

**BANKA
SLOVENIJE**
BANK OF SLOVENIA
EUROSYSTEM



MACROECONOMIC PROJECTIONS FOR SLOVENIA



DECEMBER 2017

Title: Macroeconomic Projections for Slovenia
Issue: December 2017

Published by: BANK OF SLOVENIA
Slovenska 35
1505 Ljubljana
Tel: +386 1 4719000
Fax: +386 1 2515516
email: bsi@bsi.si
<http://www.bsi.si/>

The Macroeconomic Projections for Slovenia are based on figures and information available on 30 November 2017.

The figures and text herein may only be used or published if the source is cited.

This publication is also available in Slovene.

ISSN 2463-9982

Table of contents

Executive Summary	5
1 International Environment and External Assumptions	7
2 Projections	8
2.1 Economic Activity	8
2.2 Labour Market	11
2.3 Inflation	13
3 Risks and Uncertainties	16
4 Comparison Between Institutions	17
4.1 Comparison of Projections Between Institutions	17
4.2 Comparison of Projection Accuracy Between Institutions	18

Figures and tables:

Figures:

Figure 1	Projection of expenditure contributions to GDP growth rate	9
Figure 2	Real private consumption, disposable income and savings dynamics projections	9
Figure 3	Projection of components' contributions to the growth of gross fixed capital formation	9
Figure 4	Government investment	10
Figure 5	Current account, real exports and imports projections	10
Figure 6	Revision of GDP projection by components	11
Figure 7	Employment and unemployment	11
Figure 8	Projection of compensation per employee growth	12
Figure 9	Decomposition of compensation per employee growth	12
Figure 10	Projection of contributions to inflation by components	14
Figure 11	Revision of inflation projection by components	14
Figure 12	Risks to the projections	16
Figure 13	Comparison of GDP projections for Slovenia	17
Figure 14	Comparison of inflation projections for Slovenia	17

Tables:

Table 1	Macroeconomic projections for Slovenia, 2017–2020	6
Table 2	Assumptions for factors from the international environment	7
Table 3	Inflation projections	13
Table 4	Basic accuracy measures of GDP growth projections, based on second available data	20
Table 5	RMSE and SRMSE of GDP growth projections, based on second available data	21
Table 6	Basic accuracy measures of inflation projections, based on second available data	22
Table 7	RMSE and SRMSE of inflation projections, based on second available data	23

Executive Summary

The macroeconomic situation in Slovenia is favourable. Economic growth has been strengthening for four years now, and the situation on the labour market is consequently improving. The positive cyclical developments and the low level of interest rates also have a favourable impact on the state of public finances, while inflation remains moderate. The macroeconomic projections on this occasion are therefore even more optimistic, albeit subject to certain risks.

Economic growth is expected to remain high over the projection horizon, averaging 4%. Growth is projected to be highest this year, at 4.7%, and to gradually slow to 3.4% by 2020. The high economic growth is expected to be sustained by its broad basis, supported by domestic demand and strong export sector. Growth in private consumption is projected to remain robust, at around 3%, and is being spurred by rising disposable income and diminishing uncertainty. Alongside private consumption, private-sector investment and public investment are also projected to strengthen. Domestic and foreign investors have numerous investment projects awaiting go-ahead, having been encouraged by reduced uncertainty in the business environment, increased optimism in the export sector, strengthening of private consumption and favourable financing conditions. Growth in investment is projected to exceed 8% over the coming years, with financing partly coming from bank loans in addition to firms' own resources.

The competitive export sector and favourable economic situation in the international environment are expected to allow high export growth over the medium term. Export growth is also expected to be supported by new investment in machinery and equipment, and new production lines with higher value-added. This will raise the productivity of the export sector, which will maintain competitiveness on expanding global markets, and will allow growth in foreign demand to be exploited. Export growth is projected to average more than 6% over the projection horizon. The contribution made to GDP growth by net trade will nevertheless be smaller than in previous years, as increased domestic demand will strengthen import growth. The merchandise trade surplus will thus decline, which will slightly reduce the current account surplus, although it will remain at a sufficient level to mitigate any sharper deterioration in the terms of trade caused by price shocks on the global commodities market.

The economic recovery is also improving the situation on the labour market. After increasing this year, employment growth is projected to gradually slow, but is nevertheless expected to average more than 1%. The ageing population and a shortage of skilled workers are seen as the largest limiting factors for faster employment growth in the future. At the same time, surveyed unemployment rate is projected to continue falling, and should reach around 5% by the end of the projection horizon, further slowing employment growth in later years. Recruitment will be more rapid in export-oriented sectors, construction and services. A gradual fall in the unemployment rate below the natural unemployment rate and structural imbalances on the labour market will begin to put upward pressure on wage growth, which will strengthen throughout the projection horizon. As wage growth outpaces productivity growth, growth in unit labour costs will also start to increase.

Growth in domestic demand aggregates and cost pressures are expected to raise inflation above 2% by the end of the projection horizon. As economic growth continues to outpace potential growth, the positive output gap is projected to widen, and additional upward pressure on prices will stem from wage growth outpacing productivity growth. Core inflation will gradually rise to around 2.5% by the end of the projection horizon. Higher inflation will primarily be evidenced in services, while growth in prices of other tradable goods will be lower and more limited.

After recording strong growth this year, energy and food prices are projected to play a less evident role in overall inflation in the coming years.

The majority of risks to the GDP growth and inflation projections are again on the upside. The largest risks to economic growth continue to come from the domestic environment, and are related to growth in private-sector investment and government investment. In the case of government investment, which involves large investment projects, the effects on GDP growth could be considerable. Employment growth and the reduction in general uncertainty are strengthening private consumption, which, given favourable financing conditions, could even be significantly higher, particularly in the light of potentially stronger wage growth. Faster wage growth and potential shocks in global commodity prices could cause inflation to be higher than currently projected.

Table 1: Macroeconomic projections for Slovenia, 2017–2020

	2011	2012	2013	2014	2015	2016	Projections								
							2017		2018		2019		2020		
							Δ	Dec.	Δ	Dec.	Δ	Dec.	Δ	Dec.	
Prices	annual average % changes														
HICP	2.1	2.8	1.9	0.4	-0.8	-0.2	0.0	1.5	-0.2	1.4	-0.2	2.0	-0.1	2.2	...
HICP excluding energy	1.0	1.8	2.0	0.7	0.4	0.6	0.0	1.1	-0.3	1.4	-0.4	2.3	-0.1	2.5	...
HICP energy	8.8	9.0	1.8	-1.4	-7.8	-5.2	0.0	4.6	0.3	1.6	1.5	-0.3	-0.3	-0.3	...
Economic activity	y-o-y growth rates in % (unless stated otherwise)														
GDP (real)	0.6	-2.7	-1.1	3.0	2.3	3.1	0.6	4.7	1.2	4.2	1.1	3.6	0.6	3.4	...
Private consumption	0.0	-2.4	-4.1	1.9	2.1	4.2	1.4	3.2	0.2	3.2	0.4	2.9	0.3	2.8	...
Government consumption	-0.7	-2.2	-2.1	-1.2	2.7	2.5	-0.1	1.5	0.0	1.6	0.2	1.6	0.1	1.6	...
Gross fixed capital formation	-4.9	-8.8	3.2	1.1	-1.6	-3.6	-0.5	9.0	2.5	10.2	3.1	8.2	2.7	7.3	...
of which Private sector	-1.0	-9.9	2.2	-4.2	0.0	5.0	-1.6	10.1	3.1	9.2	2.5	8.8	2.5	8.1	...
of which Government sector	-17.8	-4.7	6.7	20.1	-6.3	-29.9	4.0	2.4	-3.8	13.4	4.1	5.5	3.9	3.9	...
Exports (goods and services)	6.9	0.6	3.1	5.7	5.0	6.4	0.5	9.7	3.6	6.2	0.8	6.1	0.7	5.9	...
Imports (goods and services)	5.0	-3.7	2.1	4.1	4.7	6.6	0.4	9.4	3.0	6.4	0.4	6.5	0.8	6.2	...
Contributions to real GDP growth	in GDP percentage points														
Domestic demand (excluding inventories)	-1.2	-3.6	-2.1	1.0	1.3	2.1	0.7	3.6	0.6	3.8	0.7	3.4	0.7	3.2	...
Net exports	1.3	2.8	0.8	1.4	0.6	0.4	0.1	1.1	0.8	0.4	0.4	0.3	0.1	0.3	...
Changes in inventories	0.6	-2.0	0.2	0.5	0.3	0.7	-0.1	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	...
Labour market	y-o-y growth rates in % (unless stated otherwise)														
Unemployment growth (% of labour force)	8.2	8.9	10.1	9.8	9.0	8.0	0.0	6.7	-0.6	6.0	-0.4	5.5	-0.5	5.2	...
Total employment	-1.7	-0.9	-1.1	0.4	1.2	1.9	-0.1	2.8	0.7	1.9	0.6	1.0	0.1	0.6	...
Compensation per employee	1.5	-1.0	0.5	1.3	1.4	2.8	0.6	2.6	-0.2	3.5	0.4	4.0	0.4	4.4	...
...Productivity	2.4	-1.8	0.0	2.6	1.0	1.2	0.7	1.8	0.5	2.3	0.5	2.6	0.5	2.8	...
...Unit labour costs (ULC)	-0.8	0.8	0.5	-1.2	0.4	1.6	-0.1	0.8	-0.7	1.2	-0.1	1.4	-0.1	1.5	...
Balance of payments	y-o-y growth rates in % (unless stated otherwise)														
Current account: in bn EUR	0.1	0.8	1.6	2.2	1.7	2.1	-0.6	2.7	0.2	2.8	0.4	2.8	0.5	2.9	...
in % GDP	0.2	2.1	4.4	5.8	4.4	5.2	-1.6	6.2	0.2	6.1	0.8	5.9	0.9	5.8	...
Terms of trade*	-1.4	-1.1	0.8	1.0	1.3	0.9	0.1	-0.6	0.7	-0.3	0.4	-0.3	0.0	-0.2	...

* Based on deflators from National Accounts data.

Δ: Difference between current projections and projections in Macroeconomic Projections for Slovenia, June 2017.

Source: Bank of Slovenia, Consensus Economics, Eurostat, JP Morgan, OECD Economic Outlook, SORS, ECB.

1 | International Environment and External Assumptions

The global economy is estimated to maintain a solid pace of expansion throughout the projection horizon. GDP growth in the euro area is also expected to remain encouraging, and to be supported by a favourable outlook in domestic demand. The technical assumptions reflect a Brent crude oil price of around USD 60 per barrel, and an exchange rate of USD 1.17 per euro during the projection horizon.

The global economy is estimated to maintain a solid pace of expansion throughout the projection horizon.

According to the latest ECB projections, economic growth in the euro area is expected to remain encouraging, and to be supported by a favourable outlook in domestic demand, averaging close to 2%. The assumption for growth in foreign demand in Slovenia is consequently significantly higher than in previous years, which provides a sound basis for rapid growth in Slovenia's exports.

The technical assumptions reflect a Brent crude oil price of around USD 60 per barrel, and an exchange rate of USD 1.17 per euro during the projection horizon. The external technical assumptions¹ regarding the developments in primary commodity prices were determined on the basis of market expectations (average

movements) on futures markets over a two-week period before the cut-off date. It is assumed that the price of a barrel of Brent crude oil, which stood at USD 44 in 2016, will rise to just over USD 54 in 2017 and USD 61 in 2018, before falling to around USD 58 in 2019 and 2020. According to ECB methodology, the prices of other non-energy primary commodities have been assumed to follow futures prices until the final quarter of 2018, and thenceforth to evolve in line with global economic activity. The technical assumption for the euro exchange rate against the US dollar is that it will remain unchanged over the projection horizon at the average levels prevailing in the two-week period ending on the cut-off date. This means that the euro is assumed to average USD 1.13 in 2017, and USD 1.17 in 2018, 2019 and 2020.

Table 2: Assumptions for factors from the international environment

	Assumptions									
	2012	2013	2014	2015	2016	2017	2018	2019	2020	
<i>growth rates, % (if not specified otherwise)</i>										
World (excluding euro area) real GDP*	4.2	4.0	3.8	3.5	3.4	3.7	3.9	3.8	3.7	
Real GDP growth in Euro Area*	-0.9	-0.3	1.4	2.1	1.8	2.4	2.3	1.9	1.7	
Foreign demand for Slovenia	0.7	1.8	2.8	2.2	3.3	5.8	4.7	4.2	4.0	
Oil price (in USD/barrel)	112.0	108.8	98.9	52.4	44.0	54.3	61.6	58.9	57.3	
Oil price (in EUR/barrel)	87.1	82.0	74.5	47.2	39.8	48.2	52.5	50.2	48.9	
Oil price (in USD/barrel, annual percentage change)	0.9	-2.8	-9.1	-47.0	-15.9	23.3	13.4	-4.3	-2.7	
Exchange rate (EUR/USD)	1.29	1.33	1.33	1.11	1.11	1.13	1.17	1.17	1.17	
Non-energy commodity prices	-11.9	-6.9	-3.3	-16.5	-3.9	7.9	3.3	3.4	4.3	

Note: * For the period 2012-2016, the European Commission is the source, and for the period 2017-2020, the ECB's projections are the source. Source: ECB, European Commission, Bank of Slovenia.

¹ The technical assumptions are based on information available by the cut-off date of 22 November 2017. The assumptions for foreign demand for Slovenia and the external technical assumptions of medium-term projections of macroeconomic developments in Slovenia drawn up by the Bank of Slovenia within the framework of the ESCB are based on the harmonised forecasting assumptions within the framework of the ESCB. For more on the methodology, see the latest release of ESCB projections online (<https://www.ecb.europa.eu/pub/projections/html/index.en.html>), which is also available in Slovene.

2 | Projections

Economic growth is expected to remain high over the projection horizon, averaging around 4%, and to remain broadly based. Given the encouraging situation on the labour market, and the high level of consumer confidence compared to previous years, private consumption is expected to strengthen. Growth in private-sector investment is projected to intensify significantly over the next two years, before stabilising at around 8%. The progress of the investment cycle is displayed in the large number of new investment projects encouraged by the high levels of retained earnings in the corporate sector in previous years, low interest rates, lower corporate indebtedness and a sharp reduction in uncertainty in the business environment. After falling in 2016, government investment will strengthen again, primarily as a result of the increased disbursement of EU funds and the positive impact of parliamentary and local elections in 2018. The contribution to economic growth made by net exports is projected to increase this year. This is attributable to the significant increase in growth in foreign demand and the maintenance of exporters' competitive position on international markets. In the wake of strengthening domestic demand, import growth is also expected to be high. Stronger domestic activity is consequently expected to lead to a reduction in the contribution made by net exports over the medium term, and to a gradual decline in the current account surplus.

After the high levels in 2017, employment growth is expected to slow, primarily as a result of the demographic effects of the aging population and the more pronounced impact of structural imbalances on the labour market, already being reflected in a shortage of (skilled) labour. Given a rising inflation and growing productivity, the latter is projected to be one of the main factors in the gradual strengthening of wage growth over the projection horizon.

Economic growth and the strengthening cost pressures are expected to gradually raise core inflation. The latter is projected to strengthen throughout the projection horizon, and to become the most important factor in the overall growth in consumer prices as measured by the HICP. The contribution made to headline inflation by growth in energy prices is projected to be negligible after 2017. Headline inflation is consequently projected to fluctuate around 2% towards the end of the projection horizon.

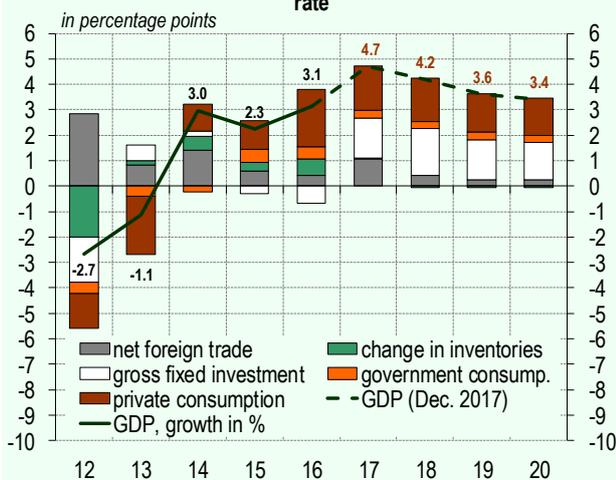
2.1 Economic activity

Economic growth is expected to remain high over the projection horizon. Stronger domestic demand and the favourable situation in the international environment are both expected to contribute to increased GDP growth in 2017. Growth in final household consumption and the continued strengthening of growth in private-sector investment, which began in the second half of 2015, are projected to remain significant factors in the domestic environment. The positive outlook in the international

environment is reflected in the favourable assumption for growth in foreign demand, while improvements in export efficiency are expected to continue supporting balanced and broadly based economic growth throughout the projection horizon. Growth is therefore expected to stand at 4.7% this year, and is projected to slow slightly in 2018, 2019 and 2020, although remaining above 3.4%.

While the situation in the labour market remains encouraging, growth in private consumption is projected to remain around 3% throughout the projection horizon, and continue to be a significant factor in

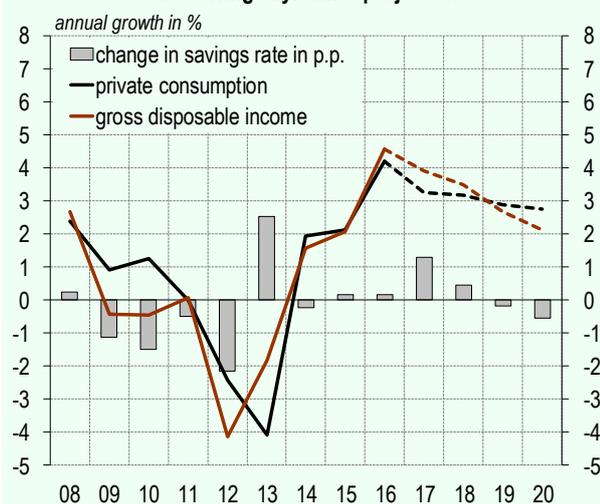
Figure 1: Projection of expenditure contributions to GDP growth rate



Note: Due to rounding, sums of components may differ from aggregate values.
Source: SORS, Bank of Slovenia projections.

GDP growth. The favourable situation in the labour market is expected to be reflected in growth of household disposable income, which will be the result of the projected growth in wages and employment in both the private and the public sector. Growth in real disposable income is projected to average 3.3% over the projection horizon. Positive signs are also being seen in survey indicators (e.g. consumer confidence), which are showing record

Figure 2: Real private consumption, disposable income and savings dynamics projections

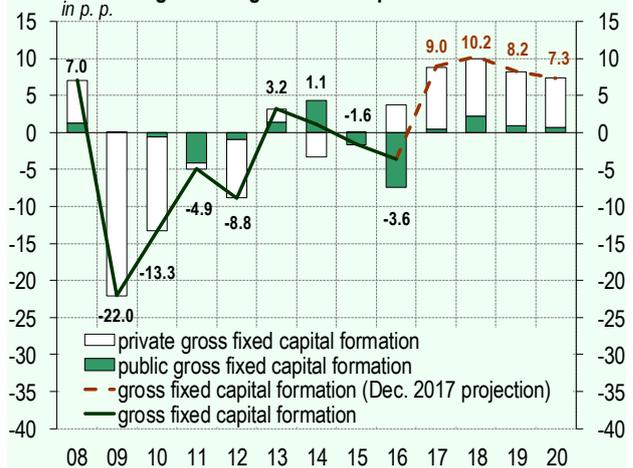


Source: SORS, Bank of Slovenia projections.

low levels of uncertainty among consumers, while growth in consumer loans is also anticipated.

Final government consumption will grow moderately over the projection horizon. Real growth in government consumption is estimated at 1.5% in 2017. Growth is expected to remain at a similar level between 2018 and 2020. This is the second consecutive year where a significant growth in wages and employment in the government sector occurred. The latter was unchanged in 2015, before rising by 1.6% in 2016, and by 1.8% over the first nine months of 2017. Employment is expected to continue rising over the projection horizon, although growth from 2018 to 2020 is projected to be slower than in the two preceding years, at annual rates of between 0.5% and 1%. Having risen significantly in 2016 and 2017 as a result of the gradual relaxation of austerity measures, the average wage¹ will record an average annual growth of around 4% over the remainder of the projection horizon,² comparable to the rate projected for the private sector. The growth in government consumption is also attributable to expenditure on intermediation consumption and expenditure on social transfers in kind.

Figure 3: Projection of components' contributions to the growth of gross fixed capital formation



Note: Due to rounding, sums of components may differ from aggregate values.
Source: SORS, Bank of Slovenia projections.

¹ The analysis uses national accounts figures, where the average wage is calculated as compensation of employees per employee.

² The average wage in the government sector grew more slowly in 2017 than predicted in the previous projections, for which reason the rate was revised downwards. The projection for wage growth in the government sector in 2018 has been revised upwards in light of the agreements reached and the increased upward pressures on wages. Slightly more funds were earmarked for the elimination of wage anomalies up to and including the 26th wage grade under the agreement of July 2017 than had initially been agreed for the elimination of all wage anomalies. Negotiations on public sector pay are still in progress. The negotiations are addressing the following points: a) the elimination of anomalies in the valuation of positions above the 26th wage grade; b) the elimination of anomalies in the valuation of positions that in terms of content, complexity or any other circumstance are comparable to that of a physician; c) the abolition of the remaining austerity measures (the freeze on payments of ordinary performance bonuses, reduced payments of bonuses for increased workload, lower premiums for collective voluntary supplementary pension insurance).

Figure 4: Government investment

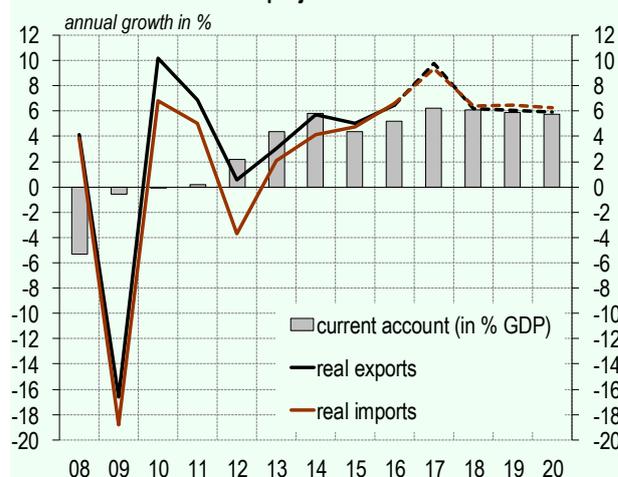


Source: SORS, EC – Ameco database, Bank of Slovenia projections.

Under the influence of the pick-up in the investment cycle, growth in private-sector investment is projected to intensify significantly in this and the next year, before gradually stabilising around 8% in 2019 and 2020. Growth in private-sector investment (primarily in machinery and equipment in the first period of the projection horizon) will be encouraged by the corporate sector's high levels of retained earnings, low interest rates and improved access to bank financing, low corporate indebtedness, and the anticipated strengthening of domestic and foreign demand. The optimism about future investment activity is also being supported by the results of surveys showing low uncertainty, a high level of new orders, and sufficient availability of financial resources. In light of the increased demand for real estate, further growth in household disposable income and the favourable financing conditions, a new cycle of private-sector investment in residential real estate is expected to take off, particularly in the second half of the projection horizon.

Government investment will strengthen significantly over the projection horizon, particularly in 2018, as a result of the faster disbursement of EU funds and the effect of the electoral cycle. General government investment has strengthened slowly this year after a sharp fall in 2016, when it fell to its lowest level as a share of

Figure 5: Current account, real exports and imports projections



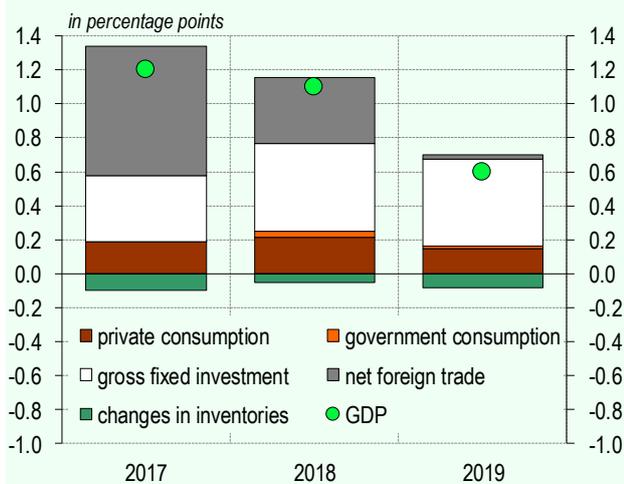
Source: SORS, Bank of Slovenia projections.

GDP according to available figures. The growth rate in 2017 has nevertheless been revised downwards relative to the previous projections owing to slower disbursement of EU funds, and revised upwards in the remaining years of the projection period. The disbursement of EU funds is slowly increasing, although 45% of the total available funds from the new financial framework 2014-2020 had already been disbursed by the end of September 2017.³ Investment at the local level is also expected to strengthen in 2018, as usually during elections periods. Government investment is projected to strengthen from 3.2% of GDP in 2016 to 3.5% of GDP in 2020.

The contribution made to economic growth by net exports is projected to slightly increase this year in light of the favourable situation in the international environment, but is also expected to decline in the coming years as a result of stronger domestic demand. Export growth is expected to be high over the projection horizon, given the favourable outlook for growth in foreign demand, and will remain around 6% between 2018 and 2020. Given the further strengthening of the components of domestic demand, import growth is expected to be slightly higher than export growth, which will gradually reduce the current account surplus. The latter is projected to decline from 6.2% of GDP this year to 5.8% of GDP in 2020. The narrowing of the current account

³ Source: Report on the Implementation of European Cohesion Policy 2014-2020 for the period of January 2014 to September 2017 (Priorities Investment, Jobs and Growth), Government Office for Development and European Cohesion Policy (http://www.svrk.gov.si/fileadmin/svrk.gov.si/pageuploads/Dokumenti_z_a_objavo_na_vstopni_strani/Porocilo_o_izvajanju_EKP_2014-2020_januar_2014_september_2017.pdf).

Figure 6: Revision of GDP projection by components



Note: Due to rounding, sums of components may differ from aggregate values.
Source: SORS, Bank of Slovenia.

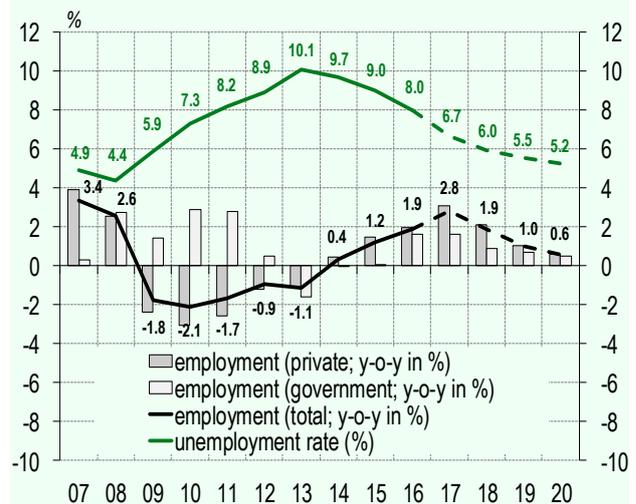
surplus will be slowed by the gradual reduction in deficit in primary income as a result of the restructuring of foreign debt in the low interest rate environment.

Compared with the June projections, the economic growth projections for all three years have been revised upwards, most notably for 2017 and 2018. The improved economic growth projection for 2017 is primarily due to a stronger increase in private-sector investment and a larger contribution by net exports in the first three quarters of this year than had been expected in the previous projections. In light of the favourable situation in the domestic business environment, the contribution made to total GDP growth by gross fixed capital formation is projected to be slightly stronger over the remainder of the projection horizon, from both private-sector and stronger government investment as a result of the faster disbursement of EU funds from the European financial framework 2014-2020. Growth in private consumption is also expected to be slightly stronger than previously projected. Growth in gross fixed capital formation and growth in private consumption will both be supported by strengthening bank lending.

2.2 Labour market

Although the effects of the structural imbalances on the labour market became more pronounced in the first three quarters of this year, there has not yet been any significant impact on dynamics in wages and employment. Employment, according to the national accounts figures, has been growing in year-on-year terms since 2014 at increasing rates. Year-on-year growth over the first three quarters of this year averaged 2.8%. Employment grew more quickly in the private than in the government sector. According to SURS survey data, employment growth can also be expected in the final quarter, partly as a result of measures taken on the labour market and this year's reform of labour legislation.⁴ Unemployment has continued to fall this year. The surveyed unemployment rate fell to 6.3% in the third quarter, only 2 percentage points above its pre-crisis low. With unemployment falling rapidly, the problem of a shortage of (skilled) labour intensified,⁵ and firms are increasingly compensating by recruiting foreign workers. The domestic population also responded to the increased demand for labour by increasing their participation in the labour market. Employment growth was only partly tracked by wage growth, which averaged 2.3% in year-on-year terms

Figure 7: Employment and unemployment

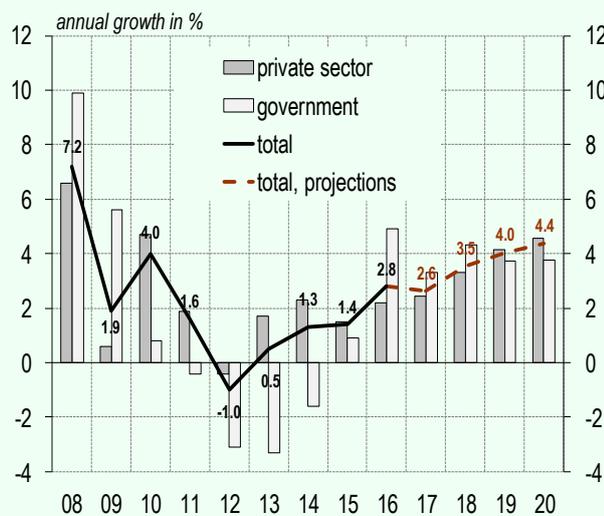


Source: SORS, Bank of Slovenia projections.

⁴ The active labour market programmes will notably feature measures targeting the young and older workers, the low-skilled and the long-term unemployed, while funding for active labour market programmes in 2017 and 2018 will also be increased. Meanwhile, a mini reform of the labour market was implemented in September of this year by passing the Act Amending the Labour Market Regulation Act. It introduces a requirement to register as a job-seeker during the notice period of the previous employment, and provides incentives for low-skilled and medium-skilled recipients of cash benefits to seek employment.

⁵ According to SURS business tendency survey data, during the first three quarters of this year the effects of structural imbalances increased significantly in all sectors covered by the survey.

Figure 8: Projection of compensation per employee growth

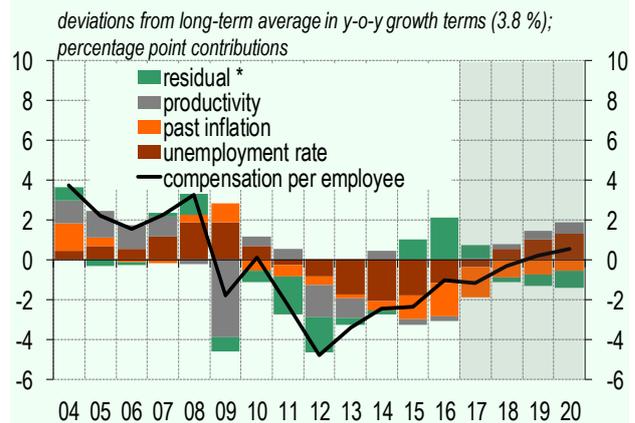


Source: SORS, Bank of Slovenia projections.

over the first three quarters of the year. The relatively low growth is also attributable to the majority of hiring occurring in sectors with below-average wage. This year wages in the government sector are again growing faster than those in the private sector, owing to the abolition of austerity measures and the elimination of wage anomalies.⁶

After the high levels of 2017, employment growth is expected to slow. As the number of unemployed is an-

Figure 9: Decomposition of compensation per employee growth



* The residual represents the impact of variables, which are not included in the estimated equation. The positive residual in 2017 is related to the expected high year-end bonus payments, whereas in comparison to 2016 the residual in 2017 is lower due to growing employment of foreign workers and increasing labour market participation rate, which adversely affect the growth of wages.

Source: Eurostat, Bank of Slovenia calculations.

anticipated to fall and the labour force participation rate to rise, employment growth is expected to reach 2.8% in 2017, its highest rate since 2007.⁷ The high growth projections for employment primarily reflects the booming economic climate. Despite the relaxation of restrictions on new hires in the government sector, employment growth in the private sector has been significantly higher this year, primarily as a result of the replacement of jobs lost during the crisis, although the gap is projected to begin

Methodological note: Decomposition of compensation per employee growth

The decomposition of nominal growth in compensation per employee is based on an estimate of the Phillips curve and the calculation of the contributions to growth according to the methodology presented by Yellen (2015).¹ The method of least squares is used to estimate an equation in which annualised quarterly growth in compensation per employee (W_t) is explained by (i) its first lag (W_{t-1}); (ii) the first lag of the surveyed unemployment rate (γ_{t-1}); (iii) annualised quarterly real productivity growth ($Prod_t$); and (iv) the four-quarter moving average of year-on-year growth in the harmonised index of consumer prices (π_t). The following equation was estimated on the basis of quarterly figures for the period of 2001 Q1 to 2017 Q3 :

$$W_t = b_1 + b_2 W_{t-1} - b_3 \gamma_{t-1} + b_4 Prod_t + b_5 \pi_t + \epsilon_t$$

The contributions of the various factors to compensation per employee growth are calculated by means of dynamic simulations for each explanatory variable separately. A value of zero is ascribed to each explanatory variable, and the difference between the observed growth in compensation per employee and the simulated figure, obtained without the explanatory variable in question, is calculated. The difference represents the contribution made by the explanatory variable that is set at zero in the simulation. Growth in compensation per employee is presented graphically in the form of deviations in average year-on-year growth from the corresponding long-term average. It is a similar case for the illustration of the contributions.

¹ Yellen, J.L. (2015). Inflation Dynamics and Monetary Policy. Speech at the Philip Gamble Memorial Lecture. Amherst: University of Massachusetts.

⁶ The measure targeted the elimination of wage anomalies for employees up to the 26th wage grade and officials, who gained the entitlement to higher wages on 1 July 2017. Employees received their higher payments, together with a back settlement for July and August, in September.

⁷ The reactivation of inactive people who were deterred from seeking work during the crisis is expected to contribute significantly to the rise in the labour force participation rate over the projection horizon. In addition to reactivation, the effects of the pension reform of 2012 are also expected to raise the participation rate.

narrowing. Employment growth is expected to gradually slow between 2018 and 2020 as a result of a slowdown in economic growth, the demographic effects of the ageing population, and the growing impact of structural imbalances on the labour market. In light of the favourable realisation of economic growth and employment in the first three quarters of this year, the favourable employment expectations, the heavy hiring of foreign nationals, and the anticipated sustained growth in the labour force participation rate, the employment projections for the 2017 to 2019 period has been revised upwards.

Despite the anticipated bonus payments at the end of the year, wage growth this year is expected to remain at the level of last year, but is then projected to gradually strengthen. Over the projection horizon wage growth is expected to be driven by rising inflation, productivity growth and a persistent decline in the labour supply. Wage growth in 2017 will be similar to last year's (2.6%), although the sectoral dynamics will be slightly different. Wage growth in the government sector in the first half of the year was lower compared to last year, despite the further relaxation of austerity measures and elimination of wage anomalies. By contrast, a sufficient supply of labour means that there are not yet any major upward pressures on wage growth in the private sector. The first significant pick-up in wage growth is expected as early as the final quarter of this year, primarily as a result of the anticipated

high growth in bonus payments, which along with good business results is attributable to a reduction in the taxation of performance-related bonus payments. In 2018, before the initiation of a new political cycle, the favourable economic growth is expected to exhibit increased upward pressure on wage growth, which is projected to reach 3.5%. The rate is projected to strengthen further in 2019 and 2020, particularly in the private sector. The wage growth projections for 2018 and 2019 has been revised upwards relative to the previous projections, owing to the more favourable economic situation, and the larger shortage of labour supply, which is increasing workers' negotiating power.

2.3 Inflation

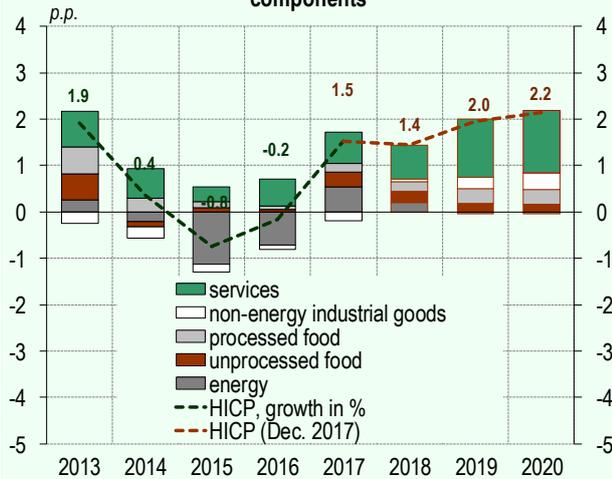
Year-on-year inflation as measured by the HICP this year is projected to be slightly higher than the following year, as a result of one-off external factors, but is projected to rise again in 2020 and exceed 2%. After recording high rates in the first quarter of this year, inflation slowed to around 1.4%. Inflation this year has been profoundly under the influence of external factors, most notably rising oil prices on global markets and hikes in prices of unprocessed food. By contrast, the relatively low wage growth, moderately low input costs, as well as high corporate revenues are not exerting much pressure on

Table 3: Inflation projections

	2012	2013	2014	2015	2016	2017		2018		2019		2020	
						Dec.	Δ	Dec.	Δ	Dec.	Δ	Dec.	Δ
<i>average annual growth, %</i>													
Consumer prices (HICP)	2.8	1.9	0.4	-0.8	-0.2	1.5	-0.2	1.4	-0.2	2.0	-0.1	2.2	...
food	4.7	4.9	0.8	0.9	0.5	2.2	0.0	2.0	-0.1	2.2	0.1	2.1	...
energy	9.0	1.8	-1.4	-7.8	-5.2	4.6	0.3	1.6	1.5	-0.3	-0.3	-0.3	...
other goods	-0.2	-0.8	-1.0	-0.6	-0.5	-0.7	-0.5	0.2	-0.3	0.9	0.0	1.3	...
services	1.5	2.3	1.8	0.9	1.6	1.8	-0.2	2.0	-0.5	3.4	-0.2	3.6	...
Core inflation indicators (HICP)													
excluding energy	1.8	2.0	0.7	0.4	0.6	1.1	-0.3	1.4	-0.4	2.3	-0.1	2.5	...
excl. energy and unprocessed food	1.5	1.4	0.9	0.4	0.6	0.8	-0.4	1.2	-0.5	2.3	-0.1	2.5	...
excl. energy, food, alcohol and tobacco	0.7	0.9	0.6	0.3	0.7	0.7	-0.4	1.2	-0.4	2.3	-0.2	2.6	...

Δ: difference between current projections and projections in *Macroeconomic Projections for Slovenia, June 2017*.
Source: SORS, Bank of Slovenia.

Figure 10: Projection of contributions to inflation by components



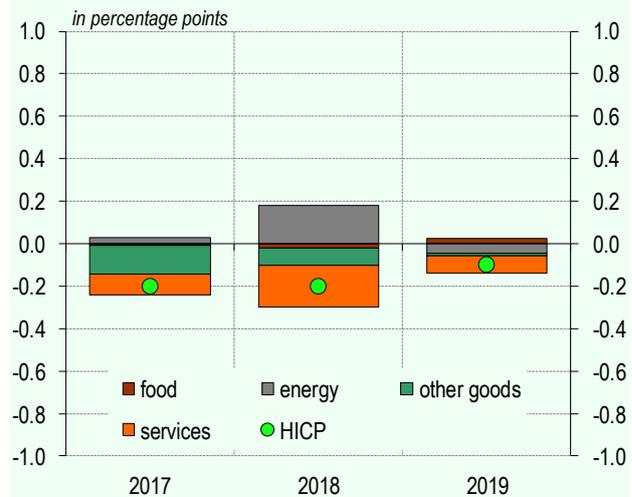
Note: Due to rounding, sums of components may differ from aggregate values.
Source: SORS, Bank of Slovenia projections.

domestic inflation for the moment. Inflation is thus projected to reach 1.5% this year, before declining slightly next year as a result of a base effect, particularly in import prices. Towards the end of the projection horizon inflation is expected to exceed the monetary policy target, at least temporarily, in the wake of solid economic growth and slightly higher wage growth.

Year-on-year growth in energy prices will contribute significantly to overall growth in consumer prices this year, but their contribution will then decline. This year's year-on-year growth in energy prices has been attributable to a base effect, particularly at the beginning of the year, and a rise in oil prices in the autumn months. This year's average growth in energy prices will be significantly higher than last year, and is projected to reach 4.6%. The increase in prices in recent months will also result in higher energy prices in 2018, but they are then expected to remain unchanged in 2019 and 2020, in line with the assumptions.

Economic growth and strengthening cost pressures are expected to gradually raise core inflation over the projection horizon. Growth in core inflation indicators will remain below 1% overall this year, and will then gradually rise over the next three years to reach 2.6% in 2020. The main driver of this growth domestically is expected to be the wage growth, which is projected to support the growth in private consumption at a relatively high level. The projected labour market dynamic will also in-

Figure 11: Revision of inflation projection by components



Note: Due to rounding, sums of components may differ from aggregate values.
Source: SORS, Bank of Slovenia.

crease cost pressures at firms, which will reflect in rising unit labour costs rise over the projection horizon. These developments are projected to result in higher growth in services prices; a growth which still persists below its long-term average despite the favourable economic situation. Most of the growth in services prices stems from the dynamics of the public services prices rather than prices of market services, which are expected to increase in the coming years. Year-on-year growth in services prices is projected to rise over the projection horizon from 1.8% this year to 3.6% in 2020. After falling for several years, prices of non-energy industrial goods will also gradually rise, as firms pass through a part of their rising labour costs and commodity costs into final prices. This pass-through will be limited, as competition is rising, partly on account of ever-increasing online sales. Growth in prices of non-energy industrial goods is projected to rise to around 1.3% by the end of the projection horizon.

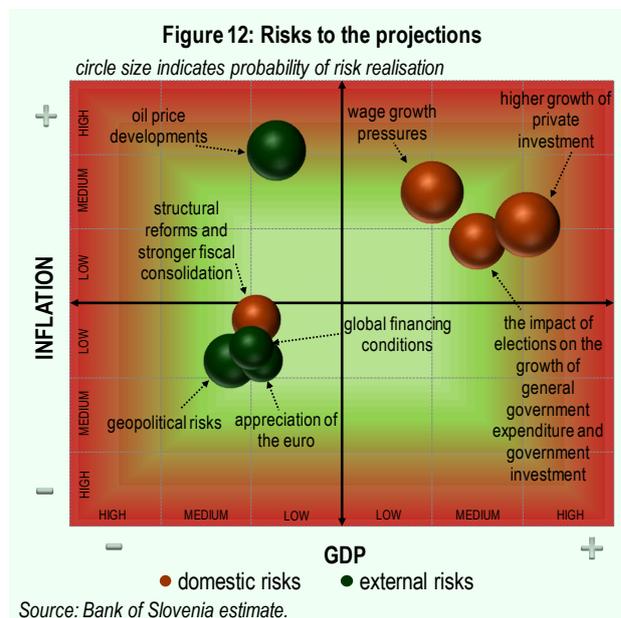
There has been no significant change in the inflation projection since the June projections. The revisions are primarily due to the significantly lower realisation of growth in prices of processed food, non-energy industrial goods and services. The main surprises were low growth in services prices (as a result of the relatively low real growth in average wages) and the slightly higher growth in energy prices, which to a great extent have not yet passed through into final prices for the consumer. In addition to the impact of the pass-through from 2017, the revision to the inflation projections for 2018 and 2019 reflects

the expectation of a more gradual impact from private consumption on growth in core inflation, particular on growth in services prices and prices of other goods, which are also under the influence of ever-increasing competition in the retail sector, primarily as a result of the aforementioned increase in online commerce.

3 | Risks and Uncertainties

The risks accompanying the current projections of economic growth and inflation are slightly tilted to the upside. The domestic risks surrounding economic growth primarily relate to investment activity by the private sector and by the government sector, while the main risks from the external environment come from the uncertain geopolitical situation in Europe and Asia. The risks to the inflation projections are on the upside, and are primarily related to the uncertainty surrounding energy prices and potentially faster economic growth. The structural imbalances on the labour market could be reflected in greater upward pressure on wages, which could further encourage faster growth in prices over the projection horizon.

The risks related to the economic growth projections are slightly on the upside. The risks suggesting faster economic growth come primarily from the domestic environment, and mainly relate to investment activity by the private sector and the government sector. Given the current favourable situation in the domestic economy and the international environment, the positive outlook with regard to firms' new orders, the high utilisation of production capacity, and the revival of credit growth, investment activity by the private sector could be even stronger than expected. A potential higher increase in government investment could primarily be caused by faster disbursement of EU funds, and the increased investment in local infrastructure that is typical of the electoral cycle. In addition, there is significant risk to the growth projections, coming from the labour market, where increased upward pressure on wages could come from a faster-than-expected fall in unemployment and longer-term structural imbalances on the labour market. The introduction of structural reforms could lead to slightly lower economic growth in the short term, in particularly in the second half of the projection horizon. The need for further structural adjustments in public finances in connection with meeting the fiscal target could slightly reduce growth in government consumption. The main downside risks come from the external environment, and relate to changes in the political environment in certain advanced economies (Spain, Brexit), and the geopolitical situation in the Middle East, in Ukraine and in the Korean peninsula. The risk of



a sudden tightening of global financial conditions should also be noted.

The risks surrounding the inflation projections are also slightly on the upside. The main risk from the external environment reflects potentially higher growth in oil prices and prices of other primary commodities, which could be reflected in higher energy prices in Slovenia. The largest domestic risks relate to growth in domestic demand, most notably investment, which could exceed current expectations. Consequently, upward pressures on wages could be somewhat stronger, which would be reflected in additional growth in consumer prices.

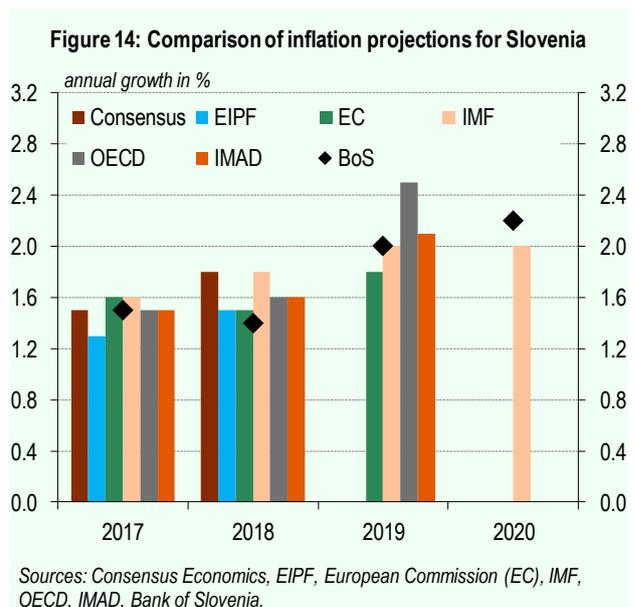
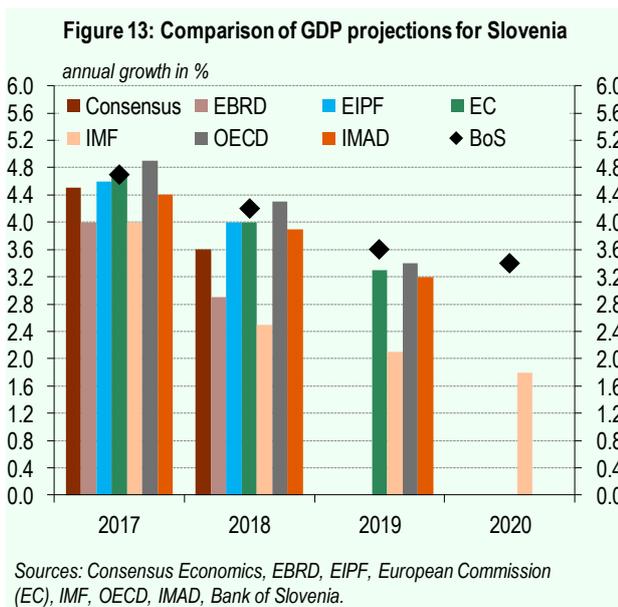
4 | Comparison Between Institutions

In the latest projections of economic growth for the 2017 to 2020 period the expectations regarding economic activity have been revised upwards, with domestic institutions disclosing greater optimism on average than foreign institutions. The average Bank of Slovenia projections over the specified period are 0.5 percentage points above the average of the projection range for the individual year. In the inflation projections for the 2017 to 2020 period, all the institutions are predicting a gradual recovery of price growth towards the medium-term objective set by the European Central Bank (with the exception of the OECD's projection profile for 2019). A comparison of projection accuracy between the institutions¹ reveals that in every observation period (2001 to 2016, the entire period excluding 2008 and 2009, and 2009 to 2016) the Bank of Slovenia was among the most accurate in projecting real GDP growth and consumer price inflation.

4.1 Comparison of projections between institutions

The institutions have revised their economic growth projections upwards over the entire projection horizon, and the projections of the domestic institutions are more optimistic on average than those of the foreign institutions. According to the most recent projections available, the highest economic growth for 2017 is projected by the OECD at 4.9%, which is 0.4 percentage

points above the middle of the range of all projections for the current year. The lowest projections for 2017 are presented by the EBRD and the IMF, at 4.0%. The Bank of Slovenia projection is 0.2 percentage points above the average projection for the current year, at 4.7%. The highest economic growth projection for the next year is 4.3% by the OECD, followed by 4.2% by the Bank of Slovenia, which is 0.5 percentage points above the middle of the range of all projections for the year in question. The lowest projection is that of the IMF, at just 2.5%. Projec-



¹ Eight institutions that draw up macroeconomic projections for Slovenia are included in the comparative analysis of current projections of real GDP growth and consumer price inflation (seven institutions for the latter): Consensus Economics, the European Bank for Reconstruction and Development (EBRD), the Economics Institute of the Faculty of Law (EIPF), the European Commission, the International Monetary Fund (IMF), the Organisation for Economic Cooperation and Development (OECD), the Institute of Macroeconomic Analysis and Development (IMAD) and the Bank of Slovenia.

tions by four institutions are available for 2019. The highest projection is by the Bank of Slovenia, at 3.6%, while the IMF has the lowest projection of just 2.1%. Only two institutions have projections for 2020 available: 3.4% from the Bank of Slovenia, and 1.8% from the IMF.

Regarding inflation projections for the 2017 to 2020 period, all institutions (with the exception of the OECD's projection profile for 2019) are predicting a gradual recovery of year-on-year price growth towards the medium-term objective set by the European Central Bank. The highest inflation rate for 2017 of 1.6% is expected by the European Commission and the IMF, while the lowest rate is projected by the EIPF, at 1.3%. The Bank of Slovenia's projection is the same as the average projection for the current year, at 1.5%. The highest inflation projections for the next year come from Consensus and the IMF, at 1.8%, followed by the 1.6% from the OECD and the IMAD. The lowest inflation projection is that of the Bank of Slovenia, at 1.4%, 0.2 percentage points below the average projection for the year in question. There are also four inflation projections available for 2019: the most notable is that of the OECD, which is predicting consumer price inflation to rise to 2.5%. The remaining institutions' projections show similar long-term expectations with regard to developments in year-on-year inflation. The highest inflation rate of 2.1% is projected by the IMAD, followed by the Bank of Slovenia and the IMF with 2.0%. The lowest rate is the 1.8%, projected by the European Commission. Again, only two institutions have projections for 2020 available, and they are close to the medium-term objective set by the ECB: 2.2% from the Bank of Slovenia, and 2.0% from the IMF.

4.2 Comparison of projection accuracy between institutions

The accuracy of real GDP growth and consumer price inflation projections over the 2001 to 2016 period is measured by comparing the statistical estimate or

the observed value with the projections for the variables obtained in past periods.² The calculations cover the mean error (ME), the mean absolute error (MAE), the standard deviation (STDEV), the root mean square error (RMSE) and the standardised RMSE (SRMSE).³ Only three of the institutions in question (the Bank of Slovenia, the European Commission and the IMF) released projections for the entire observation period. For the majority of the other institutions projections are only available from 2004 (from 2009 for the OECD, and from 2011 for the EBRD). Given the impact of the crisis (high volatility during the crisis years), the entire observation period excluding 2008 and 2009 and the period of 2009 to 2016 have been additionally included in the analysis.

In terms of the MAE and RMSE, the most accurate GDP growth projections for the 2001 to 2016 period were from the European Commission, the IMAD and the Bank of Slovenia, while the most accurate inflation projections were provided by the Bank of Slovenia, the IMAD and the SKEP unit. For GDP growth projections, MAE ranged from 0.7 to 3.1 over the observation period, while RMSE ranged from 0.8 to 4.6.⁴ Inflation projections were slightly more accurate: the aforementioned indicators had narrower ranges, namely 0.3 to 1.7 for MAE and 0.3 to 2.1 for RMSE.

The most accurate GDP growth projections over the entire period excluding 2008 and 2009 were those of the Bank of Slovenia, the European Commission and the IMAD, while the Bank of Slovenia, the IMAD and the SKEP unit had the most accurate inflation projections. The GDP growth and inflation projections over the above mentioned period are slightly more accurate than over the entire period, implying that crisis-related volatility was largest in 2008 and 2009. In the GDP growth projections, MAE ranged from 0.7 to 2.5 over the period in question, while RMSE ranged from 0.8 to 3.2. In inflation projections, the two indicators again ranged over narrower intervals: 0.2 to 1.7 for MAE and 0.3 to 2.1 for RMSE.

² In the examination of projection accuracy between institutions in the 2001 to 2016 period and in the various sub-periods, the second observed values and projections of variables are compared, whereby the projections selected are those that correspond most closely to the Bank of Slovenia's spring and autumn projections.

³ For a detailed description of the statistical measures (in Slovene), see Cimperman and Savšek (2014):

https://bankaslovenije.blob.core.windows.net/publication-files/PA_1_2014_Natančnost_napovedi_makroekonomskih_spremenljivk.pdf.

⁴ The spring and autumn projections of all the institutions for the current year and next year are taken into account in the values given.

The OECD produced the most accurate economic growth projections over the 2009 to 2016 period, while the OECD, the Bank of Slovenia and the IMAD produced the most accurate inflation projections. The intervals in MAE and RMSE in GDP growth projections narrowed markedly relative to those for the entire observation period, and ranged from 0.5 to 2.4 for MAE and 0.7 to 2.9 for RMSE. A similar pattern can be seen in inflation projection accuracy: the intervals in the indicators were narrower than in the entire observation period, at 0.1 to 1.4 for MAE and 0.2 to 1.6 for RMSE.

Table 4: Basic accuracy measures of GDP growth projections, based on second available data

Real GDP	2001–2016			2001–2008			2009–2016			2008 and 2009			excl. 2008–2009			2004–2016		
	ME	MAE	STDEV	ME	MAE	STDEV	ME	MAE	STDEV	ME	MAE	STDEV	ME	MAE	STDEV	ME	MAE	STDEV
<i>spring projections</i>																		
<i>current year</i>																		
BS	0,0	1,3	2,0	0,6	0,9	1,1	-0,5	1,7	2,5	-3,3	3,3	3,9	0,5	1,0	1,2	0,1	1,5	2,2
Consensus	0,0	1,5	2,1	0,6	1,1	1,3	-0,5	1,8	2,6	-3,3	3,3	3,4	0,5	1,2	1,5	0,1	1,6	2,3
EBRD							0,7	1,3	1,6									
EIPF	-0,3	1,6	2,5	0,9	1,2	1,2	-1,0	1,9	2,8	-4,0	4,0	4,5	0,4	1,2	1,5	-0,3	1,6	2,5
EC	0,1	1,3	1,7	0,4	1,1	1,3	-0,3	1,5	2,1	-2,6	2,6	2,9	0,4	1,1	1,3	0,2	1,4	1,9
MDS	0,0	1,4	1,9	0,4	1,1	1,3	-0,4	1,7	2,4	-2,9	2,9	3,5	0,4	1,2	1,4	0,1	1,5	2,1
IMF							0,2	1,2	1,6									
SKEP	0,2	1,5	2,1	1,0	1,1	1,1	-0,2	1,8	2,5	-2,9	2,9	3,7	0,8	1,2	1,3	0,2	1,5	2,1
IMAD	0,0	1,3	1,7	0,3	1,0	1,2	-0,2	1,6	2,1	-2,4	2,4	2,3	0,4	1,1	1,3	0,2	1,4	1,8
<i>next year</i>																		
BS	-0,8	2,2	3,6	-1,0	2,4	4,6	-0,6	1,9	2,5	-6,3	6,3	7,9	0,0	1,6	2,1	-1,0	2,6	4,1
Consensus	-0,9	2,5	3,9	-1,2	2,9	5,1	-0,6	2,1	2,6	-6,0	6,4	9,1	0,0	1,8	2,3	-1,0	2,8	4,3
EBRD							0,3	2,1	3,1									
EIPF	-1,1	3,1	4,7	-1,0	4,4	7,0	-1,1	2,2	2,7	-6,5	6,5	8,3	0,0	2,5	3,4	-1,1	3,1	4,7
EC	-0,8	2,2	3,6	-1,2	2,5	4,5	-0,3	1,9	2,6	-5,7	6,2	8,7	0,0	1,6	2,1	-0,8	2,6	4,1
MDS	-0,9	2,1	3,5	-1,0	2,3	4,4	-0,7	1,9	2,4	-5,9	5,9	8,0	-0,1	1,5	2,0	-1,0	2,5	3,9
IMF							-0,3	1,9	2,6									
SKEP	-0,9	2,6	4,2	-1,5	3,6	6,1	-0,4	2,0	2,5	-6,3	6,3	8,3	0,2	1,9	2,4	-0,9	2,6	4,2
IMAD	-0,9	2,4	3,7	-1,2	2,6	4,6	-0,5	2,1	2,7	-6,0	6,2	8,7	-0,1	1,8	2,3	-0,9	2,7	4,2
<i>autumn projections</i>																		
<i>current year</i>																		
BS	0,2	0,7	0,9	0,3	0,6	0,7	0,1	0,9	1,1	-1,1	1,1	0,4	0,4	0,7	0,8	0,3	0,8	1,0
Consensus	0,1	0,8	1,0	0,2	0,7	0,9	0,1	1,0	1,2	-1,4	1,4	0,6	0,3	0,7	0,9	0,2	0,9	1,1
EBRD							0,7	0,8	1,0									
EIPF	0,0	1,0	1,2	0,4	0,9	1,1	-0,2	1,0	1,3	-2,0	2,0	0,9	0,4	0,8	0,9	0,0	1,0	1,2
EC	0,3	0,7	0,7	0,3	0,7	0,7	0,2	0,6	0,8	-0,7	0,7	0,1	0,4	0,7	0,7	0,3	0,6	0,7
MDS	0,2	1,0	1,3	0,4	0,9	1,1	-0,1	1,2	1,6	-2,0	2,0	1,9	0,5	0,9	1,0	0,2	1,1	1,4
IMF							0,3	0,5	0,7									
SKEP	0,3	0,7	0,9	0,2	0,7	0,9	0,3	0,7	0,9	-1,1	1,1	0,1	0,5	0,7	0,7	0,3	0,8	0,9
IMAD	0,1	0,7	0,8	0,2	0,6	0,8	0,1	0,8	0,9	-0,9	0,9	0,3	0,3	0,7	0,7	0,2	0,8	0,9
<i>next year</i>																		
BS	-0,4	2,1	3,6	-0,8	2,5	4,5	0,0	1,7	2,4	-6,0	6,0	7,8	0,4	1,5	2,0	-0,6	2,4	4,0
Consensus	-0,6	2,2	3,5	-1,2	2,5	4,4	0,0	1,8	2,3	-5,5	6,0	8,5	0,1	1,6	2,0	-0,7	2,5	4,0
EBRD							1,2	2,4	3,0									
EIPF	-1,0	2,6	4,1	-1,8	3,5	5,9	-0,3	1,9	2,6	-5,9	6,1	8,6	0,0	1,9	2,4	-1,0	2,6	4,1
EC	-0,3	2,0	3,4	-0,8	2,4	4,3	0,2	1,6	2,3	-5,5	5,5	7,6	0,5	1,5	1,9	-0,4	2,3	3,8
MDS	-0,4	2,2	3,7	-0,9	2,4	4,6	0,0	2,0	2,8	-5,6	6,2	8,7	0,4	1,6	2,2	-0,6	2,6	4,2
IMF							0,2	1,8	2,3									
SKEP	-0,3	2,3	3,8	-1,1	3,0	5,2	0,5	1,8	2,4	-5,5	6,0	8,4	0,7	1,7	2,0	-0,4	2,5	4,0
IMAD	-0,5	2,1	3,5	-1,0	2,3	4,3	-0,1	1,8	2,6	-5,4	5,7	8,1	0,2	1,5	2,1	-0,6	2,4	3,9

Sources: Bank of Slovenia, Consensus Economics, EBRD, EIPF, European Commission (EC), IMF, OECD, SKEP, IMAD.

Table 5: RMSE and SRMSE of GDP growth projections, based on second available data

<i>Real GDP</i>	RMSE						SRMSE					
	01-16	01-08	09-16	08 and 09	excl. 08-09	04-16	01-16	01-08	09-16	08 and 09	excl. 08-09	04-16
<i>spring projections</i>												
<i>current year</i>												
BS	1,9	1,1	2,4	4,3	1,2	2,1	0,5	0,8	0,7	0,5	0,5	0,5
Consensus	2,1	1,3	2,5	4,1	1,5	2,2	0,6	0,9	0,7	0,5	0,6	0,6
EBRD			1,6						0,4			
EIPF	2,4	1,4	2,8	5,1	1,4	2,4	0,7	1,0	0,8	0,6	0,6	0,6
EC	1,7	1,3	2,0	3,3	1,3	1,8	0,5	0,9	0,5	0,4	0,5	0,5
IMF	1,9	1,3	2,3	3,8	1,4	2,0	0,5	0,9	0,6	0,5	0,6	0,5
OECD			1,5						0,4			
SKEP	2,0	1,4	2,4	3,9	1,5	2,0	0,6	1,0	0,6	0,5	0,6	0,5
IMAD	1,6	1,2	2,0	2,9	1,3	1,7	0,5	0,8	0,5	0,3	0,5	0,4
<i>next year</i>												
BS	3,6	4,4	2,4	8,4	2,0	4,0	1,0	3,1	0,6	1,0	0,8	1,0
Consensus	3,9	4,9	2,5	8,8	2,2	4,2	1,1	3,4	0,7	1,1	0,9	1,1
EBRD			2,7						0,7			
EIPF	4,6	6,4	2,7	8,8	3,2	4,6	1,3	4,4	0,7	1,1	1,3	1,2
EC	3,6	4,4	2,4	8,4	2,0	4,0	1,0	3,0	0,7	1,0	0,8	1,0
IMF	3,5	4,3	2,3	8,1	2,0	3,9	1,0	3,0	0,6	1,0	0,8	1,0
OECD			2,4						0,7			
SKEP	4,1	5,7	2,4	8,6	2,3	4,1	1,2	3,9	0,6	1,0	0,9	1,0
IMAD	3,7	4,5	2,6	8,6	2,2	4,1	1,0	3,1	0,7	1,0	0,9	1,0
<i>autumn projections</i>												
<i>current year</i>												
BS	0,9	0,7	1,0	1,1	0,9	1,0	0,2	0,5	0,3	0,1	0,3	0,2
Consensus	1,0	0,9	1,1	1,5	0,9	1,1	0,3	0,6	0,3	0,2	0,4	0,3
EBRD			1,2						0,3			
EIPF	1,2	1,1	1,2	2,1	0,9	1,2	0,3	0,8	0,3	0,2	0,4	0,3
EC	0,8	0,7	0,8	0,7	0,8	0,8	0,2	0,5	0,2	0,1	0,3	0,2
IMF	1,3	1,1	1,5	2,4	1,1	1,4	0,4	0,7	0,4	0,3	0,4	0,3
OECD			0,7						0,2			
SKEP	0,9	0,9	0,9	1,1	0,8	0,9	0,2	0,6	0,2	0,1	0,3	0,2
IMAD	0,8	0,8	0,8	0,9	0,8	0,8	0,2	0,5	0,2	0,1	0,3	0,2
<i>next year</i>												
BS	3,5	4,3	2,3	8,1	2,0	3,9	1,0	3,0	0,6	1,0	0,8	1,0
Consensus	3,5	4,3	2,2	8,1	1,9	3,8	1,0	3,0	0,6	1,0	0,8	1,0
EBRD			2,9						0,8			
EIPF	4,0	5,6	2,4	8,5	2,3	4,0	1,1	3,9	0,7	1,0	0,9	1,0
EC	3,3	4,1	2,1	7,7	1,9	3,7	0,9	2,8	0,6	0,9	0,8	0,9
IMF	3,6	4,3	2,6	8,3	2,1	4,0	1,0	3,0	0,7	1,0	0,9	1,0
OECD			2,1						0,6			
SKEP	3,7	4,9	2,2	8,1	2,0	3,8	1,0	3,4	0,6	1,0	0,8	1,0
IMAD	3,4	4,1	2,4	7,9	2,0	3,8	1,0	2,9	0,6	0,9	0,8	1,0

Sources: Bank of Slovenia, Consensus Economics, EBRD, EIPF, European Commission (EC), IMF, OECD, SKEP, IMAD.

Table 6: Basic accuracy measures of inflation projections, based on second available data

HICP/CPI	2001-2016			2001-2008			2009-2016			2008 and 2009			excl. 2008-2009			2004-2016		
	ME	MAE	STDEV	ME	MAE	STDEV	ME	MAE	STDEV	ME	MAE	STDEV	ME	MAE	STDEV	ME	MAE	STDEV
spring projections																		
current year																		
BS	0.1	0.4	0.6	0.3	0.5	0.6	0.0	0.4	0.5	0.2	0.3	0.4	0.1	0.5	0.6	0.1	0.4	0.5
Consensus	-0.2	0.7	0.8	0.1	0.7	0.8	-0.4	0.7	0.7	-0.1	0.7	1.0	-0.2	0.7	0.8	-0.1	0.7	0.8
EIPF	0.1	0.7	0.9	0.4	0.5	0.7	-0.1	0.9	1.0	0.7	0.7	0.4	0.0	0.7	0.9	0.1	0.7	0.9
EC	-0.1	0.4	0.6	0.0	0.5	0.7	-0.1	0.4	0.5	0.2	0.2	0.1	-0.1	0.5	0.6	0.0	0.4	0.5
IMF	0.2	0.6	0.8	0.5	0.7	0.9	0.0	0.4	0.5	1.0	1.0	0.8	0.1	0.5	0.7	0.3	0.6	0.8
OECD							0.0	0.3	0.3									
SKEP	0.0	0.5	0.6	0.2	0.5	0.7	-0.2	0.5	0.5	0.1	0.2	0.3	-0.1	0.5	0.6	0.0	0.5	0.6
IMAD	0.1	0.5	0.7	0.1	0.6	0.8	0.2	0.4	0.5	0.4	0.4	0.1	0.1	0.5	0.7	0.3	0.4	0.6
next year																		
BS	0.1	1.2	1.5	0.5	1.4	1.8	-0.4	0.8	1.0	-1.2	1.5	2.1	0.3	1.1	1.4	-0.1	1.1	1.5
Consensus	-0.5	1.3	1.6	0.0	1.6	2.0	-0.9	1.0	1.1	-1.6	1.6	1.3	-0.3	1.2	1.6	-0.5	1.3	1.7
EIPF	-0.1	1.7	2.2	0.9	2.3	2.8	-0.8	1.4	1.4	-2.1	2.1	0.0	0.3	1.7	2.2	-0.1	1.7	2.2
EC	-0.5	1.2	1.5	-0.4	1.6	1.9	-0.5	0.9	1.1	-1.2	1.3	1.8	-0.4	1.2	1.5	-0.2	1.1	1.5
IMF	-0.1	1.2	1.5	0.3	1.5	1.8	-0.7	0.9	1.0	-0.5	1.1	1.5	-0.1	1.2	1.6	-0.2	1.1	1.5
OECD							-0.1	0.8	1.0									
SKEP	-0.3	1.1	1.6	0.2	1.5	2.1	-0.6	0.9	1.1	-1.2	1.5	2.1	-0.1	1.1	1.5	-0.3	1.1	1.6
IMAD	-0.1	1.0	1.4	0.2	1.2	1.6	-0.5	0.8	0.9	-0.9	1.4	2.0	0.0	1.0	1.3	-0.1	1.1	1.5
autumn projections																		
current year																		
BS	-0.2	0.3	0.3	-0.2	0.3	0.4	-0.1	0.2	0.1	-0.4	0.4	0.3	-0.1	0.2	0.3	-0.1	0.2	0.2
Consensus	-0.1	0.3	0.4	-0.2	0.4	0.5	0.0	0.2	0.3	-0.4	0.4	0.2	-0.1	0.3	0.4	0.0	0.3	0.3
EIPF	-0.1	0.3	0.4	-0.1	0.4	0.5	-0.1	0.3	0.3	-0.3	0.4	0.5	0.0	0.3	0.4	-0.1	0.3	0.4
EC	-0.2	0.3	0.4	-0.5	0.5	0.6	-0.1	0.1	0.2	-0.4	0.4	0.5	-0.2	0.3	0.4	-0.1	0.2	0.3
IMF	0.0	0.4	0.5	-0.1	0.5	0.6	0.1	0.4	0.4	0.0	0.4	0.6	0.0	0.4	0.5	0.1	0.3	0.4
OECD							0.0	0.1	0.2									
SKEP	-0.1	0.3	0.4	-0.2	0.3	0.4	0.0	0.3	0.3	-0.2	0.3	0.4	-0.1	0.3	0.4	0.0	0.2	0.3
IMAD	-0.2	0.3	0.5	-0.4	0.5	0.5	0.0	0.2	0.3	-0.4	0.4	0.4	-0.2	0.3	0.5	-0.1	0.2	0.3
next year																		
BS	-0.1	1.0	1.3	0.1	1.1	1.5	-0.4	0.9	1.0	-1.0	1.6	2.3	0.0	0.9	1.1	-0.2	1.1	1.3
Consensus	-0.4	1.1	1.5	-0.2	1.5	2.0	-0.6	0.8	1.0	-1.6	1.6	2.2	-0.2	1.1	1.4	-0.3	1.2	1.6
EIPF	0.1	1.4	1.8	0.3	1.8	2.4	-0.1	1.1	1.3	-1.2	2.0	2.8	0.4	1.3	1.6	0.1	1.4	1.8
EC	-0.4	1.2	1.4	-0.4	1.4	1.8	-0.4	0.9	1.2	-1.2	1.6	2.3	-0.2	1.1	1.3	-0.3	1.1	1.4
IMF	-0.2	1.1	1.3	0.0	1.3	1.6	-0.4	0.9	1.0	-0.9	1.5	2.1	-0.1	1.0	1.3	-0.2	1.1	1.4
OECD							-0.2	0.9	1.1									
SKEP	-0.4	1.2	1.5	-0.1	1.3	1.7	-0.6	1.2	1.3	-1.0	1.8	2.5	-0.3	1.1	1.4	-0.3	1.3	1.5
IMAD	-0.3	1.1	1.3	-0.2	1.2	1.6	-0.5	0.9	1.0	-1.2	1.8	2.5	-0.2	0.9	1.1	-0.3	1.1	1.4

Sources: Bank of Slovenia, Consensus Economics, EIPF, European Commission (EC), IMF, OECD, SKEP, IMAD.

Table 7: RMSE and SRMSE of inflation projections, based on second available data

HICP/CPI	RMSE						SRMSE					
	01-16	01-08	09-16	08 and 09	excl. 08-09	04-16	01-16	01-08	09-16	08 and 09	excl. 08-09	04-16
<i>spring projections</i>												
<i>current year</i>												
BS	0,6	0,7	0,5	0,4	0,6	0,5	0,2	0,3	0,4	0,1	0,3	0,3
Consensus	0,8	0,7	0,8	0,7	0,8	0,8	0,3	0,4	0,6	0,2	0,3	0,4
EIPF	0,9	0,7	1,0	0,8	0,9	0,9	0,4	0,4	0,8	0,2	0,4	0,5
EC	0,6	0,7	0,5	0,2	0,6	0,5	0,2	0,4	0,4	0,0	0,3	0,3
IMF	0,8	1,0	0,5	1,1	0,7	0,8	0,3	0,5	0,4	0,3	0,3	0,5
OECD			0,3						0,2			
SKEP	0,6	0,6	0,5	0,2	0,6	0,6	0,2	0,3	0,4	0,1	0,3	0,3
IMAD	0,7	0,8	0,5	0,4	0,7	0,6	0,3	0,4	0,4	0,1	0,3	0,4
<i>next year</i>												
BS	1,5	1,8	1,0	1,9	1,4	1,4	0,6	0,9	0,8	0,6	0,6	0,8
Consensus	1,6	1,8	1,4	1,8	1,6	1,7	0,7	1,0	1,1	0,6	0,7	1,0
EIPF	2,1	2,7	1,6	2,1	2,1	2,1	0,9	1,4	1,2	0,6	0,9	1,2
EC	1,5	1,8	1,1	1,7	1,5	1,4	0,6	0,9	0,9	0,5	0,6	0,8
IMF	1,5	1,7	1,2	1,1	1,5	1,4	0,6	0,9	0,9	0,4	0,6	0,8
OECD			0,9						0,7			
SKEP	1,5	1,9	1,2	1,9	1,4	1,5	0,6	1,0	0,9	0,6	0,6	0,9
IMAD	1,3	1,5	1,0	1,7	1,3	1,4	0,6	0,8	0,8	0,5	0,5	0,8
<i>autumn projections</i>												
<i>current year</i>												
BS	0,3	0,4	0,2	0,4	0,3	0,3	0,1	0,2	0,1	0,1	0,1	0,2
Consensus	0,4	0,5	0,3	0,4	0,4	0,3	0,2	0,3	0,2	0,1	0,2	0,2
EIPF	0,4	0,5	0,3	0,4	0,4	0,4	0,2	0,2	0,3	0,1	0,2	0,2
EC	0,5	0,7	0,2	0,5	0,5	0,3	0,2	0,4	0,1	0,2	0,2	0,2
IMF	0,5	0,6	0,4	0,4	0,5	0,4	0,2	0,3	0,3	0,1	0,2	0,2
OECD			0,2						0,1			
SKEP	0,4	0,4	0,3	0,3	0,4	0,3	0,2	0,2	0,3	0,1	0,2	0,2
IMAD	0,5	0,6	0,3	0,5	0,5	0,3	0,2	0,3	0,2	0,2	0,2	0,2
<i>next year</i>												
BS	1,2	1,4	1,0	1,9	1,1	1,3	0,5	0,7	0,8	0,6	0,5	0,8
Consensus	1,5	1,9	1,1	2,2	1,3	1,5	0,6	1,0	0,9	0,7	0,6	0,9
EIPF	1,7	2,2	1,2	2,3	1,5	1,7	0,7	1,1	1,0	0,7	0,6	1,0
EC	1,4	1,7	1,1	2,0	1,3	1,4	0,6	0,9	0,9	0,6	0,5	0,8
IMF	1,3	1,5	1,0	1,7	1,2	1,3	0,5	0,8	0,8	0,5	0,5	0,8
OECD			1,0						0,8			
SKEP	1,5	1,6	1,3	2,0	1,3	1,5	0,6	0,8	1,1	0,6	0,6	0,9
IMAD	1,3	1,5	1,0	2,2	1,1	1,3	0,5	0,8	0,8	0,7	0,5	0,8

Sources: Bank of Slovenia, Consensus Economics, EIPF, European Commission (EC), IMF, OECD, SKEP, IMAD.