second quarter of 2022.**

Chart 20. Annual growth of the portfolio of MFI loans granted to NFCs and households



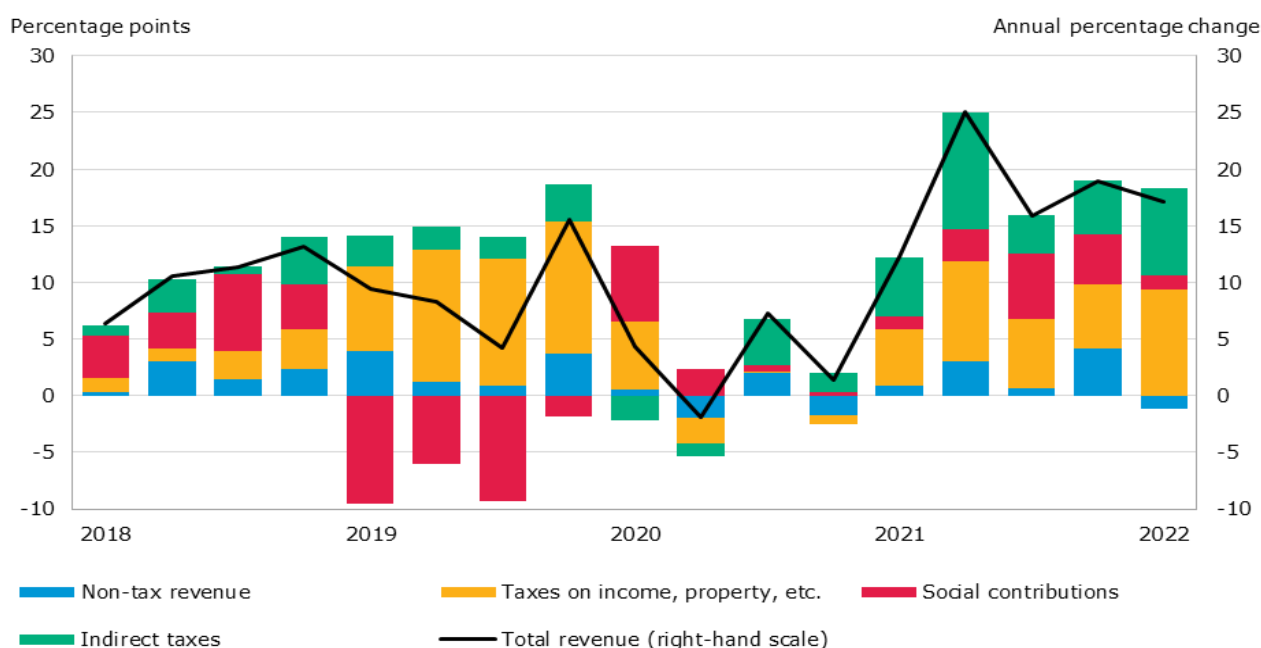
Sources: Bank of Lithuania and Bank of Lithuania calculations.

## 8. General government finance

**The surplus on the general government balance in the first quarter of 2022 was larger than in the first quarters of the previous year due to the continued strong revenue growth.** The surplus was driven by a markedly faster increase in government revenue as opposed to expenditure (see Chart 21). The main reasons for the growth in revenues are described below. First, the macroeconomic indicators that have a significant impact on tax collection increased rather considerably in the first quarter, with a pick-up in household consumption expenditure, which in turn benefited from higher wages and employment. As a result, revenues from basic taxes and social contributions grew at a relatively fast pace. Second, the return of tax provisions also contributed to the relatively strong growth in government revenues. This is best seen when analysing the VAT arrear dynamics: the VAT arrears amounted to around €380 million<sup>58</sup> in May 2022, down by around €90 million compared to December 2021. In addition, the Lithuanian oil refinery paid a significantly higher amount of VAT to the budget due to a sharp rise in domestic production prices for coke and refined petroleum products. The increase in general government revenue from the personal income tax was driven quite significantly by the personal income tax paid by accommodation and food services, administrative and support service activities, and arts, entertainment and recreation activities, due to the low comparative base effect: in the first quarter of 2021, these activities were severely restricted due to the pandemic, while in the first quarter of 2022 most of the restrictions were lifted.

**The increase in government revenue was driven by strong domestic demand, the easing of pandemic restrictions and the repayment of tax arrears.**

Chart 21. Annual changes in general government revenue and contributions



Sources: Statistics Lithuania and Bank of Lithuania calculations.

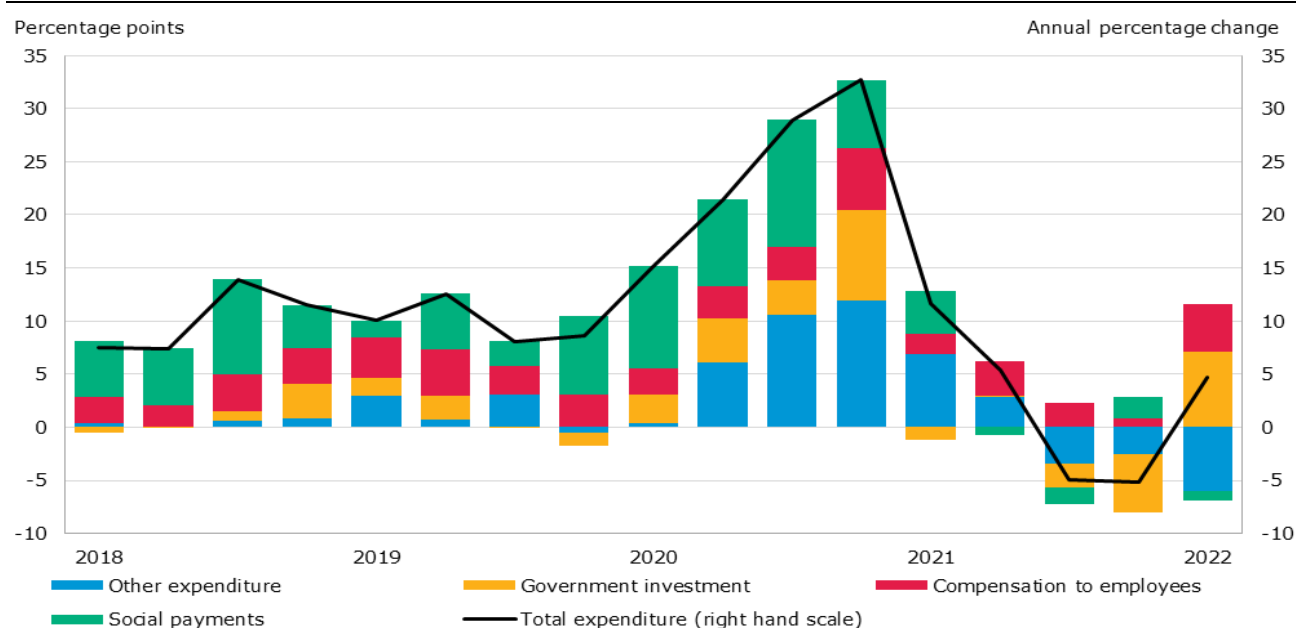
**Government expenditure in the first quarter of 2022 was around 5% higher than a year ago, mainly due to higher spending on compensation of government employees, investment and capital transfers, and purchases of intermediate consumption goods and services (see Chart 22).** General government investment, which had fallen by around a fifth in 2021, recovered in the first quarter of 2022 and was around 20% higher. This increase is mainly due to the transfer of state

<sup>58</sup> Report of the State Tax Inspectorate [VAT return data and income received](#), 20 July 2022.

budget funds for the construction of the border with Belarus. It is also possible that the increased EU funds also contributed to higher investments: the State Budget Implementation Report shows that the amount of expenditure paid out of EU and other international support funds in the first half of 2022 was about a tenth larger than a year ago, and the implementation of the annual plan for EU funds also improved slightly, with a 52% completion. A considerable drop in pandemic-related assistance in the first quarter was accompanied by a decline in government support to families. Together with lower unemployment benefits, this was the main factor behind the reduction in total social benefits compared to the amount spent a year ago. The decline in unemployment benefits is influenced by the still healthy labour market situation, with the growth of labour force and employment, and the unemployment rate falling to almost 5% in the second quarter of 2022.

### The increase in government expenditure was driven by higher compensation of employees and higher investment.

Chart 22. Annual changes in government expenditure and their contributions



Sources: Statistics Lithuania and Bank of Lithuania calculations.

**The general government debt-to-GDP ratio was significantly lower in the first quarter than a year ago and stood at 40%.** The decline in the debt ratio of around 5 percentage points was due to the redemption of more than €1 billion bond issue in February, as well as a potentially slightly lower borrowing requirement as a result of the surplus. If there are no economic shocks in the second half of 2022 that would require significant budgetary resources to mitigate their impact, the debt-to-GDP ratio is likely to stay close to 40% by the end of 2022.

## Abbreviations

EC	European Commission
ECB	European Central Bank
EU	European Union
EURIBOR	Euro Interbank Offered Rate
Eurostat	Statistical Office of the European Union
Eurosystem	European Central Bank and central banks in the euro area
GDP	gross domestic product
HICP	Harmonised Index of Consumer Prices
ICT	information and communication technology
IMF	International Monetary Fund
MFI	monetary financial institution
MMW	minimum monthly wage
NFC	non-financial corporation
PMI	Purchasing Managers' Index
RE	real estate
UK	United Kingdom
US	United States of America
VAT	value added tax

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The Lithuanian Economic Review analyses the developments of the real sector, prices, public finance and credit in Lithuania, as well as the projected development of the domestic economy. The material presented in this review is the result of statistical data analysis, modelling and expert assessment. The review is prepared by the Bank of Lithuania.

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