



NATIONAL AUDIT OFFICE OF LITHUANIA

To the Seimas of the Republic of
Lithuania

OPINION ON THE ENDORSEMENT OF THE ECONOMIC DEVELOPMENT SCENARIO

31 March 2015 No. Y-4
Vilnius

In implementing the functions of the budget policy monitoring authority set out in the Republic of Lithuania Constitutional Law on the Implementation of the Fiscal Treaty and pursuant to paragraph 3 of Article 9(6) of the Law on National Audit Office, the National Audit Office has carried out an assessment of the economic development scenario for 2015–2018 prepared and published by the Ministry of Finance of the Republic of Lithuania and hereby presents its opinion.

The scenario prepared by the Ministry of Finance of the Republic of Lithuania results from the assumptions chosen and identified, it is based on the available statistical data and does not contradict economic regularities. The National Audit Office of Lithuania endorses the economic development scenario for 2015-2018, which was published on the website of the Ministry of Finance of the Republic of Lithuania on 20 March 2015.

No optimistic forecasting trends were identified in an analysis of errors of the macroeconomic projections for 2006-2014 published by the Ministry of Finance of the Republic of Lithuania. The errors estimated during the analysis period confirm that the indicator projections were realistic or conservative. However, in certain years the final domestic demand was overestimated, though projections of the impact of net exports were conservative. At present, the Ministry of Finance of the Republic of Lithuania is the only forecasting authority of the ones selected for the assessment which has projected a significant negative contribution of net exports and a stronger impact of domestic demand on the growth of real gross domestic product. The overestimation of the development of domestic demand will lead to higher tax revenue projections in draft budgets.

The current regulatory legislation of the Republic of Lithuania does not provide for the procedure for preparing an economic development scenario and the periodicity of its preparation; also, no methodology for producing macroeconomic forecasts has been drawn up and published, including models used for the forecasting, assumptions, and external risk factors.

In line with paragraph 4 of Article 10 of the Republic of Lithuania Constitutional Law on the Implementation of the Fiscal Treaty, the Government of the Republic of Lithuania, other institutions

and agencies have been entrusted with the adoption of legal acts implementing the said Law by 1 January 2015. It should be noted that no legal acts implementing the Republic of Lithuania Constitutional Law on the Implementation of the Fiscal Treaty, including those setting forth the procedure for preparing and publishing economic development scenarios, have been adopted so far, so the Government's attention should be drawn to the fact that this provision of the said Law has not yet been implemented.

The Annex to the Opinion provides the methods used for assessing and endorsing the scenario, an analysis of historical projection errors, and an analysis of macroeconomic indicators underlying the opinion on the endorsement of the scenario.

Auditor General

Giedrė Švedienė



Annex to the Opinion

ON THE ENDORSEMENT OF THE
ECONOMIC DEVELOPMENT SCENARIO

31 March 2015 No. Y-4-1



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INTRODUCTION

Following the entry into force of the Constitutional Law on the Implementation of the Fiscal Treaty¹ (hereinafter referred to as the Constitutional Law) and the Law on the Amendment of Articles 2, 4, 6, 9 and 23 of the Law on National Audit Office² on 1 January 2015, the National Audit Office has been assigned the function of the authority responsible for monitoring the budget policy.

Budget policy monitoring authority³

An institution responsible for the supervision of adherence to the rules and fulfilment of the tasks set out in the Constitutional Law on the Implementation of the Fiscal Treaty and is mandated to prepare the opinions laid down in this Law and to publish them in the established procedure.

As part of the implementation of the functions of the budget policy monitoring authority set out in the Constitutional Law and following paragraph 3 of Article 9(6) of the Law on National Audit Office, the National Audit Office shall submit its opinion on the endorsement of the economic development scenario prepared by the Ministry of Finance within seven days from the preparation thereof.

The National Audit Office has carried out an assessment of the economic development scenario for 2015-2018 prepared and published by the Ministry of Finance on 20 March 2015. The opinion on the endorsement of the scenario and recommendations are provided in the Opinion of the National Audit Office on the Endorsement of the Economic Development Scenario. The Annex to the Opinion provides the methods used for assessing and endorsing the scenario, an analysis of forecast errors, and an analysis of macroeconomic indicators underlying the opinion on the endorsement of the scenario.

¹ Constitutional Law of the Republic of Lithuania on the Implementation of the Fiscal Treaty, 6 November 2014, No. XII-1289.

² Law on the Amendment of Articles 2, 4, 6, 9 and 23 of the Law on National Audit Office, 6 November 2014, No. XII-1291.

³ Constitutional Law of the Republic of Lithuania on the Implementation of the Fiscal Treaty, 6 November 2014, No. XII-1289, Art. 2(1), Law of the Republic of Lithuania on National Audit Office, 30 May 1995, No. I-907, Art. 9(6).

METHODS USED TO ASSESS AND ENDORSE THE SCENARIO

The economic development scenario is a description of economic development which results from the assumptions chosen and identified by the Ministry of Finance, which is based on the available statistical data and on the data of national accounts and does not contradict economic regularities, and which is used for the preparation of the Draft Law of the Republic of Lithuania on Approval of Financial Indicators of the State Budget and Municipal Budgets⁴.

Budget planning shall be based on the most likely macrofiscal scenario or on a more prudent scenario⁵. The macroeconomic and budgetary forecasts shall be compared with the most updated forecasts of the Commission and, if appropriate, those of other independent bodies.

The Ministry of Finance presented a draft economic development scenario for 2015–2018 to the National Audit Office on 5 March 2015. The scenario, including the key assumptions and external risk factors, was presented at a meeting held on 9 March 2015⁶. Upon consideration of the remarks made by the bodies involved in the discussion, on 17 March 2015 the Ministry of Finance submitted a revised draft scenario to the National Audit Office; this scenario was published on the Ministry's website on 20 March 2015.

The phases of the assessment and endorsement of the economic development scenario for 2015–2018 carried out by the National Audit Office and the methods used thereby are given in **Figure 1**. An important element of the assessment phase is analysis of whether the projections prepared are to be considered the most likely. This analysis is performed evaluating the assumptions underlying the preparation of the scenario, the risk factors included in the projection estimates and those that have not been included in the projections but are likely. More information about the most likely projections is provided in **Box A**.

⁴ Law of the Republic of Lithuania on the Budget Structure, 30 July 1990, No. I-430, Art. 2(12).

⁵ Council Directive 2011/85/EU on requirements for budgetary frameworks of the Member States (OJ L 306, 23/11/2011, p. 45), Art. 4(1).

⁶ With participation of representatives of the Bank of Lithuania, National Audit Office, Statistics Lithuania, Ministry of Finance, Ministry of Social Security and Labour, and Ministry of Economy.

Figure 1. Phases of assessment and endorsement of the economic development scenario for 2015–2018 and methods used

	THE NATIONAL AUDIT OFFICE:
ASSESSMENT	EVALUATES: - scenario methodology; - justification of the projections on the basis of higher frequency statistics; - forecast error patterns of the Ministry of Finance; - scenario differences compared to the projections made by other institutions; - distribution of risk factors in order to assess the scenario as optimistic, the most likely or more prudent.
	SUBMITS: Comments on the draft economic development scenario to the Ministry of Finance.
ENDORSEMENT	CONSTRUCTS: Endorsable ranges for the projections of indicators for 2015-2017 according to the chosen methodology*.
	A SCENARIO IS ENDORSED WHEN**: The projections of real GDP, the GDP deflator, private consumption expenditure, the average monthly gross wage, and employment over the period 2015-2017 fall within the endorsable ranges.

* Benchmark projections for 2015-2017 are the projections of the Bank of Lithuania, and the width of the endorsable range is based on the standard deviation of the bank projection errors. The benchmark projection of real GDP for 2018 is the projection of the potential GDP by the European Commission.

** The scenario is not endorsed when at least projection of one indicator for the period 2015-2017 chosen for endorsement falls outside the endorsable range.

Source: National Audit Office

Box A. What is the most likely scenario?

Article 4 of Council Directive 2011/85/EU on requirements for budgetary frameworks of the Member States set out that Member States shall ensure that budgetary planning is based on the most likely macrofiscal scenario or on a more prudent scenario. The economic development scenario, which is published every March, initiates a cycle of drafting the budgets for the next year and updating the medium term budgetary plans, therefore, it is particularly important that the preparation of budget revenue plans is based on the most likely or a more prudent scenario.

Given the volatility of economic development, economic growth forecasts are inseparable from uncertainty. In order to show the level of uncertainty, complete forecasts should consist of the range of expected values with corresponding probabilities. The range could be presented through fan charts. However, projections are typically made and reported as a single figure.

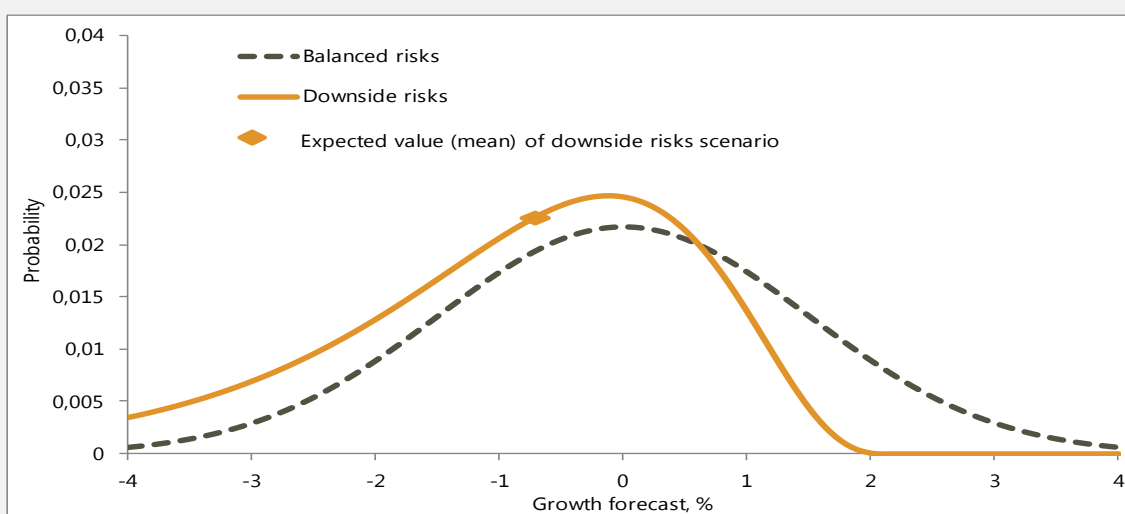
The most likely forecast is a projection which has the highest probability of materialisation, regardless of its place in the probability distribution curve. An alternative to the modal projection is the method of expected-value forecast. The expected value of a random variable is the sum of the products of the values

of the random variable and their probabilities. In most cases projections are published without indicating whether the forecasts are the most likely ones, or whether they are expected value forecasts.

In many cases, the most likely and expected value projections can be identical or similar if the potential values of the projected indicator are distributed normally (symmetrically).

On the other hand, if the risk distribution is skewed, substantial differences between the most likely projection and the expected value projection can occur. **Figure A.1** below shows two projection probability distributions. In both cases, the most likely value of the forecast indicator change is equal to zero. When risk factors are balanced (in case of symmetric distribution of the dotted curve), the expected value projection is also equal to zero. In the other case, when risk factors are on the negative side (in case of skewed distribution of the continuous curve), the expected value forecast equals to 0.7 per cent.

Figure A.1. Comparison of balanced and skewed forecast distribution



Source: National Audit Office

Note: The modes of both probability distributions equal to zero and standard deviations equal to 1.5.

Can the most likely projections be regarded conservative or prudent? It depends on the distribution of risk factors. In case of dominant downside risk factors, the most likely projection is not conservative (prudent), because it does not include the likely values of the negative change with a little lower than the maximum probability. And otherwise in case of dominant upside risk factors, the most likely projection would be lower than the expected value projection and so it could be seen as a conservative (prudent) one.

The decision to endorse or not to endorse the scenario is based on the numerical method – the endorsable range. When preparing the opinion on the endorsement of the scenario, the National Audit Office evaluates the scenario which covers the current year and the next three years, meanwhile the projections of macroeconomic indicators prepared by the Bank of Lithuania and provided to the National Audit Office cover the current year and the next two years, so the approach of the endorsable range is applicable to the projections until 2017: real GDP, the GDP deflator, private consumption expenditure, the average monthly gross wage, and employment. The endorsable range for the projection of real GDP for 2018 is formed on the basis of the Commission estimates of potential GDP of Lithuania.

The endorsable ranges are presented in fan charts showing the uncertainty of projections. More details about the formation of fan charts are given in **Box B** below.

Box B. Representation of forecast uncertainty – fan charts

Point projections provide a limited picture of future economic developments. Certain factors, such as geopolitical events, are difficult to forecast. In addition, understanding of economic development and their interaction is not precise, so errors are an integral part of the projections. Despite the inherent uncertainty of projections, point projections are often used in economic publications, although it is highly unlikely that, even with the best forecasting methods, the outturns will coincide with the forecasts. One of the ways to show the uncertainty of projections is to use fan charts⁷.

Construction of fan charts. Based on the assumption that the projections produced by the Bank of Lithuania correspond to the median projections, the projections by the Bank of Lithuania are in the centre of the fan chart (**Figure B.1**). Fan charts are drawn so as to show the uncertainty of the current, first and second-year projections. Errors are calculated as the difference between the projected cumulative⁸ change of the respective indicators and the respective statistical fact. Cumulative projection errors have to be calculated in order to show the persistence of forecast errors. In calculations of the error mean, mode, median and standard deviations, especially large errors⁹ are excluded. It is assumed that the probability distribution around the central projection is stationary.

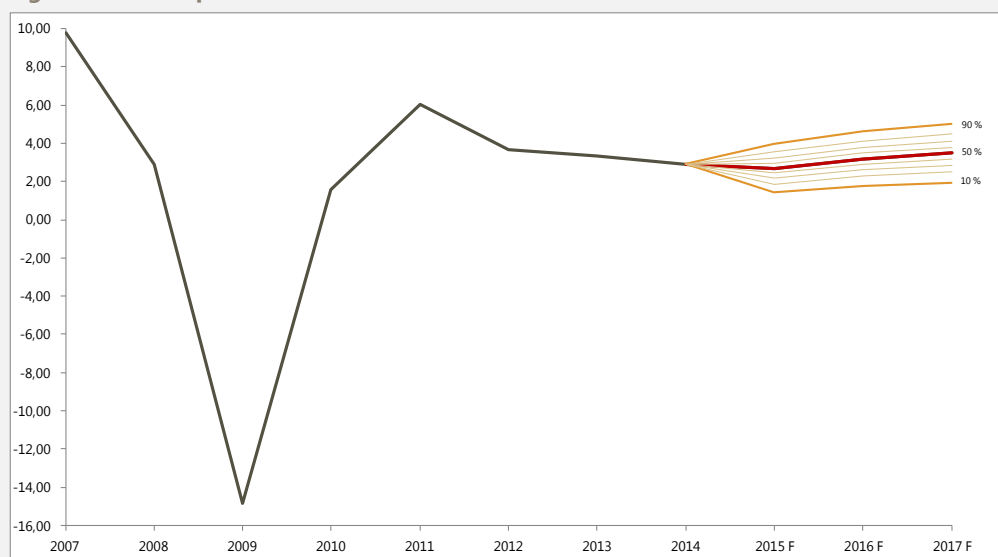
The forecast distribution is calculated by assuming that the distribution is symmetric around the point forecast, which means that the point projection corresponds to the mean and median. This assumption is used for the sake of simplification but it does not mean that the National Audit Office views the risk factors of the economic development scenario as symmetrically distributed. It is also assumed that the errors are normally distributed. The standard deviations of the indicator errors were calculated in accordance with historical errors. The fan chart shows the expected values of the projections from the 10th to 90th percentiles (**Figure B.1**).

⁷ Central banks have been widely using projection uncertainty charts for the last 15 years.

⁸ For example, cumulative growth of real GDP for two years projected in 2011 is compared in 2013 with the actual growth of real GDP from 2011 to 2013.

⁹ The projections for the year T+2 published in 2006 are eliminated because the financial crisis which started in 2008 should be considered an extremely rare event that would hardly be repeated in the analysed medium term.

Figure B.1. Example of real GDP fan chart



Note: Since the values of the indicators projected by the Bank of Lithuania for the second year of the forecast period are not publicly available, an illustrative value of the projection was chosen for 2017 for the graph purposes.

Source: National Audit Office, Statistics Lithuania.

The width of the fan chart between the 10th and 90th percentile indicates that 80 per cent of the expected values should fall within the range where the minimum and maximum values for 2015 are 1.4 and 4.0 per cent respectively.

Despite a few simplifying assumptions, projection uncertainty graphs and charts provide additional information on the expected values of the forecast indicators, so they are an appropriate method to take a decision on the endorsement of the economic development scenario produced by the Ministry of Finance.

Endorsement of the projections for 2015–2017. For the purpose of endorsement of the projections for 2015–2017, the National Audit Office evaluates projections of the following indicators of the economic development scenario produced by the Ministry of Finance: real GDP, the GDP deflator, private consumption expenditure, the average monthly gross wage, and employment¹⁰. An endorsable range is constructed for each indicator¹¹. The projections for 2015–2017 are endorsed if they fall within the endorsable range which is based on the benchmark macroeconomic projections produced by the Bank of Lithuania and macroeconomic uncertainty, including the standard deviation of forecasts errors. It should be noted that the endorsable range can vary in respect of time and the endorsable indicators.

Assessment of the projection for 2018. The medium-term projections are based on the assessment of potential GDP, the GDP gap and on the assumption that the output gap closes in the medium-term. The benchmark projections for the medium term are the projections of potential GDP and the GDP gap estimated by the European Commission. The European Commission

¹⁰ The National Audit Office also evaluates projections of other indicators of the economic development scenario; however, the specified ones are the key indicators that determine the decision to endorse or not to endorse the economic development scenario, they are the most relevant indicators in drawing up government budget revenue plans.

¹¹ The limit values of the endorsable range are not disclosed in order to avoid targeted projections.

calculates potential GDP and the GDP gap for the Member States using the methodology¹² to be applied by the Member States in their stability or convergence programmes.

Projection-related uncertainty increases with extending the forecasting period; this characteristic of potential projection error is shown in the fan charts used by the National Audit Office. The endorsable range is respectively wider in the last points of the projections.

¹² http://ec.europa.eu/economy_finance/publications/economic_paper/2014/pdf/ecp535_en.pdf.

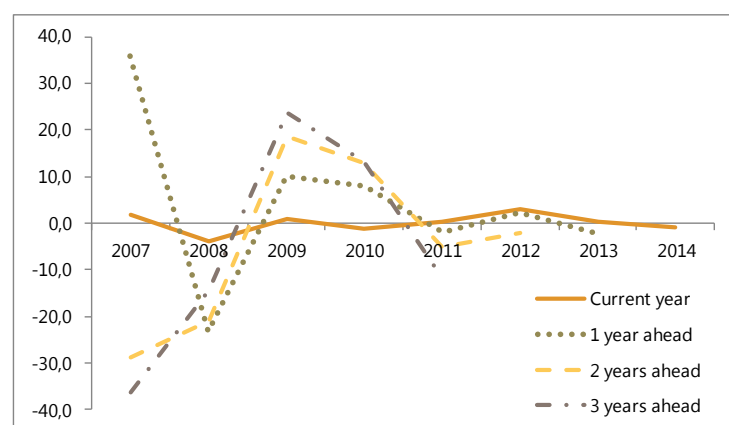
ANALYSIS OF FORECAST ERRORS

In order to assess the methods used by the Ministry of Finance to produce forecasts of macroeconomic indicators, the National Audit Office carried out an analysis of forecast errors. The following key macroeconomic indicators were chosen for the comparison: nominal GDP, real GDP, domestic demand, the average monthly gross wage, the annual fund for wages and salaries, the average annual number of employed, and the annual average conditional number of employees for the period 2007-2014¹³. The data for the analysis is taken from the spring and autumn forecasts published on the website of the Ministry, and this data is compared with the outturn which was known at the moment of forecast¹⁴. The decomposition of the real GDP projection error¹⁵ into the errors of the final domestic demand and net exports¹⁶ was prepared on the basis of the projections announced in Lithuania's convergence programmes 2006-2014.

It can be concluded that the forecasts of the macroeconomic indicators selected for the analysis during the observable period were realistic or conservative¹⁷. **Figure 2 shows** nominal GDP forecast errors – the average error in the current year during the analysis period was about 0.04 percentage points.

A positive trend was observed in the analysis of the projections of real GDP for 2006–2014¹⁸ – the

Figure 2. Nominal GDP forecast errors for 2007-2014, percentage points



Source: Autumn forecasts for 2007-2014 published by the Ministry of Finance

forecasts produced by the Ministry of Finance are relatively accurate, the average error of the analysis period was 0.3 (**Figure 3. GDP error**). The real GDP is comprised of the final domestic consumption demand, net exports or trade balance, and stock investments¹⁹. Although the errors in forecasting the components were often quite large, they tended to offset each other. The expectations for the final domestic demand were optimistic, the assessment of the net export

¹³ The errors are calculated as the difference between the projected cumulative change in the relevant indicators and the relevant actual fact.

¹⁴ http://www.finmin.lt/web/finmin/aktualus_duomenys/projekcijos_issamiau/archyvas.

¹⁵ The decomposition of the error of real GDP projection into the errors of final domestic demand and net exports includes calculation of non-cumulative errors of relevant indicators.

¹⁶ Net exports or balance of trade is the difference between exports and imports.

¹⁷ Exceptionally large errors are excluded.

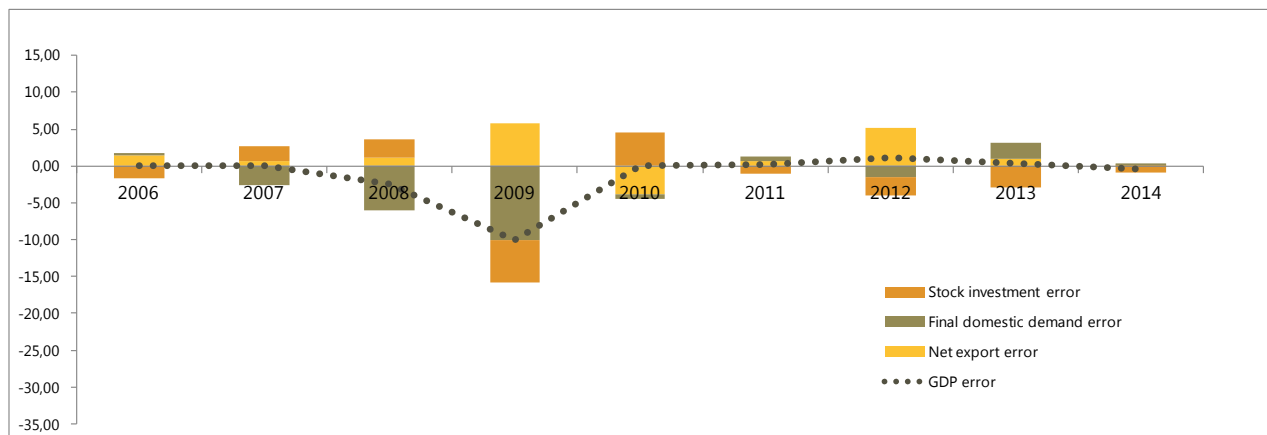
¹⁸ Exceptionally large errors are excluded.

¹⁹ Stock investment is the difference between the value of goods that are produced in a given year and of goods sold during that year, or the difference between the volumes of production and sales.

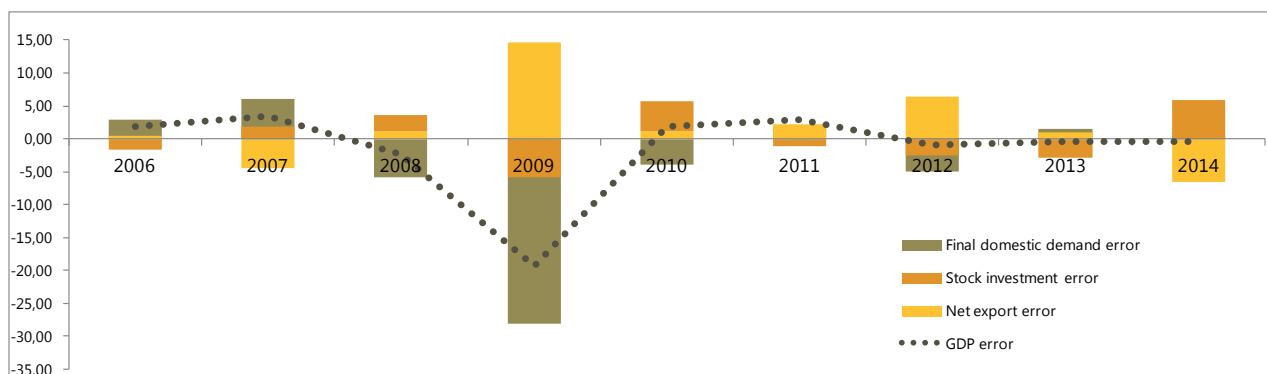
growth was more cautious (Figure 3). A clear pattern is apparent – there was a systematic tendency to overestimate domestic demand in 2007, 2008, 2009, 2010, and 2012 and it has disappeared in the last few years.

Figure 3. Contribution to the Ministry of Finance real GDP forecast errors for 2006–2014, percentage points

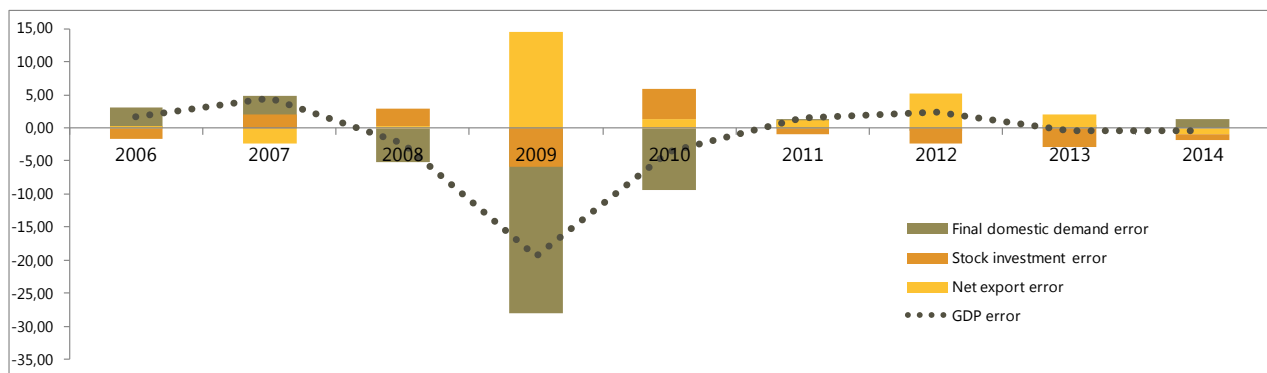
Forecasts made in the current year



Forecasts made one year ahead



Forecasts made two years ahead



Source: Convergence programmes (forecasts) for 2006–2014 prepared by the Ministry of Finance; Statistics Lithuania (actual data)

Given the fact that the final domestic demand generates more tax revenue to the state and municipal budgets than net exports, the National Audit Office proposes to the Ministry of Finance to project the final demand more carefully, because too-optimistic expectations of domestic demand may become the reason of failure to execute tax revenue plans in the future.

ECONOMIC DEVELOPMENT SCENARIO FOR 2015–2018

1. METHODOLOGY USED TO PRODUCE THE SCENARIO

The economic development scenario was produced without having an approved and published procedure for preparing and publishing the scenario. Council Directive 2011/85/EU²⁰ set out that the Member States shall specify which institution is responsible for producing macroeconomic and budgetary forecasts and shall make public the official macroeconomic and budgetary forecasts prepared for fiscal planning, including the methodologies, assumptions and relevant parameters underpinning those forecasts. It should be noted that the current regulatory legislation of the Republic of Lithuania does not foresee the procedure for preparing an economic development scenario and the periodicity of its preparation; also, no methodologies, including models used for the forecasting, assumptions, and external risk factors for producing macroeconomic forecasts have been drawn up and published. In its Opinion on the Draft Law on Approval of Financial Indicators of the State Budget and Municipal Budgets for 2015²¹, the National Audit Office stated that the Ministry of Finance still does not have an approved methodology for forecasting macroeconomic indicators, although it was supposed to have been prepared by 2014.

In addition, pursuant to paragraph 4 of Article 10 of the Constitutional Law, the Government of the Republic of Lithuania, other institutions and agencies have been entrusted with the adoption of legal acts implementing the Law by 1 January 2015. It should be noted that no legal acts implementing the Constitutional Law, including those setting forth the procedure for preparing and publishing economic development scenarios, have been adopted so far.

2. ASSESSMENT AND ENDORSEMENT OF THE PROJECTIONS FOR 2015–2018

The National Audit Office endorses the economic development scenario for 2015–2018, as the forecasts for real GDP, the GDP deflator, private consumption expenditure, the average monthly gross wage and employment fall within the endorsable range of the respective indicator **(see Chapter 1 of the Annex to the Opinion)**.

²⁰ Council Directive 2011/85/EU on requirements for budgetary frameworks on the Member State (OJ L 306, 23/11/2011, p. 45), Art. 4(5).

²¹ 14 November 2014 No. Y-4.

The uncertainty surrounding the economic development projections is high, because the risk factors that influence the main economic indicators are of both downside and upside nature. The international economic environment depends on the ongoing geopolitical tension related to the Russian-Ukrainian conflict and failure to find a solution to Greek problems which influence the situation in the euro area.

2.1. Projections for 2015–2017

The Ministry of Finance projects slowdown of economic growth momentum: **real GDP** in 2015–2017 will grow by 2.5, 3.2 and 3.5 per cent respectively (the growth for the respective year forecast in September 2014 was 3.4, 3.8 and 4.3 per cent). The slowdown of economic growth momentum is largely determined by more pessimistic projections of the impact of net exports on real GDP growth and slower projected development of domestic demand (**Table 1**).

Table 1. Comparison of the projections of key macroeconomic indicators

Indicators Year-on-Year, unless otherwise specified)	Year	Ministry of Finance (March)	Bank of Lithuania (March)	European Commission (February)	AB SEB bankas (March)	AB Swedbank (January)
Real GDP	2015	2.5	2.7	3.0	2.6	2.3
	2016	3.2	3.5	3.4	3.5	3.5
	2017	3.5	–*	–	–	–
Private consumption expenditure	2015	4.1	3.4	5.0	~4-5	4.0
	2016	4.4	4.0	4.0	~4-5	4.7
	2017	4.7	–	4.3	–	–
Exports of goods and services	2015	-2.8	3.8	3.4	–	0.0
	2016	3.8	5.0	6.4	–	7.0
	2017	4.9	-	-	–	–
Imports of goods and services	2015	-1.2	4.0	4.6	–	2.6
	2016	4.6	5.3	7.7	–	8.5
	2017	5.7	–	–	–	–
Annual average inflation based on the HICP	2015	-0.4	-0.3	0.4	-0.4	0.7
	2016	1.7	1.6	1.6	0.3	2.0
	2017	1.9	–	–	–	–
GDP deflator	2015	0.5	0.1	2.9	–	–
	2016	2.2	1.5	2.4	–	–
	2017	2.4	–	–	–	–
Unemployment rate, %	2015	9.9	9.9	8.7	10.0	9.7
	2016	9.1	9.2	7.9	9.5	8.5
	2017	8.1	–	–	–	–
Number of employed	2015	0.6	0.6	1.2	–	–
	2016	0.6	0.5	1.2	–	–
	2017	0.9	–	–	–	–

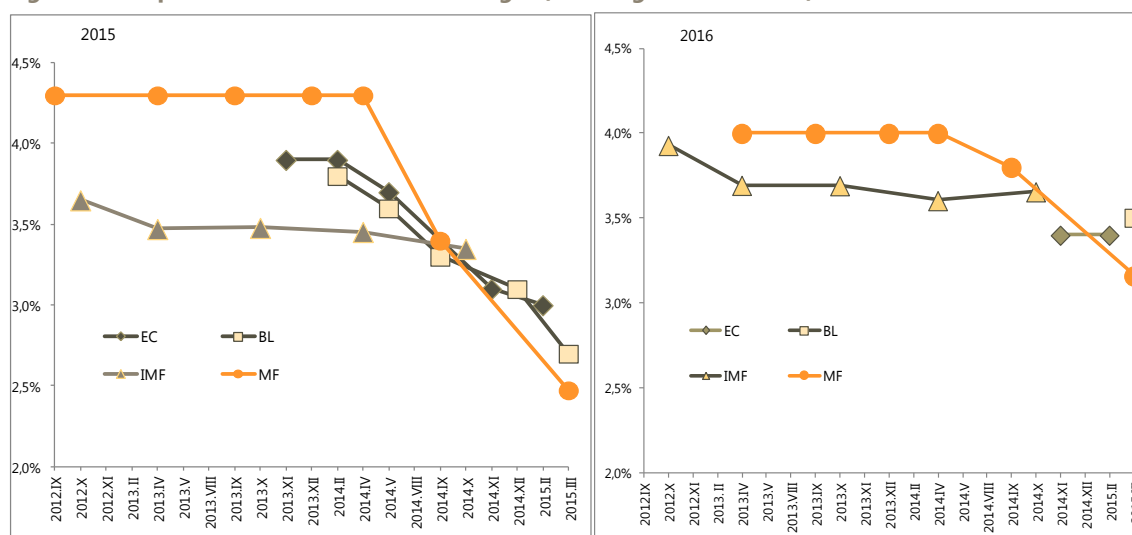
* projections are not published

Source: Ministry of Finance, Bank of Lithuania, European Commission, AB SEB bankas, and AB Swedbank.

Comparison of the real GDP projected by the Ministry of Finance with the projections by the Bank of Lithuania and other institutions (**Figure 4**) showed that other institutions have also decreased

the growth of real GDP. Since the growth of real GDP for 2015 and 2016 projected by the Ministry of Finance is the lowest as compared to the projections by other institutions, it can be concluded that the Ministry does not overestimate the real GDP growth rate. **It should be noted that the projection of real GDP falls within the endorsable range of this indicator.**

Figure 4. Comparative real GDP forecast vintages (% Change Year-on-Year)



Source: Ministry of Finance, Bank of Lithuania, European Commission, International Monetary Fund

Due to the projected average annual deflation²² estimated using the Harmonised Index of Consumer Prices (HICP), the projection of the annual change in the **GDP deflator** for 2015 is significantly reduced (by 1.6 percentage point) to 0.5 per cent. The projected GDP deflator for 2016 and 2017 is reduced by 0.4 and 0.7 percentage points down to 2.2 and 2.4 per cent respectively.

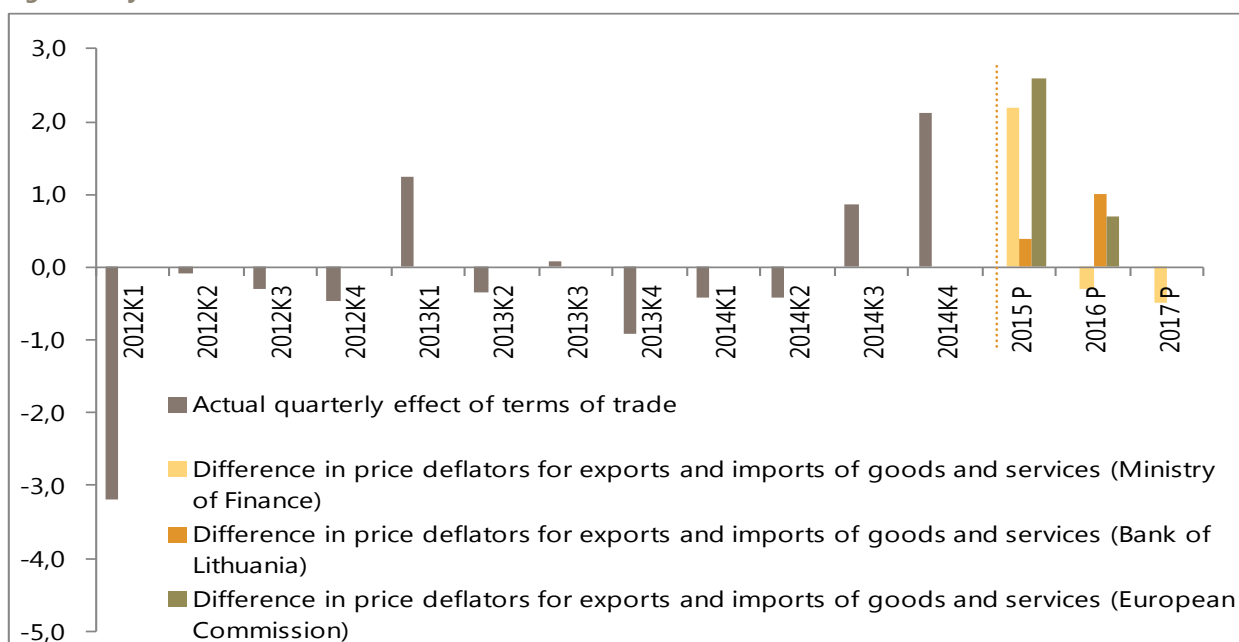
GDP deflator for 2015 and 2016 projected by the Bank of Lithuania is even lower – 0.1 and 1.5 per cent respectively (**Table 1**). The differences in the projected GDP deflator arise from different assumptions on the potential effect of terms of trade²³. Since the share of petroleum products in the structure of exports was lower than in the structure of imports (17.7 and 25 per cent respectively), the decrease of costs of exports of goods and services in 2014 was slower than those of imports (annual changes in the relevant deflators amounted to -2.4 and -3.1 per cent), and terms of trade for Lithuania improved. An analysis of the quarterly dynamics of the terms of trade effect (**Figure 5**) clearly shows that terms of trade in Lithuania started to improve from the third quarter of 2014 (due to falling oil prices) and were as high as 2.1 per cent in the fourth quarter of 2014.

²² Household consumption expenditure component accounts for about 60 per cent of GDP (63.7 per cent in 2014). In case of neutral terms of trade effect (the difference between the price deflators of exports and imports of goods) the GDP deflator highly correlates with the average annual inflation, measured by the HICP.

²³ Terms of trade effect is the difference between the price deflators of exports and imports of goods. The terms of trade effect defines the circumstances under which exports are becoming more expensive than imports or imports are becoming cheaper than exports at a faster pace.

The annual change in the GDP deflator due to the beneficial effect of terms of trade accounted for 0.9 per cent, although the average annual inflation rate measured by the HICP was only 0.2 per cent and the change in the domestic demand deflator also accounted for only 0.2 per cent.

Figure 5. Dynamics of the terms of trade effect, %



Source: Statistics Lithuania, Ministry of Finance, Bank of Lithuania, European Commission.

The European Commission is projecting even a higher effect of terms of trade for 2015 and 2016²⁴ than the Ministry of Finance, but it is important to note that there is a risk that Lithuanian exporters may speed up the reduction of prices in order to maintain the existing markets and find new ones in the current deflationary euro area, thus the terms of trade effect would not be so significant. **Given the uncertainty of external demand and the fact that the projection of the annual change in the GDP deflator by the Ministry of Finance falls within the endorsable range, the projection of this indicator is deemed to be likely.**

The projected **growth in private consumption expenditure** decelerated, yet it remains the key driver of the Lithuanian economy. The impending introduction of the euro in 2014 did not become an important stimulus to consumption – the consumption grew in proportion to the increasing income. The growth of household consumption expenditure in 2015–2017 is projected to be somewhat slower compared to the projected growth in gross earnings, because, in the context of geopolitical uncertainty, the marginal propensity to save is likely to slightly increase. This is confirmed by the customer surveys conducted by Statistics Lithuania: about 7 per cent of the respondents surveyed in January-February felt that a chance to save a little over the next 12 months was rather likely.

The Bank of Lithuania forecasts slower growth in private consumption (**Table 1**); however, **the projections of household consumption expenditure produced by the Ministry of Finance fall**

²⁴ The terms of trade effect projected by the European Commission for Lithuania for 2015 and 2016 is 2.6 and 0.7 per cent respectively.

within the endorsable range of this indicator, so the gap between the projections is tolerable.

The growth rate of **gross fixed capital formation** is expected to slow down, although it was as high as 13.8 per cent in the fourth quarter of 2014 (**Table 2**). High production capacity utilisation rate in the industrial and service sectors and the need to increase productivity would encourage investment in production capacity, but geopolitical uncertainty leads to postponement of investments. The industrial investment surveys carried out by Statistics Lithuania showed slight changes in the distribution of respondents in 2015²⁵: the number of respondents who believe that the size of investment will not change decreased by about 15 per cent; of these, 5 per cent more respondents predict that investment will increase, while others believe that investment will either decline or will not take place at all.

Table 2. Statistical data on relevant indicators for 2012–2014 and projections by the Ministry of Finance for 2015–2017

Change Year-on-Year, % (unless otherwise specified)	2012	2013	2014	1 st quarter 2014	2 nd quarter 2014	3 rd quarter 2014	4 th quarter 2014	2015	2016	2017
Real GDP	3.8	3.3	2.9	3.3	3.4	2.7	2.4	2.5	3.2	3.5
GDP deflator (2010 = 100)	1.6	2.7	0.9	-0.2	3.7	-0.2	0.2	0.5	2.2	2.4
Annual average inflation, measured by the HICP	3.2	1.2	0.2	0.7	0.4	0.3	0.2	-0.4	1.7	1.9
Household final consumption expenditure	3.6	4.2	5.6	6.0	6.4	4.0	6.0	4.1	4.4	4.7
Government final consumption expenditure	1.2	1.8	1.3	1.1	1.6	1.1	1.4	1.3	0.6	0.6
Gross fixed capital formation	-1.6	7.0	8.0	9.0	5.6	-5.7	13.8	5.2	2.5	4.3
Exports of goods and services	12.2	9.4	3.4	-3.8	6.7	6.2	4.1	-2.8	3.8	4.9
Imports of goods and services	6.6	9.0	5.4	-1.7	9.1	4.6	9.1	-1.2	4.6	5.7
Number of employed persons, thousand persons (LFS definition)	1.8	1.3	2.0	2.2	0.9	3.1	1.8	0.6	0.6	0.9
Unemployment rate, % (LFS definition)	13.4	11.8	10.7	12.4	11.2	9.1	10.1	9.9	9.1	8.1
Average monthly gross wage, EUR	3.8	5.1	4.7	4.0	4.9	4.7	5.8	4.8	5.3	5.7

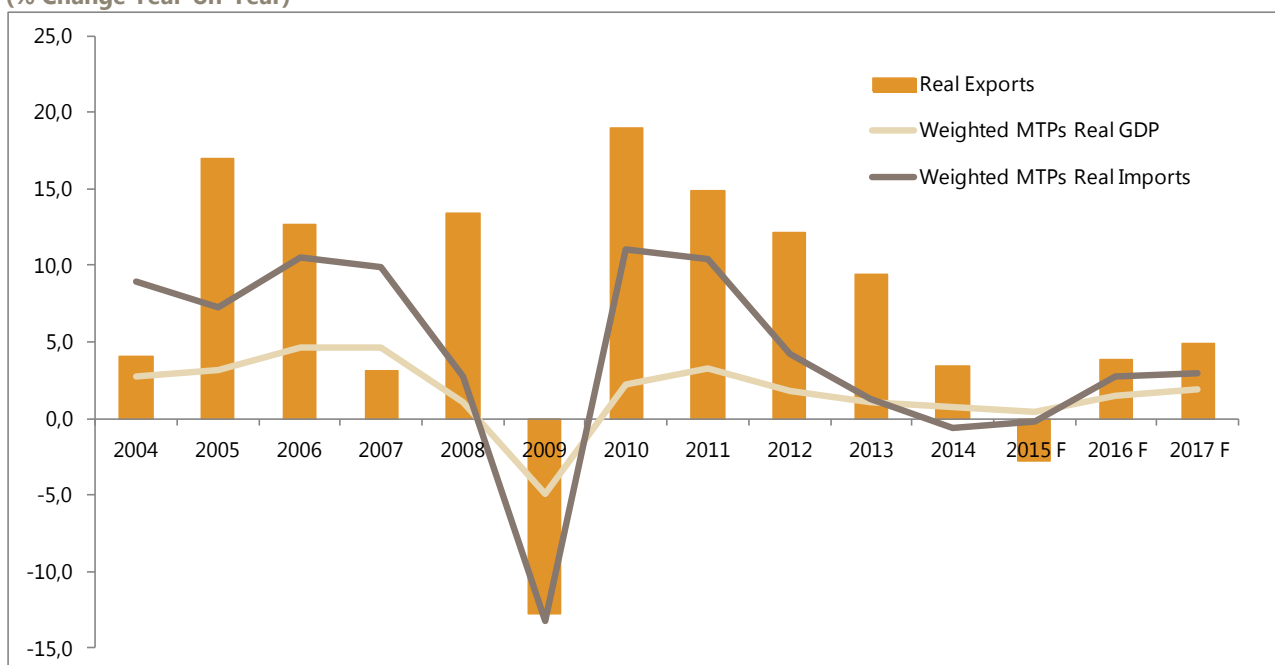
Source: Statistics Lithuania, Ministry of Finance

The Ministry of Finance projects decrease in the volume of **exports of goods and services** in 2015 by 2.8 per cent and moderate export growth in 2016 and 2017 by 3.8 and 4.9 per cent respectively (**Table 1**). The projected decline in exports cannot be explained by projected weighted real GDP and import volume of main trading partners of Lithuania (**Figure 6**); however, it is difficult to

²⁵The survey involves over 800 respondents – about a tenth of all industrial companies with revenues of about 80 per cent of total industry revenues.

forecast how Lithuanian exports will be affected by the Russian, Belarusian, and Ukrainian currencies, which significantly fell in value at the end of 2014. Having in mind the uncertainty of the impact of the devaluation of the said currencies on Lithuanian exports, the projection of negative development of exports for 2015 can be explained.

Figure 6. Lithuanian real exports and weighted real GDP and imports of major trading partners (MTPs) (% Change Year-on-Year)



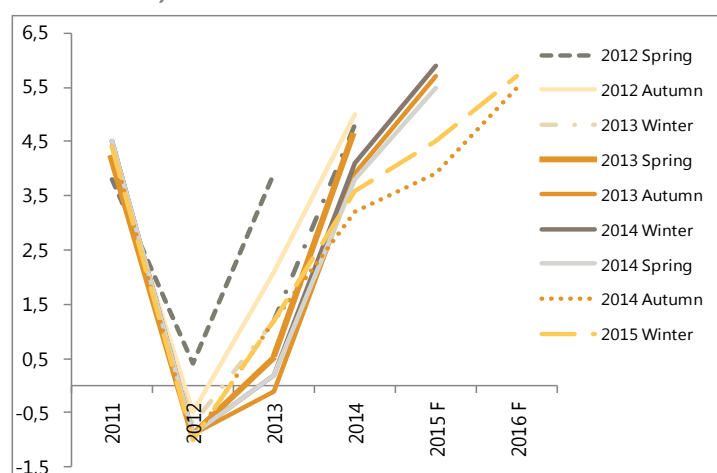
Source: International Monetary Fund, European Commission, Ministry of Finance Statistics Lithuania

The economic growth perspectives in the euro area updated by the European Commission in February 2015 provide a more positive outlook for the region. Since the euro area accounts for about 45 per cent of the Lithuanian export market, the optimistic projections of the growth of imports in this area should positively affect Lithuanian export forecast (**Figure 7**).

The Bank of Lithuania and other institutions preparing and publishing projections forecast moderate growth in exports of goods and services. The differences in export projections for 2015 can be explained by different assumptions on the impact of the devalued currencies of Russia, Belarus and Ukraine on Lithuanian export development. In this context, an unusually large gap between forecasts can be explained.

The Ministry of Finance forecasts a

Figure 7. Euro Area: Imports, EC Forecast Vintages (% Change Year-on-Year)

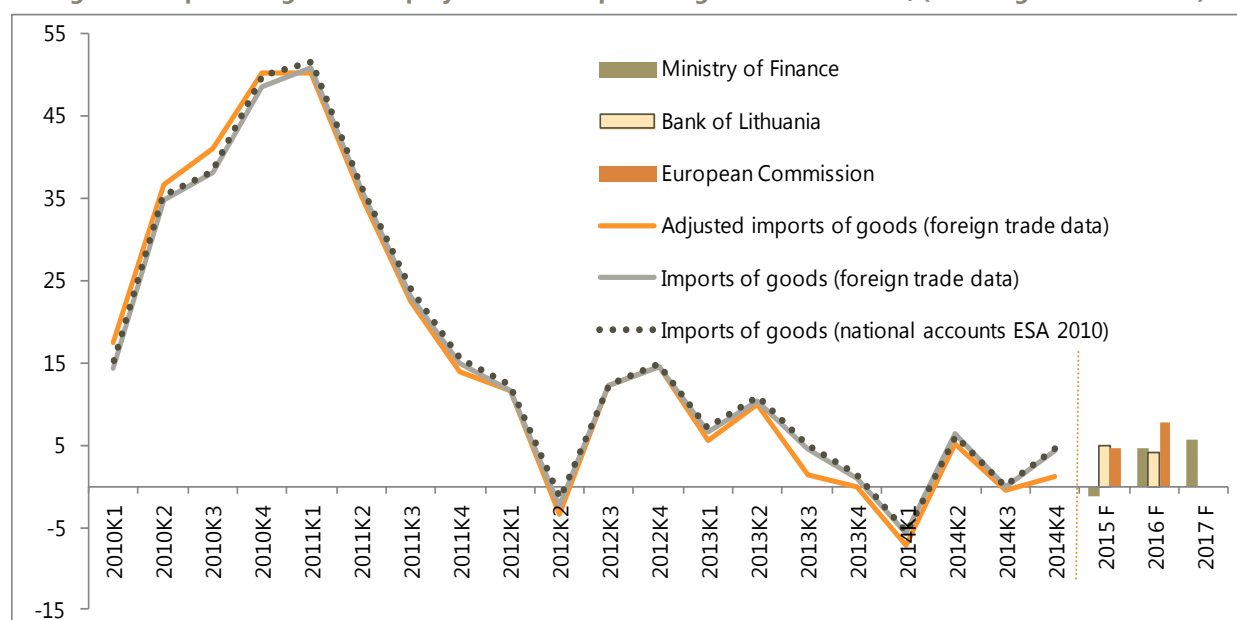


Source: European Commission Forecasts 2012–2015

decline in **imports of goods and services at constant prices** in 2015 by 1.2 per cent and growth

in 2016 and 2017 by 4.6 and 5.7 per cent respectively. The Bank of Lithuania and other institutions project consistent growth of imports of goods and services at constant prices in 2015-2017 (**Figure 8**). It should be noted that the annual growth of imports of goods in the fourth quarter of 2014 was 4.6 per cent according to the national accounts data (4.2 per cent over the same period according to foreign trade data). Analysis of imports of goods according to the Standard International Trade Classification (SITC) allows concluding that the major part of the increase in imported goods is related to increase in the value of imports of specific goods²⁶. After excluding the latter goods, the annual growth rate in the fourth quarter of 2014 was 1.1 per cent. Assuming that the imports of these goods in the fourth quarter of 2014 were of a one-off nature, moderate contraction in import volumes projected by the Ministry of Finance for 2015 can be justified, even though the Bank of Lithuania and other institutions do not forecast real contraction of imports in 2015.

Figure 8. Imports of goods and projections of imports of goods and services, (% Change Year-on-Year)



Source: Statistics Lithuania, Ministry of Finance, Bank of Lithuania, European Commission

Summing up the projections of real GDP and its components, the key question is breakdown of the projected growth of real GDP into elements that show how much of the projected real GDP growth will be generated by domestic demand and how much will be generated by net exports. At present, the Ministry of Finance is the only forecasting authority of among those selected for the assessment which has projected a significant negative contribution of net exports and a significantly stronger impact of domestic demand. The overestimation of the development of domestic demand (**for more information, see Chapter 2**) will lead to higher tax revenue plans in draft budgets.

²⁶ Data components of imports of goods according to the Standard International Trade Classification: 72. Machinery specialised for particular industries 74. General industrial machinery and equipment, n.e.s., and machine parts, n.e.s., 87. Professional, scientific and controlling instruments and apparatus, n.e.s. 89. Miscellaneous manufactured articles, n.e.s..

The growth rate of **employment** in 2014 was almost more than twice the average of the period 2011-2013. Analysis of quarterly data of 2014 shows that higher growth in the number of employed persons was observed in the second half of 2014 (**Table 2**). Contrary to what had been anticipated, the growth rate of the employed after Russian embargo increased rather than slowed down. The Ministry of Finance projects moderate growth of this indicator in 2015-2017. **The indicator is in line with the forecast of the Bank of Lithuania and other institutions.**

The average monthly gross wage in 2014 increased by 4.7 proc. (**Table 2**). Geopolitical uncertainty did not slow down the average wage growth rate – wage growth momentum reached a peak (5.8 per cent) in the fourth quarter of 2014. The projected growth in the average monthly gross wage in 2015-2017 will be 4.8, 5.3 and 5.7 per cent respectively. **The forecast of average monthly gross wage produced by the Ministry of Finance does not deviate significantly from projections produced by the Bank of Lithuania and other institutions and falls within the endorsable range.**

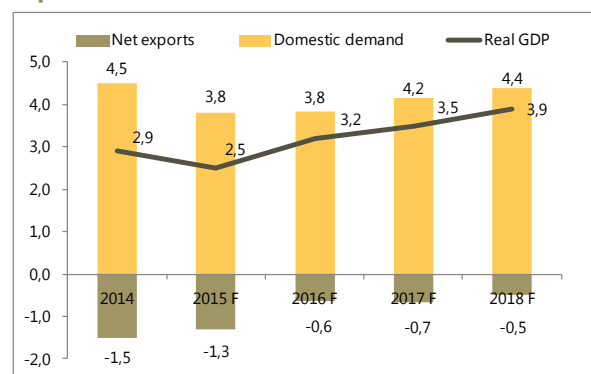
2.2. Projections for 2018

According to the economic development scenario for 2015-2018 produced by the Ministry of Finance, real GDP growth in 2018 is expected to reach 3.9 per cent. The Ministry of Finance also projects that in 2018, like in the short term, domestic demand will be the main driver of economic development, while net exports will have an adverse effect on the economic development due to faster growth of imports (**Figure 9**).

Short-term projections are produced by modelling demand components and analysing higher frequency statistics. Medium and long-term projections are based on estimates of potential²⁷ GDP growth and the assumption on the output gap, i.e. analysis and forecast of the supply side of the economy is carried out. The central scenario is developed on the assumption of no policy change and the classical assumption that economic activity in the medium term will return to equilibrium

(come close to the level of potential GDP), or the output gap will become close or equal to zero. The potential level of economic activity is assessed using methodologies of varying degrees of sophistication and based on expert evaluation, so the estimates obtained often differ to a large extent.

Figure 9. Projections of domestic demand and net exports until 2018, %

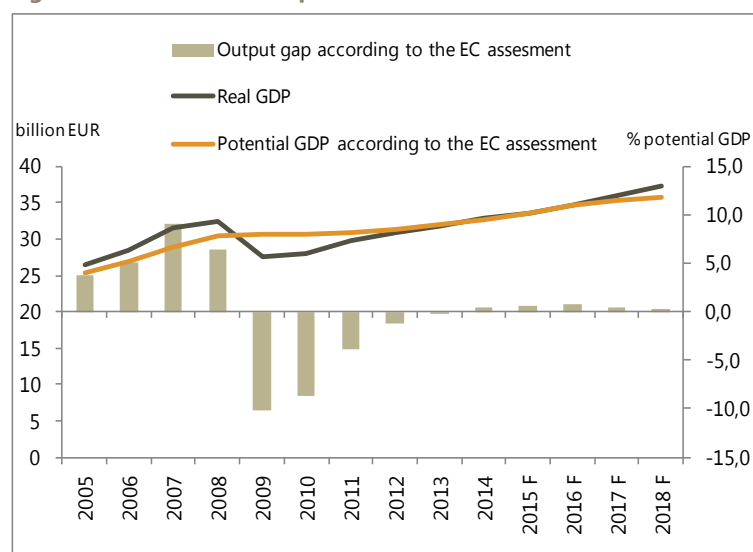


Source: Statistics Lithuania, Ministry of Finance

²⁷ The potential GDP is unobserved variable. A potential level of production is achieved when all factors of production (labour, capital, and technology level) are used at their natural level.

The European Commission estimates of the gap between GDP and potential GDP are shown in **Figure 10**. According to the European Commission, this gap in 2018 will be close to zero. It should be noticed that if real GDP grows at the rate forecast by the Ministry of Finance, it would significantly exceed the potential GDP (positive output gap would account for 4 per cent) in 2018. Following to the European Commission forecasts, Lithuanian potential GDP growth rate in 2018 will be 1.3 per cent according

Figure 10. Growth Decomposition



Source: Statistics Lithuania, European Commission, Ministry of Finance

to the production function methodology and 1.8 per cent according to the Hodrick-Prescott filter method. The slowdown of potential GDP growth momentum is associated with high structural unemployment, aging population, and a high level of emigration. Considering that the output gap in 2018 should be close to zero there is an obvious difference in the projected indicators when comparing the potential GDP growth (+1.8 per cent) forecast by the European Commission with the real GDP growth (+3.9 per cent) projected by the Ministry of Finance for 2018 and; however, given the fact that the standard deviation of forecast errors for three years ahead is about 2.5 per cent and that the forecast falls within the endorsable range, the projection is deemed to be likely.

The Opinion and the Annex thereto was prepared by Director of the Budget Policy Monitoring Department, Asta Kuniyoshi, Adviser Saulė Išdonaitė-Karalevičienė, Adviser Erika Latyšovič, and Adviser of the Audit Development Department, Giedrė Sušinskaitė.