SLOVAK REPUBLIC

2014 ARTICLE IV CONSULTATION

September 2014

Selected Issues

This paper on the Slovak Republic report was prepared by a staff team of the International Monetary Fund as background documentation for the periodic consultation with the member country. It is based on the information available at the time it was completed on July 30, 2014.

The policy of publication of staff reports and other documents by the IMF allows for the deletion of market-sensitive information.

INTERNATIONAL MONETARY FUND

SLOVAK REPUBLIC

SELECTED ISSUES

July 30, 2014

Approved By	Prepared by Qianying Chen, Alessandro Giustiniani, and Marco Semmelmann (all EUR)
The European Department	

CONTENTS

TEN YEARS ON FROM EU ACCESSION[1]

A. Introduction

On May 1, 2004, the Slovak Republic joined the European Union, together with nine other countries, seven of which are in Central and Eastern Europe, in the largest enlargement so far. This note provides a brief overview of Slovakia's transformation over this period. The note is divided into three parts. The first section offers some historical background on the run-up to EU accession. The second part discusses the economic impact of EU accession. The last section highlights the main challenges that Slovakia still faces.

B. EU Membership Catalyzed a Remarkable Turnaround

1.   The approach to the EU had a rocky start. When the Velvet Divorce marked the peaceful dissolution of Czechoslovakia on January 1, 1993, the Slovak Republic was early in the transition process to a market economy. The economy was plagued by high unemployment and its productive system was still largely unreformed. Although the European Association Agreement with the EU was signed on October 4, 1993, Slovakia's first government did not move forward on the necessary economic reforms (Borik and others, 2010). The economic situation started deteriorating. Relatively strong growth early in the

Output Growth, Inflation and Unemployment
(Year-on-year percentage change)

Source: Eurostat.

transition slowed progressively and eventually stalled. Expansionary fiscal policy led to growing budget and current account deficits and increasing external indebtedness. Tight monetary policy to prevent exchange rate depreciation pushed interest rates up. Crony privatization contributed to the rise of inter-enterprise debt and nonperforming loans in the state-owned banking sector. At the same time, Slovakia was increasingly viewed as an "exception" amongst the Central and Eastern European countries applying for EU membership. Progress in adopting the accession requirements stalled and the

General Government Deficit and Debt
(In percent of GDP)

Source: Eurostat.

---

[1] Prepared by Alessandro Giustiniani and Marco Semmelmann.

Commission was concerned that the rule of law and democracy were not sufficiently rooted (European Commission, 1997).

2.   **The election of a reform-minded government in 1998 turned the tide**. In 1998–99, Slovakia was on the verge of a severe economic and financial crisis. The new government, which took office in November 1998, launched a three-pronged strategy based on macroeconomic stabilization, structural reform in the banking and enterprises sectors, and modernization of the legal and institutional framework (Mathernová and Renčko, 2006). Fiscal discipline was gradually restored and government debt was put on a downward path. Credibility was rebuilt, thus paving the way for substantial inflows of foreign direct investment. During 1998–2004, significant and wide-ranging reforms were implemented, covering the pension system, taxation, social benefits, the labor market, healthcare, and fiscal decentralization. Commercial banks were restructured and privatized, allowing the entry

Current Account Balance and Foreign Direct Investment
(In percent of GDP)

Source: Eurostat.

into the domestic market of large European players. The sale of state-owned companies was resumed in other sectors of the economy too. This catching-up helped restart EU talks, and Slovakia was able to join the first wave of eastern EU enlargement on May 1, 2004. Slovakia took an important step toward further European integration by adopting the euro on January 1, 2009—a step not yet taken by many other 2004 entrants.

C. Deeper Integration into the World Economy Spurred Economic Convergence

3.   **Domestic reforms spurred a deepening of Slovakia's integration into the world economy**. Even before EU accession, the Slovak economy was characterized by a higher degree of openness to trade than other Visegrád countries (Czech Republic, Hungary and Poland). Nonetheless, the importance of international transactions has increased even further over time. The average of exports and imports in 2013 reached almost 90 percent of GDP. Only Hungary has broadly kept pace with Slovakia.

Openness to Trade
(Average of export and import of goods in percent of GDP)
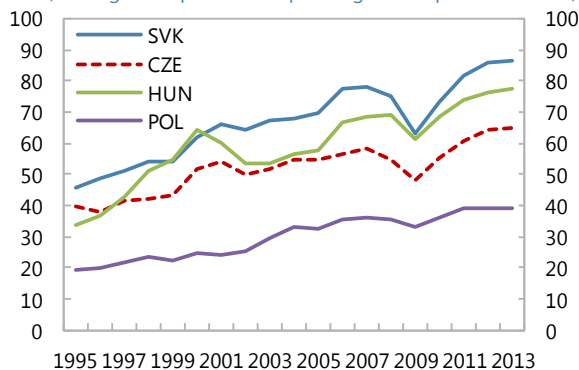
Source: Eurostat.

4.   Participation in global value chains (GVCs) has offered significant opportunities but it poses some risks as well. Substantial foreign direct investments, particularly in the automotive and electronic sectors, have led to a growing participation of the Slovak economy in GVCs. However, the competition from the other Visegrád countries has increased, as they have been able to catch up in terms of GVC participation. In particular, while the backward participation (i.e., the contribution of imported inputs in overall exports) has increased in all four countries, the forward participation (i.e., the contribution of domestically produced intermediates to exports in third countries) has declined only in the case of Slovakia. The different trend in these two indicators suggests that Slovakia has remained specialized in more

Global Value Chain Participation Indeces
(In percent of gross export)
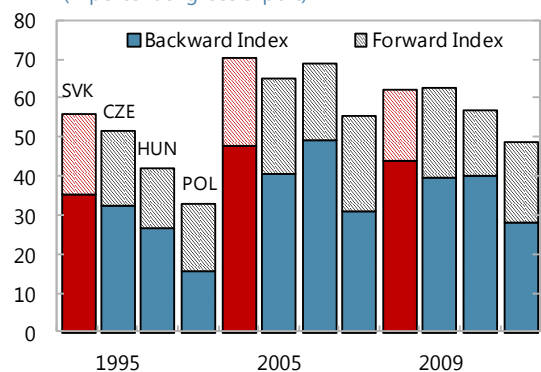
downstream stages of production than regional peers have, and research shows that the vulnerability of individual countries is heavily influenced by their position in GVCs. Nonetheless, given its high degree of competitiveness, Slovakia has continued to gain export market shares, which has translated into growing trade surpluses and recently pushed the current account balance into positive territory as well.

Share of Goods and Services in World Exports
(In percent)

5.   EU accession has been associated with significant catching-up with western European living standards. Until the early 2000s, Slovakia's per capita income, measured in purchasing power standards, hovered around 50 percent of the EU average. Since then, Slovakia has enjoyed a period of rapid growth that significantly narrowed the per-capita income gap with the EU and the Czech Republic, and enabled it to surpass Hungary and Poland. Looking to a broader indicator of development, such as the UNDP's Human Development Index, which combines information regarding life expectancy, educational attainment, and income, Slovakia has made steady progress but still scores below more developed European economies.

Per Capita Income in Purchasing Power Standards
(In percent of EU average)

Source: Eurostat.

Human Development Index
(Unit value)

Source: United Nation Development Programme.

6. **Capital accumulation and factor productivity have been the main drivers of growth, especially after EU entry**. A simple growth accounting exercise, carried out for different periods, shows that capital accumulation and total factor productivity (Solow residual), which measures how efficiently and intensely the inputs are utilized in production, have been the main drivers of output growth for Slovakia as well as the other Visegrád countries. The contribution of total factor productivity has been particularly sizeable in the aftermath of EU entry, reflecting major restructuring and reform of the corporate sector.

Growth Accounting
(Contribution to growth)
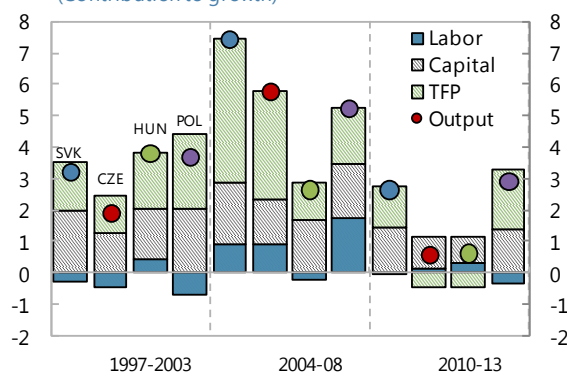
Sources: OECD and IMF staff calculations.

7. **However, rapid growth was not associated with significant employment gains.** The period between EU entry and the global crisis was the only one in which employment had contributed positively to growth. A similar picture emerges from breaking down per-capita income growth into its five components, namely, labor productivity, capacity utilization of labor, the employment ratio, labor force participation, and the dependency ratio (see Figure 1 and Appendix). Before EU entry, labor productivity broadly grew at the same pace in the Visegrád countries, but in the subsequent years, Slovakia has outperformed its peers. This has been associated with a more intensive use of labor, as measured by hours worked per employee, whereas the other Visegrád countries have experienced a clear downward trend. Such a different pattern may reflect differences in the availability of skilled labor: if finding new workers with the necessary skills is difficult (and taking also into account the costs for training), Slovak firms might have tended to use more intensively the workers at their disposal before increasing employment. Nevertheless, all the countries considered, with the exception of Hungary, experienced an increase in employment in the aftermath of EU entry, although with different intensities. After the 2009 crisis, the employment ratio has declined but still remains above the pre-EU accession level. On the other hand, labor force participation in Slovakia has not significantly changed, whereas it has significantly improved in Hungary and to a lesser extent in the Czech Republic.

Figure 1. Breakdown of Per-Capita Income Convergence

Per Capita Income in Purchasing Power Standards
(In percent of Euro Area average)

Output per Hour Worked (Labor Productivity)
(Index, 2004 = 100)

Hours Worked per Employee
(Index, 2004 = 100)

Employment Rate
(Index, 2004 = 100)

Labor Force Participation
(Index, 2004 = 100)

Working Age to Total Population Ratio
(Index, 2004 = 100)
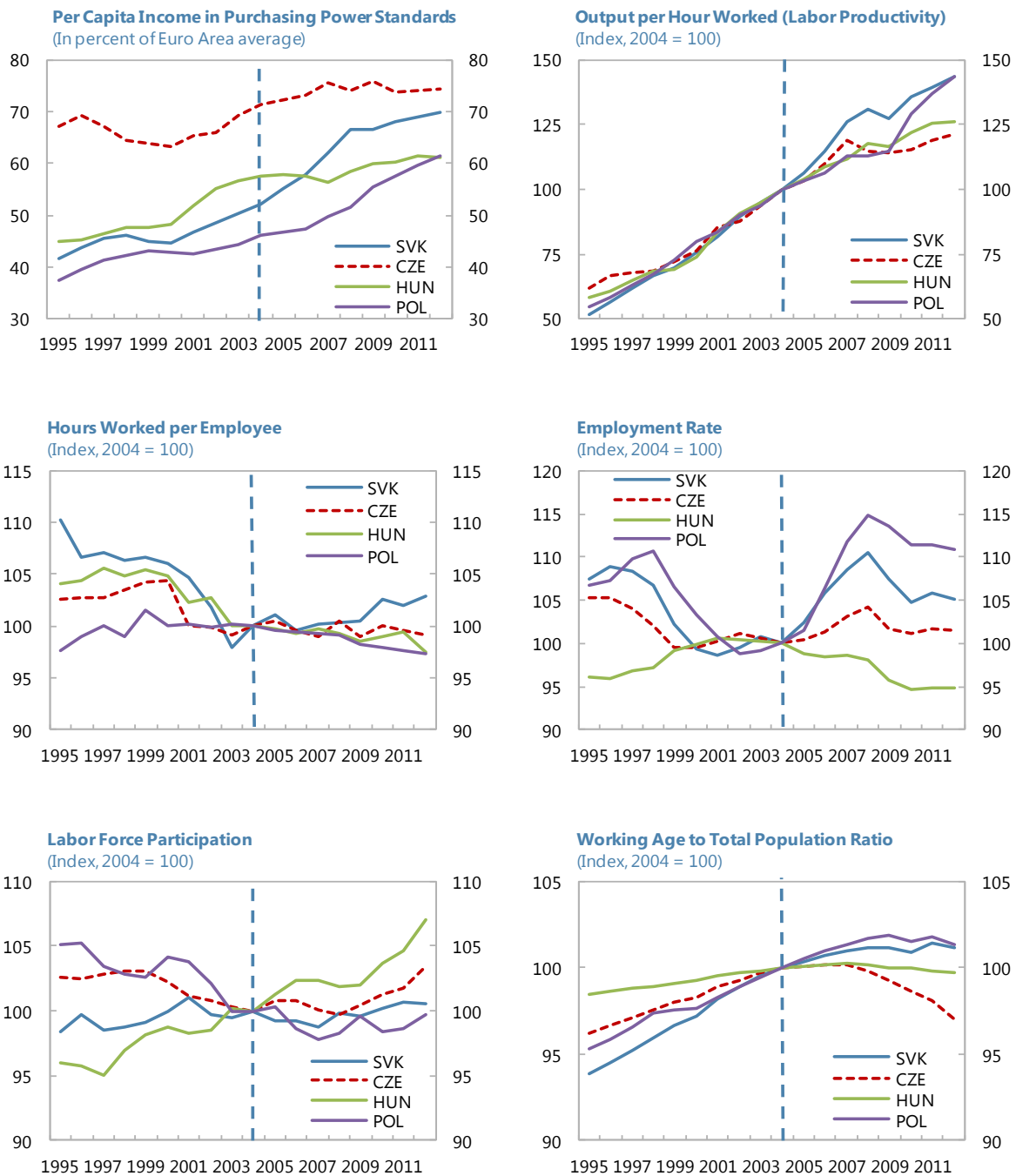
Sources: Ameco, Eurostat, Haver and IMF staff calculation.

8.   The removal of barriers throughout the EU fostered outward labor migration, which reversed somewhat with the 2009 crisis. Higher wages and greater job opportunities in Western Europe led to outward labor migration from Slovakia, as well as from other new member states. The number of Slovak workers abroad rose sharply between 2004 and 2007, when it peaked at 177,000 people, or about 7 percent of the economically active population (Kahanec and Kureková, 2014).[2] This also helps explain the significant decline in unemployment that Slovakia registered until 2008. Not surprisingly, the largest flows of labor migration originated in the less developed regions of Slovakia, where the probability of unemployment or inactivity is higher.

Employment Abroad
(In percent of total economically active population)

Source: Slovak Regional Statistics Database.

Employment Abroad by Region
(In percent of region's economically active population)

Source: Slovak Regional Statistics Database.
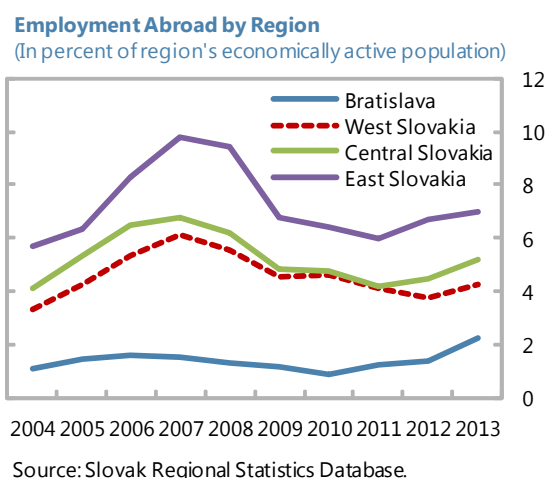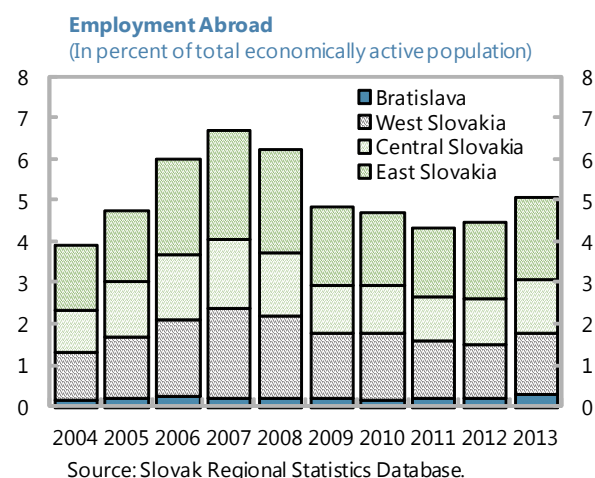
9.   The geographic destination and composition of labor migration has changed over time. While the Czech Republic has remained the main destination country, the share of workers there has nearly halved over 2004–13. On the contrary, Austria and more recently Germany have attracted a growing share of Slovak workers, reflecting not only participation in the German supply chain, but also the contribution of the female workforce to the elderly and social care sector. The increase in labor migration to Hungary, the UK and Ireland that emerged in the early 2000s has reversed with the onset of the 2009 crisis, reflecting the deterioration in the economic situation of those countries. While students and fresh graduates seeking foreign experience dominated the first wave of migration, raising concerns about the

Geographical Breakdown of Employment Abroad
(In percent of the total)

Source: Slovak Regional Statistics Database.

---
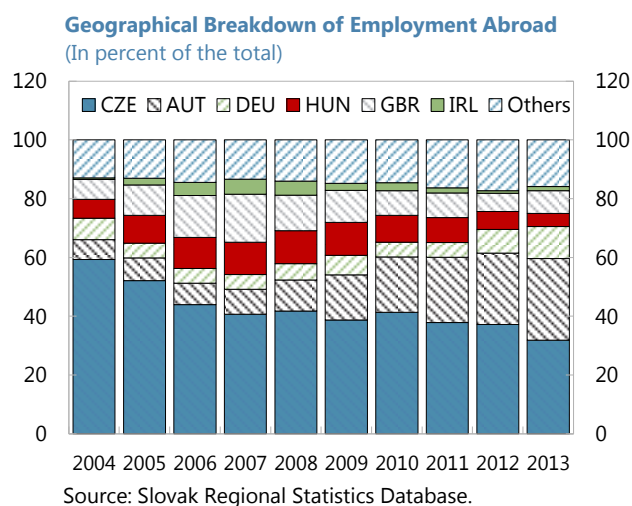
[2] Data are from the Slovak Labor Force Survey, which, however, does not capture long-term emigrants, who are not considered members of household anymore and therefore are excluded. Other unofficial estimates set the number of workers employed abroad in 2007 at about 230,000–250,000 people, or 10 percent of the labor force.

emergence of a brain-drain phenomenon, in recent years, relatively older workers have represented the lion's share of labor force outflows.

D. Important Challenges Remain

10.   Although the first decade in the EU has seen successes, Slovakia faces important challenges to consolidate its position and close the gap with more advanced economies. In particular, the trade collapse during the Great Recession has shown the vulnerability of an export-oriented growth model. The partial reflow of labor migration has exacerbated weak labor market conditions, including high youth and long-term unemployment. Although standards of living have improved, striking regional disparities persist.

Regional Per Capita Income and Unemployment
(In percent)

Sources: Eurostat and Slovak Regional Statistics Database.
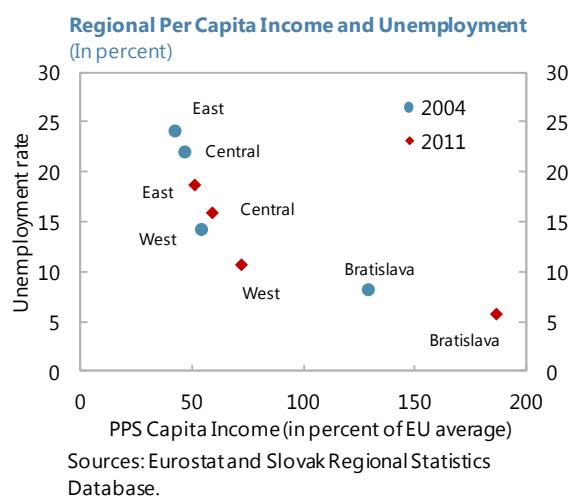
11.   A first long-term challenge is to shift from an efficiency- to an innovation-driven growth model (The High Level Reflection Group, 2014). As indicated above, one of the main drivers of growth has been how efficiently and intensively production inputs are utilized. Slovakia has improved its comparative advantage in knowledge-intensive manufacturing as part of GVCs chains but it remains specialized in more downstream stages of production in a few sectors (automobiles and electronics, in particular). This makes Slovakia more vulnerable to global market conditions and shocks. In addition, intense cost competition from neighboring countries puts downward pressure on domestic wages. To move upstream in GVCs and diversify its productive base, Slovakia needs to improve the quality of human capital and invest in research and development, where it compares unfavorably with regional peers.

Gross domestic expenditure on R&D
(In percent of GDP)

Source: OECD.
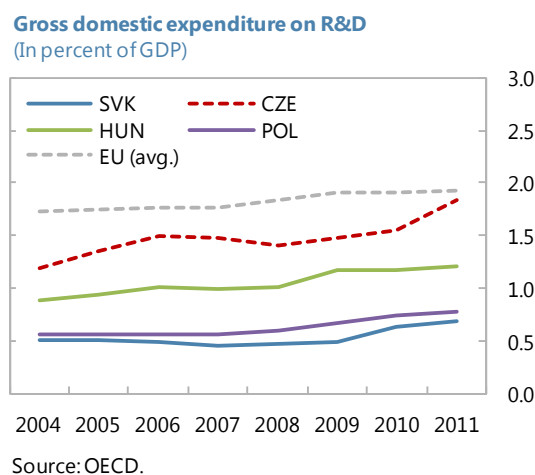
12.   Actions to improve the business environment and domestic infrastructure could lay the foundations for stronger and more job-rich growth. In Slovakia, the high unemployment rate reflects the faulty working of three key mechanisms: (i) the transition from school to work; (ii) the transition from unemployment back to employment; and (iii) mobility across regions (Duell and Kureková, 2013). To address this situation, wide-ranging policies need to be implemented. The quality of education and training need to be improved in order to better correspond to labor market needs. The ongoing reform of vocational education and training is a step in the right direction. Slovakia also needs to shore up active labor market policies (ALMPs) by bringing total spending

more in line with other European countries, improving the composition and cost-efficiency of programs, and strengthening public employment services. Nonetheless, the chronic lack of job opportunities in the less developed regions of Slovakia suggests that ALMPs might be ineffective in reducing regional unemployment unless conditions for business activity are improved. Strengthening infrastructure, especially highways, is critical to promoting investment and job creation in lagging regions. Increased absorption of EU Funds in this area could help.

Beveridge Curve by Region
(In percent)

Source:s Regional Statistical Office and IMF staff calculations.

The promotion of clusters, as in Kosice, in less developed regions could improve knowledge and technological transfers between firms and foster a local labor market for those with relevant skills (OECD, 2009). Finally, removing restrictive regulations affecting professional services and retail trades, and reducing state control in a number of sectors, including electricity, gas and railways, would foster competition and help support economic growth.

References

Borink, Jorine and others (2010), *Slovakia and the European Union*, Country Report Series III (CORE-series), European Policy Studies, University of Amsterdam, October (http://www.uva.nl/binaries/content/assets/faculteiten/faculteit-der-geesteswetenschappen/disciplines/europese-studies/rapporten-landenpracticum-europees-beleid/corestudies-iii---slovakia-and-the-european-union.pdf).

Duell, Nicola and Lucia Kureková (2013) *Activating Benefit in Material Need Recipients in the Slovak Republic*, CELSI Research Report No.3, May (http://ssrn.com/abstract=2405811).

European Commission (1997) *Agenda 2000 , Vol. I. Communication: For a Stronger and Wider Union*, Strasbourg, July, DOC/97/6 (http://europa.eu/rapid/press-release_DOC-97-6_en.htm).

Kahanec, Martin and Lucia Mýtna Kureková (2014), *Did Post-Enlargement Labor Mobility Help the EU to Adjust During the Great Recession? The Case of Slovakia*, IZA Discussion Paper No. 8249, June (http://ftp.iza.org/dp8249.pdf).

Mathernová, Katarína and Juaj Renčko (2006),*"Reformology": The Case of Slovakia*, Orbis, Vol. 50, Issue 4, Autumn (http://www.sciencedirect.com/science/article/pii/S0030438706000755).

OECD (2009), *Clusters Innovation and Entrepreneurship*, OECD (http://www.oecd.org/unitedstates/clustersinnovationandentrepreneurship.htm).

The High Level Reflection Group (2014), *Central Europe Fit for the Future: Visegrád Group Ten Years after EU Accession*, Central European Policy Institute and Demos Europa-Center for European Strategy, January (http://www.cepolicy.org/publications/central-europe-fit-future-10-years-after-eu-accession).

Appendix. Per-Capita Income Breakdown

The per-capita income of each country can be broken down as follow:

$$\frac{Y}{P} = \frac{Y}{H} \times \frac{H}{E} \times \frac{E}{L} \times \frac{L}{W} \times \frac{W}{P}$$

where:

Y = output measured in purchasing power standards

P = population

H = number of hours worked

E = employment

L = labor force

W = working age population (i.e., the population between 15 and 64 years)

The first ratio measures labor productivity (in terms of hours worked). The second ratio provides a measure of capacity utilization of labor. The third ratio is the employment ratio, which by definition is inversely related to the unemployment rate. The fourth ratio is the labor force participation rate. The last ratio provides an indirect measure of the degree of "dependency" in the economy since:

$$Dependency\ ratio = \frac{(P-W)}{W} = \frac{P}{W} - 1$$

Therefore, the higher the share of working-age population, the lower the dependency ratio.

EVOLUTION OF DRIVERS OF THE BUSINESS CYCLE IN SLOVAKIA[1]

A. Introduction

1.   EU accession further deepened Slovakia's integration into the world economy. Participation in the German-Central European supply chain, mainly in the automotive sector, as well as in export-oriented electronic industries, has strengthened the trade and financial linkages of the Slovak economy with the rest of the world. As vertical integration has increased, trade flows with upstream and downstream partners have expanded and FDI inflows have intensified. However, this process of integration has also made the Slovak economy more vulnerable to global shocks, whether affecting the production chain or the markets that are the final destination of exports.

2.   The aim of this note is to quantify the impact of the changing economic structure on the business cycle in Slovakia. The business cycle of the Slovakian economy is found to have become more synchronized with the German one in first half of the 2000s compared to the second half of the 1990s (IMF 2013, p.8). The increase in German value added in Slovak exports has also spurred the production of domestic value added (IMF 2013, p.10). As a result, the main drivers of the domestic business cycle may have changed over time.

3.   To this end, a Vector Autoregressive Model (VAR) incorporating domestic and external factors has been estimated (Appendix, Section A). The set of variables considered includes Slovakia's industrial production, the stock of real FDI, real final consumption, real exports and imports, the euro-area business cycle driver (proxied by either the euro area GDP, Germany's industrial production, or Germany's real exports), and the rest-of-the world output (proxied by the real GDP of the euro area's 16 key trading partners). The VAR is estimated by using monthly observations over the period 1998–2004 and 2005–2013, with the analyses based on the impulse responses of onetime shocks to variables in the VAR model, with a focus on the statistically significant maximum impacts. Structural shocks are identified using a Cholesky decomposition; therefore, in the model, shocks are orthogonal to other structural shocks. Shocks thus represent unexpected events for a specific variable not related to other variables. The Slovak economy has experienced a number of important events (e.g., EU accession, euro adoption, and the recent global and regional crises) that could lead to structural breaks in the data. The analysis uses two different estimation periods to help reflect some of these changes, especially EU accession in 2004.[2]

---

[1] Prepared by Qianying Chen.

[2] Model requirements and the length of time series limit the discrete periods that can be considered to capture potential structural breaks including those occurring during 2005–2013 (e.g., euro adoption and external crises).

4. **The main findings are the following**:

- Foreign direct investment and demand from Europe have become key drivers of the business cycle since EU accession (Figure 1). Starting in 2005, shocks to FDI, which had been important to exports and imports in 1998–2004, became more so, and also show sizeable impact on industrial production and consumption cycles where none were seen in the earlier period. Shocks to euro area growth began to show a strong impact on the dynamics of industrial production and imports, while the effect on exports was still significant although smaller. Moreover, the co-movement of industrial production, exports and imports following shocks to FDI and euro area growth likely reflects the growing integration of the Slovak economy into global supply chains, though the degree of co-movement varies across shocks. Such integration could increase the exposure of Slovakia to developments in final export destinations through global supply chains and in source countries for FDI.

- Trade flows have become more affected by external variables than domestic ones. Domestic industrial production played a role in driving the cycle of real exports before 2005. However, this relationship is not statistically significant in the recent period and exports started to be driven more by FDI. Import cycles began to follow shocks to euro area growth since 2005. This change probably reflects the fact that the export-oriented sectors engaged in global supply chains are FDI-intensive and mainly serve foreign consumers.

- Supply chain activities have spurred overall consumption. Consumption has been mostly driven by trade and FDI since 2005. A structural shock to industrial production, such as an expansion of domestically-financed manufacturing targeting the domestic market, has a positive but insignificant impact on consumption, which is in contrast to the period before joining the EU.

- This probably shows that income and employment are heavily influenced by FDI-intensive export sectors or links to the global supply chain.

B. Macroeconomic Dynamics and Inward Spillovers

5. **Spillovers to Slovakia from external shocks are substantial, although the magnitude and persistence vary across shocks.** Greater trade and financial openness increased the interconnectedness of the Slovak economy with regional and global trading partners. Analysis focuses on the later period (2005–2013) since it is likely to be more relevant given evolution of the economy. The VAR model described above estimated using data for this period shows that shocks to external factors have non-negligible spillovers to the domestic economy. In particular, shocks to FDI tend to have the most persistent and widespread spillovers to the Slovak economy, while shocks to euro area demand have the most sizeable impact.

6. **FDI shocks have persistent impact on Slovakia's business cycle**. The model shows that the impact of a onetime shock to FDI (equivalent to an increase of 0.86 percent) on industrial production, exports and imports lasts for about 1½ to 2 years (Figure 2). The maximum increase in industrial production reaches 1 percent, in about one year, indicating that the FDI multiplier is larger than one. Exports and imports both increase, with the effect on exports more sizable and persistent. Consumption rises by 0.2 percent in half a year before the effect dies out in 1½ years.

Figure 1. Maximum Significant Impact of Shocks on Domestic Economy

Impact on Industrial Production
(In percent)

Impact on Exports
(In percent)

Impact on Imports
(In percent)

Impact on Consumption
(In percent)
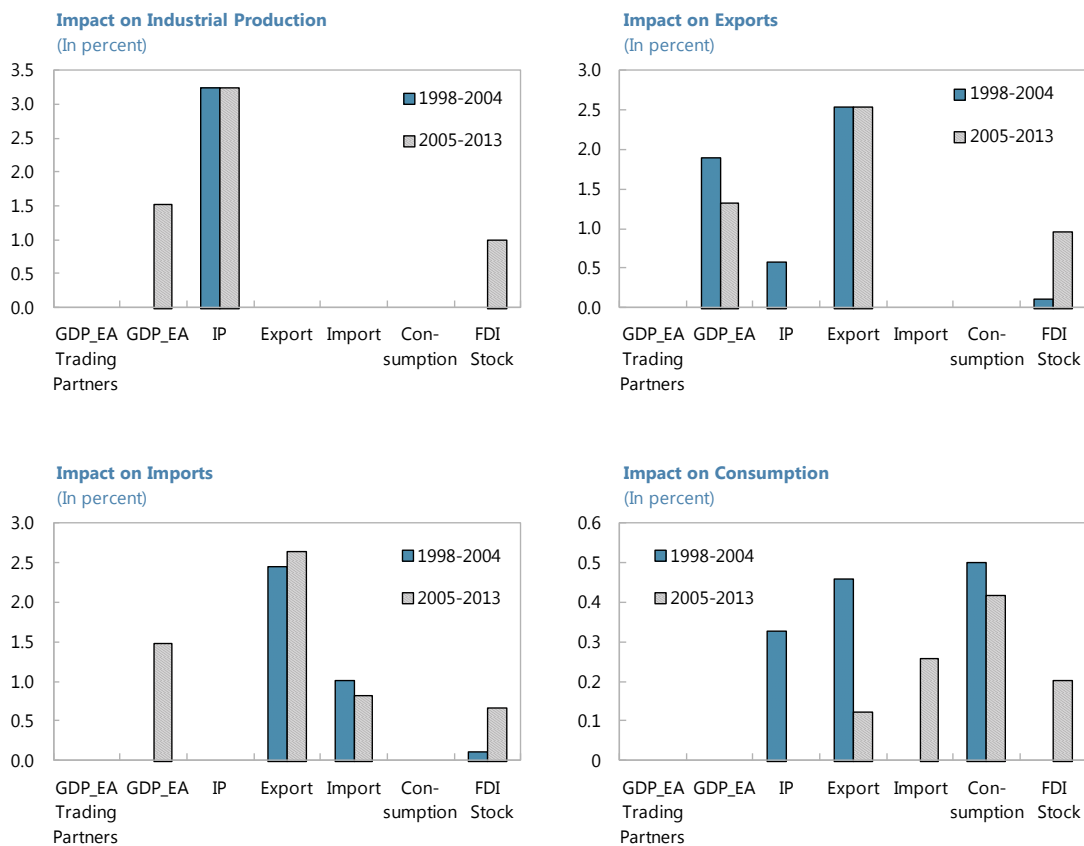
Sources: Eurostat, Haver and IMF staff calculations.

[1] Each chart shows the statistically significant maximum impact of seven shocks (real GDP of the rest of the world vis-a-vis the euro area, real GDP of the euro area and domestic variables for Slovakia: industrial production, real exports, real imports, real consumption, and stock of real FDI) on a domestic variable within two years after the shocks materialize. Shocks are one standard error (GDP_EA trading partners: 0.06%, GDP_EA: 0.14%, GDP of IP: 3.24%, real export: 2.53%, real import: 0.73%, real consumption: 0.42%, stock of real FDI: 0.86%) of the residual of the corresponding equation in a Vector Autoregressive Model. Results are robust to different ordering in shock identification schemes, nominal and real variables, and different types of error bands.

7.   Slovak industrial production and trade are very sensitive to euro area demand. Under the model, changes in real GDP in the euro area trigger higher, but less persistent effects on industrial production and trade than FDI shocks (Figure 3). A 0.14 percent increase in euro area real GDP leads to a more than 1 percent increase in industrial production, exports, and imports. However, the effects fade out within a year.

8.   Shocks to German production also drive Slovakia's industrial production and trade flows. Domestic industrial production and external trade respond to higher industrial production in Germany almost one-to-one; that is, a 1.5 percent increase in Germany's industrial production pushes up Slovakia's industrial production, exports, and imports by roughly the same amount within a year.

9.   Germany affects Slovakia's supply side through its production chain. Slovakia's industrial production, consumption, and external trade respond to shocks to indicators related to German production and exports significantly, including German IP, export of goods, and manufacturing orders. However, German GDP, domestic demand and exports including services have much more limited impact on Slovakia and do not seem to affect domestic IP (Figure 4). These findings suggest that Slovakia's economy has become more synchronized with the German economy on the production side, while Germany's domestic demand per se does not seem to influence the Slovak economy. As expected, given Slovakia's trade patterns, it is indeed euro area demand, as a whole, that plays a more prominent role.

10.   Shocks to the real economy of the rest of the world (i.e., outside the euro area) do not have a statistically significant impact. The impulse response suggests that a positive shock to real GDP of the euro area's trading partners increases Slovakia's industrial production and FDI but the responses are statistically insignificant, though they are more sizeable in the model that includes Germany's industrial production as the euro area factor (Figure 5). This suggests that the link to the rest of the world is indirect. In other words, global shocks are transmitted to the Slovak economy insofar as they affect euro area demand and/or German production.

11.   Inward spillovers may vary over time. Model results are based on data from 2005 to 2013. This is a period when Slovakia adopted the euro and was affected by the global crisis, and these factors imply that potential time-varying features of the economic relationships are not captured. For example, Slovakia's macro variables such as industrial production and consumption became less volatile after the country joined the euro area in 2009. Thus, the magnitude of inward spillovers in the more recent period and in the future may be different from those implied by the model.

Figure 2. Responses to a Shock to FDI Stock
(Response to Cholesky One S.D. Innovations ±2 S.E.)

Industrial Production
(In percent)

Exports
(In percent)

Imports
(In percent)

Consumption
(In percent)

FDI Stock
(In percent)
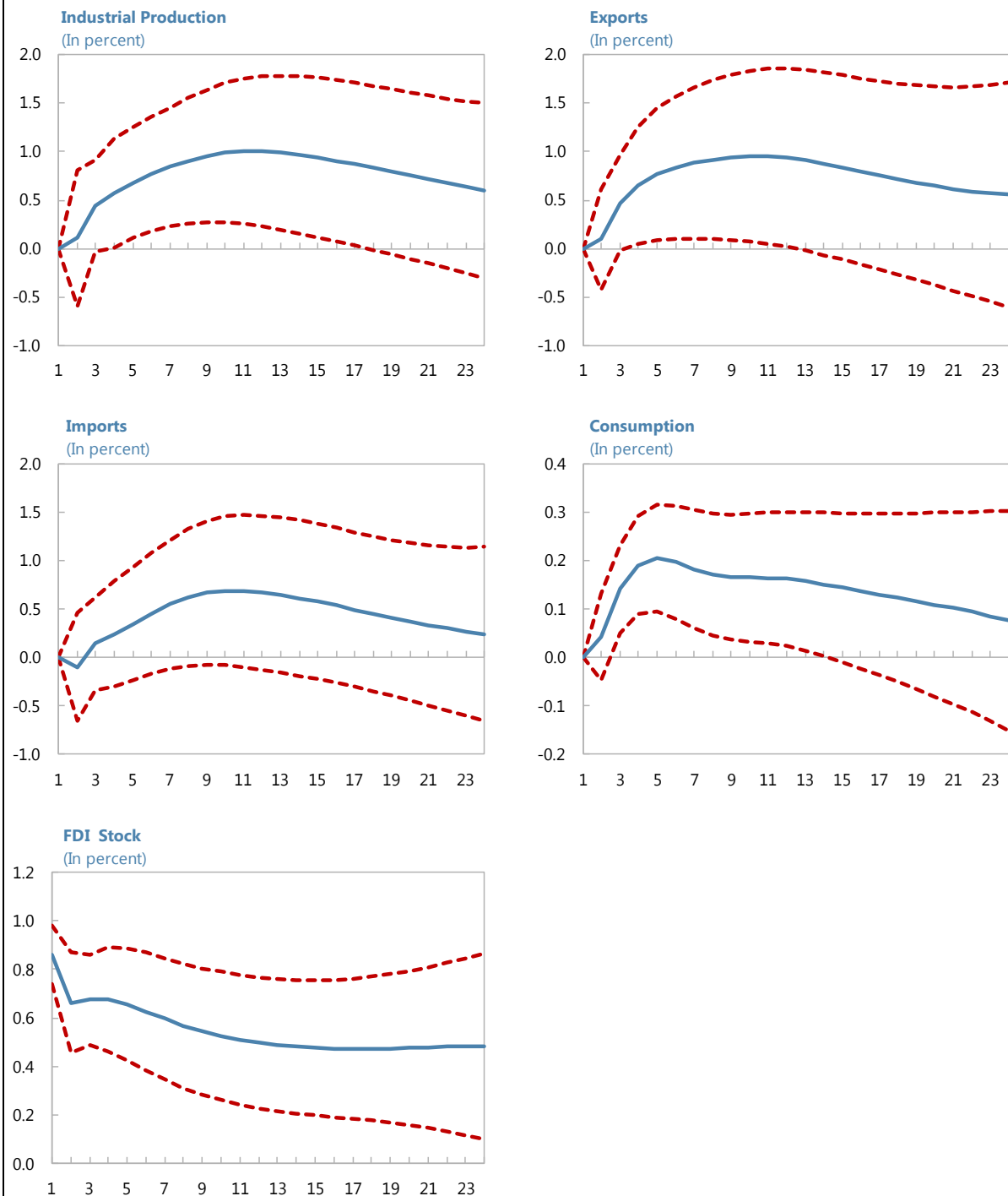
Sources: Eurostat, Haver and IMF staff calculations.

Figure 3. Responses to a Shock to Euro Area GDP
(Response to Cholesky One S.D. Innovations ±2 S.E.)

Industrial Production
(In percent)

Exports
(In percent)

Imports
(In percent)

Consumption
(In percent)

FDI Stock
(In percent)
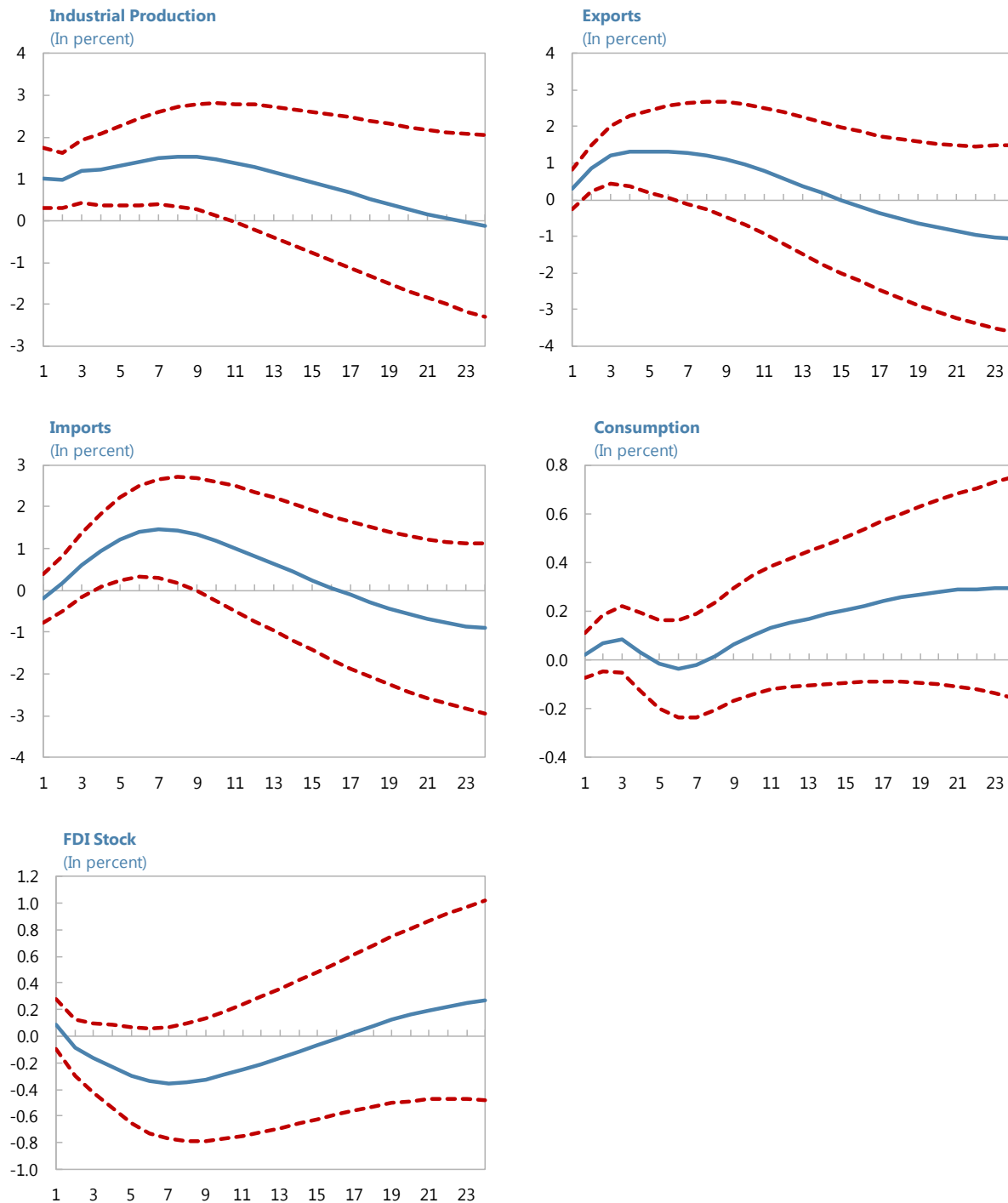
Sources: Eurostat, Haver and IMF staff calculations.

C.   Trade Developments and the Sustainability of External Surpluses

12.   Since 2012, Slovakia's current account balance has shifted into surplus, reflecting large positive trade balances. Slovakia's current account was in deficit from 1996 to 2011. Since 2009, the trade balance has been in surplus, and widened significantly starting in 2012, shifting the current account balance into positive territory.

13.   Recent current account surpluses are higher than the long-term value implied by fundamentals. Cross-country analysis suggests that the Slovak economy's fundamentals would imply a small current account deficit over the long term. Hence, most of the improvement in the current account balance in 2012–2013 would be attributed to cyclical factors. However, the importance of the cyclical component varies depending on the methodology used. Results show that the trend of the current account has been improving, but at a slower pace than the actual current account. The current account surplus is likely to be lower when the cyclical factors fade out.

Current Account in Slovakia
(In percent of GDP)

Slovak Republic: Current Account, 2001-13
(In percent of GDP)

Sources: Eurostat, Haver and IMF staff calculations.

Slovak Republic: External Trade, 2005-13
(In logarithms)

Sources: Eurostat, Haver and IMF staff calculations.
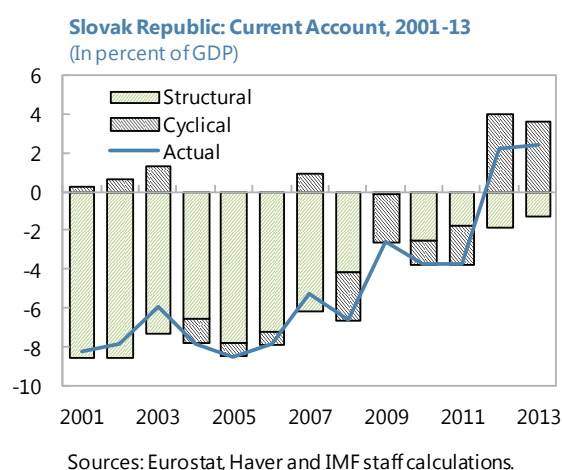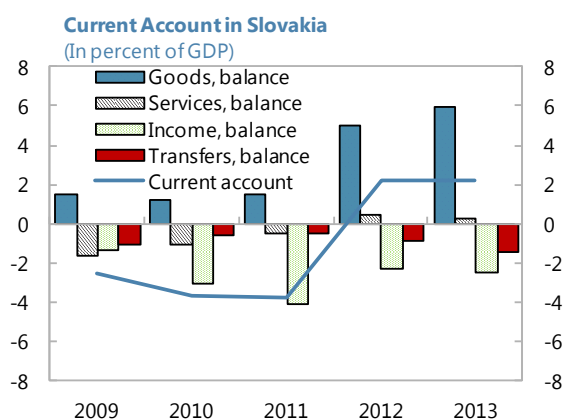
14.   As indicated, the current account improvement has been driven by growing trade surpluses. While until mid-2011, exports and imports of goods (in real terms) have grown side-by-side, since then exports have started growing at a faster pace, thus opening a wedge between the two series.[3]

---

[3] Based on data from Eurostat and IFS. Data from Direction of Trade Statistics show a limited increase in exports relative to imports in recent years.

Figure 4. Responses to a Shock to German Industrial Production
(Response to Cholesky One S.D. Innovations ±2 S.E.)

Industrial Production
(In percet)

Exports
(In percent)

Imports
(In percent)

Consumption
(In percent)

FDI Stock
(In percent)
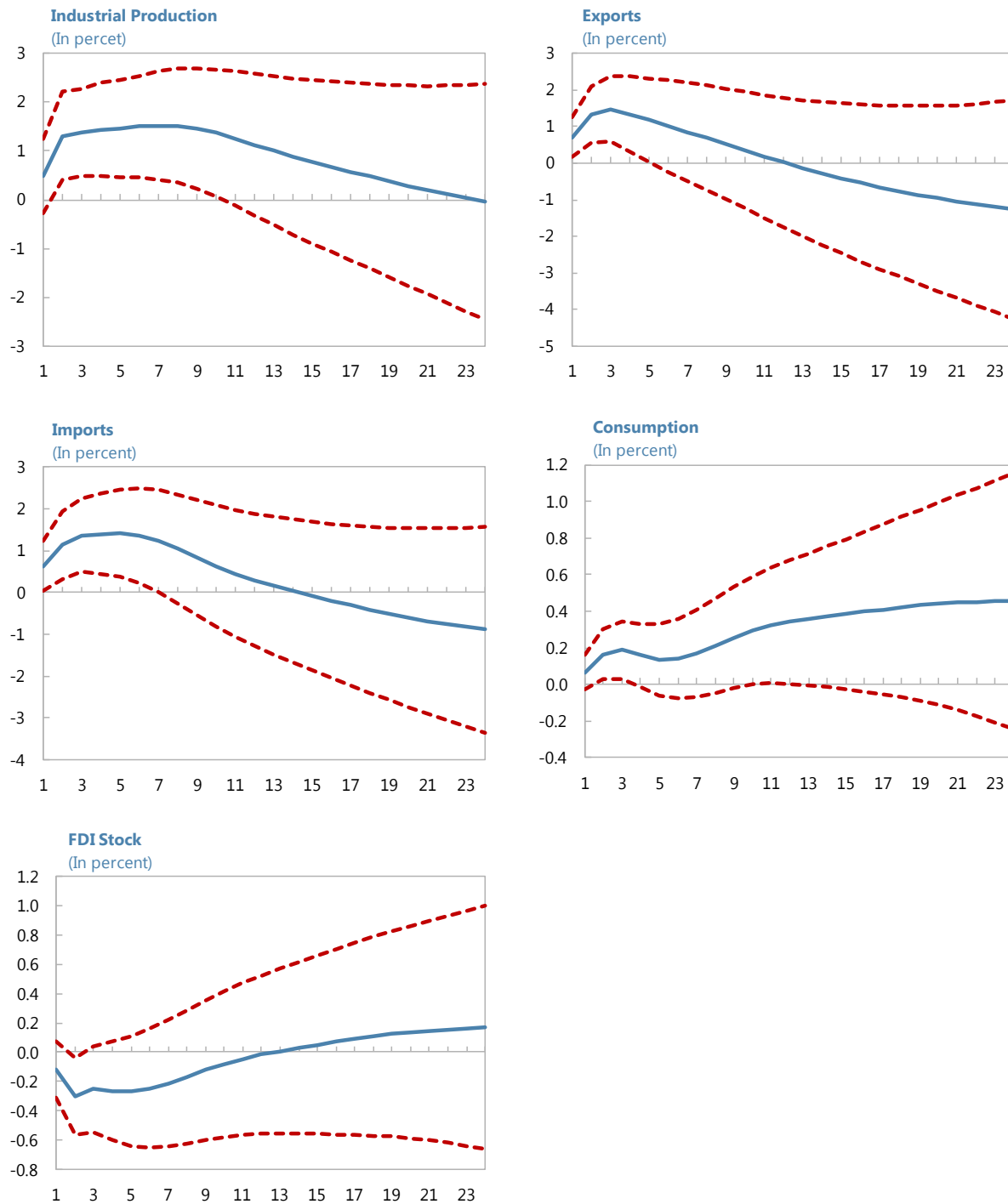
Sources: Eurostat, Haver and IMF staff calculations.

Figure 5. Responses to a Shock to GDP of Euro Area Trading Partners
(Response to Cholesky One S.D. Innovations ±2 S.E.)

Industrial Production
(In percent)

Exports
(In percent)

Imports
(In percent)

Consumption

FDI Stock
(In percent)
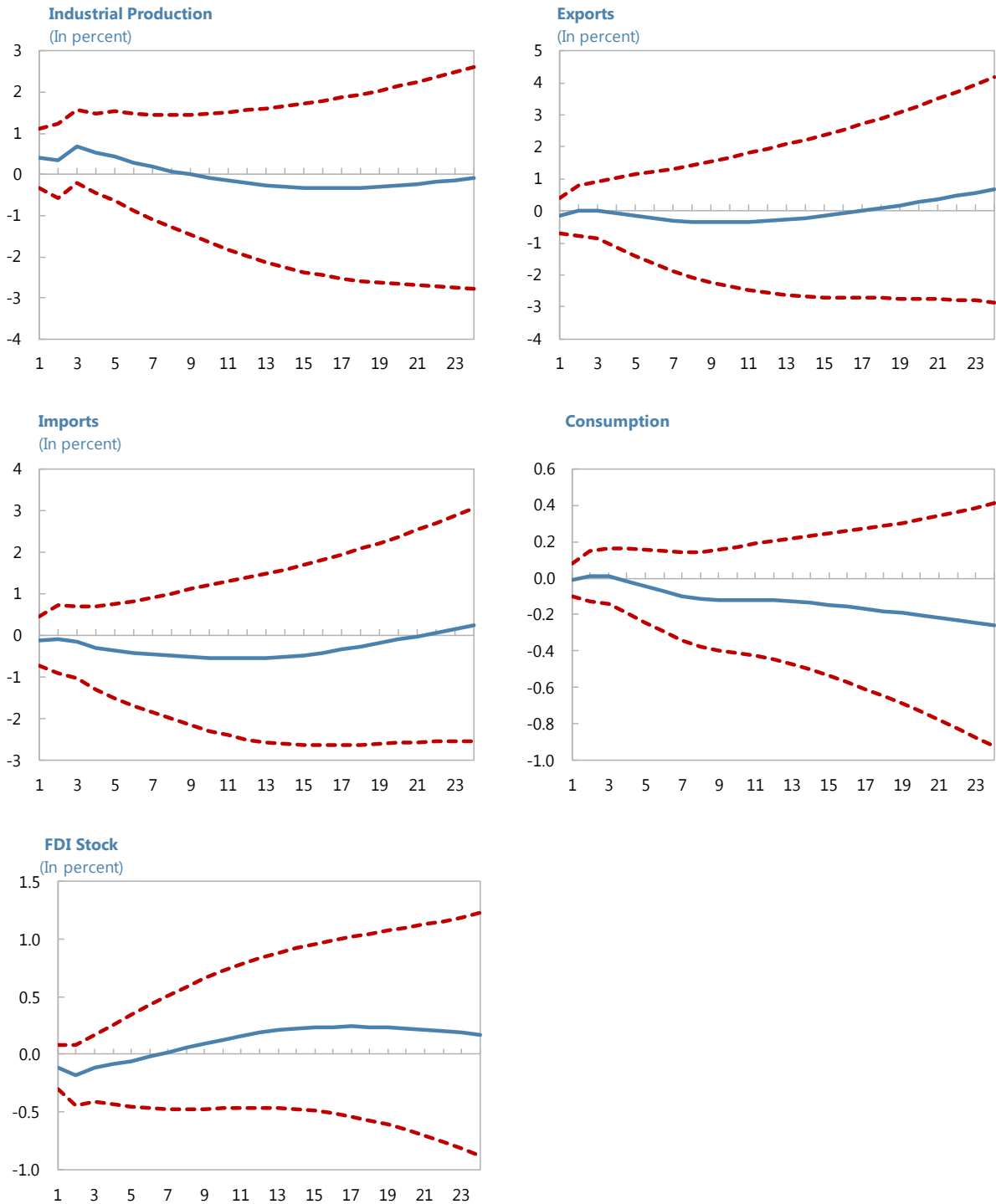
Sources: Eurostat, Haver and IMF staff calculations.

15.   **Evidence shows that both structural and cyclical components play a role**. The results of the Hodrick-Prescott filter suggest that both trend and cyclical components contribute to the trade surplus.[4] However, the HP-trend of the growth of exports relative to imports is lower than the actual level in the first 10 months of 2012 and the middle of 2013, indicating the cyclical component represents a non-negligible share of the recent trade surplus.

Decomposition of the Gap Between Growth of Real Export and Real Import

Decomposition of the Gap between Real Export and Real Import

Sources: Eurostat, Haver and IMF calculations.
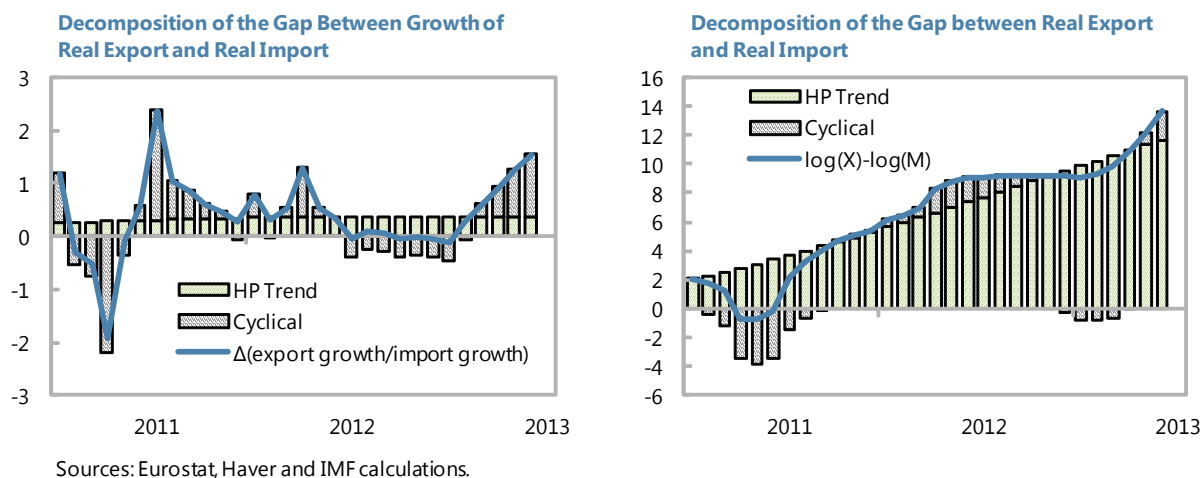
16.   **The application of a Vector Error Correction Model (VECM) confirms these findings**. The structural and cyclical components of real exports and imports have been determined by applying a VECM over the period 2005–2013 in order to better capture the changes in long-term equilibrium values of these variables due to the supply chain structure (Appendix).[5] Results show that export growth is partially driven by long-term factors, especially in the period between mid-2012 and early 2013, whereas short-term dynamics and surprise elements play a more important role in the rest of the sample period (Figure 6). This result suggests that a structural shift may have occurred between 2012 and 2013, which could suggest a lower import intensity of exports due to more domestic production of inputs. On the contrary, import growth is mainly driven by cyclical factors, including weak domestic demand, for the whole sample period. These two pieces of evidence tend to confirm that part of the current account surplus is structural.

---

[4] The HP filter is applied to the growth rate of the wedge, using data from 1998-2013.

[5] Results are based on the overall impact estimated over 2005-2013; potential time varying relationships due to factors such as euro adoption and recent financial crisis are not captured.

Figure 6. Slovak Republic's External Trade: Cyclical and Structural Breakdown[1]

Real Export Components
(Month-on-month percentage changes)

Real Import Components
(Month-on-month percentage changes)

Components of Export-to-Import Ratio
(Month-on-month percentage changes)
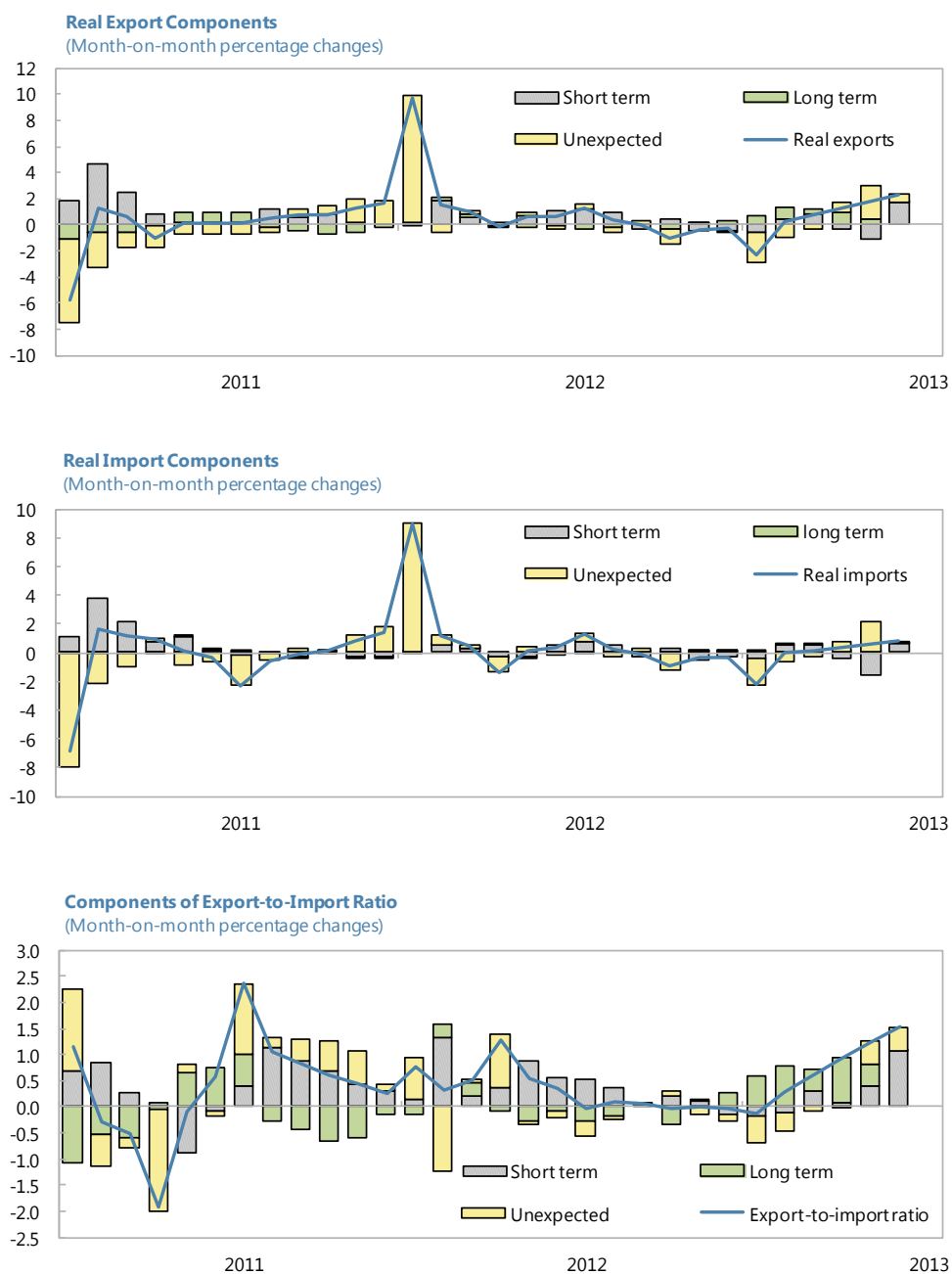
Sources: Eurostat, Haver, and IMF staff calculations.
1/ The charts show the breakdown of the gap between export and import growth in three components: the adjustment to its long-term equilibrium path, the short-term dynamics driven by relevant macroeconomic variables and the unexpected component. The breakdown is based on a VECM estimated on monthly data over 2005-13 for seven variables: exports, imports, industrial production, FDI, consumption, euro-area GDP and GDP of euro-area trading partners.

References

Chen, Qianying, Andrew Filardo, Dong He, Feng Zhu (2014) "Global impact of US monetary policy at the zero lower bound," The HKMA-FRBNY Joint Conference on "Domestic and International Dimensions of Unconventional Monetary Policy, March 20-21, conference draft.

International Monetary Fund (2013) *German-Central European Supply Chain—Cluster Report*, IMF multi-Country report No.13/263.

Luetkepohl, Helmut (2007) *New Introduction to Multiple Time Series Analysis*, Springer.

Appendix. Methodology and Data

Structure of the Vector Autoregressive Model (VAR)

$$y_t = a_0 + \Phi y_{t-1} + u_t$$

with $u_t \overset{iid}{\sim} (0, \Sigma)$ where u_t is independent and identically distributed (iid) across time. Moreover, y_t is a vector containing the six variables as the following:

$$y_t = \begin{pmatrix} IP_t & FDI_t & C_t & EX_t & IM_t & EXT_t & ROW_t \end{pmatrix}'$$

where IP is the industrial production; FDI is the stock of real FDI, which cumulates from the first observation of the data and deflated by the producer price index; C is real consumption, which is deflated by HICP; and EX and IM are real exports and imports respectively, deflated by the export and import prices. EXT denotes one of the euro area factors, which include GDPRQ_EA (euro area GDP), IP_GER (German IP), EXP_GER/ EXPDEF_GER (German real exports). ROW is the real GDP of the euro area's 16 key trading partners (Chen et al 2014).

Monthly data from January 1998 to December 2004 and January 2005 to December 2013 are used, with interpolation from quarterly to monthly data applied to some of the time series. All data are obtained from *Haver Analytics*, the IMF's *International Financial Statistics*, and the IMF's *Direction of Trade Statistics*. See Table1 for detailed information about data sources and transformations as well as descriptive statistics.

Impulse responses are calculated based on a Cholesky decomposition scheme of shock identification. The Wold order used is (ROW, EXT, IP, EXP, IMP, C, FDI), with the assumption that Slovakia is a small open economy so that domestic variables do not have contemporaneous impact on external factors. Error bands are constructed using 10,000 repetition of Monte Carlo simulation.

Structure of the Vector Error Correction Model (VECM)

The structure of the VECM can be presented as the following:

$$\Delta y_t = a_0 + \alpha \underbrace{\underbrace{\beta' y_{t-1}}_{A}}_{B} + \underbrace{\sum_{j=1}^{p-1} \Gamma_s \cdot \Delta y_{t-s}}_{C} + u_t$$

with $u_t \overset{iid}{\sim} (0, \Sigma)$, where ε_t is *iid* across time.

$$y_t = \begin{pmatrix} IP_t & FDI_t & C_t & EX_t & IM_t & EXT_t & GDPRQ\_EA_t \end{pmatrix}'$$

Therefore, the change of each variable in the vector y_t can be explained by the deterministic term a_0, long-run dynamics B, short term dynamics C and the residual u_t. The error correction term A characterizes the long-term equilibrium relationship between the levels of the variables, which are cointegrated. Therefore, the term B reflects the adjustment needed for the corresponding variable on the left-hand side to catch up with the trend, with α representing the speed of adjustment. The short-term dynamics can be characterized by the term C and the residual. Monthly data from January 2005 to December 2013 are used for estimation.

Table 1. Data Source and Transformation			
Variable	Description	Source	Transformation
IP	Slovakia: Industrial Production: Manufacturing (SA, 2010=100)	Haver Analytics/Statistical Office of the European Communities S936QC@EUDATA	
HICP	Slovakia: Harmonized Consumer Price Index (NSA, 2005=100)	Haver Analytics/Statistical Office of the European Communities, P936H@EUDATA	
FDI	Slovakia: BOP: Financial Account: Direct Investment: Balance (NSA, Mil.EUR)	National Bank of Slovakia/Haver Analytics, N936BFI@EMERGECW	Seasonal adjustment, accumulation from Jan.1998 to form FDI stock.
C	Slovakia: GDP: Total Final Consumption (SA, Mil.EUR)	Haver Analytics/Statistical Office of the Slovak Republic/Haver Analytics H936NC@EMERGE	Interpolated from quarterly data
GDP_GER	Germany: Gross Domestic Product (SWDA, Mil.Ch.05.EUR)	Haver Analytics/Statistical Office of the European Communities, J134GDPT@EUDATA	Interpolated from quarterly data
Demand_GER	Germany: Domestic Demand (SWDA, Mil.Ch.05.EUR)	Haver Analytics/Statistical Office of the European Communities, J134DDT@EUDATA	Interpolated from quarterly data
GDPRQ_EA	EA17 : Gross Domestic Product (SWDA, Mil.Ch.05.EUR)	Haver Analytics/Statistical Office of the European Communities, J025GDPT@EUDATA	Interpolated from quarterly data
EXPDEF_GER	Germany: Export Price Index (SA, 2010=100)	Haver Analytics/Deutsche Bundesbank, DESPFX@GERMANY	Interpolated from quarterly data
EXP	Slovakia BOP: Current Account: Goods & Services: Credit(NSA, Mil.EUR)	Haver Analytics/Statistical Office of the European Communities, B936C64W@EUDATA	interpolated from quarterly data

Table 1. Data Source and Transformation (concluded)			
IMP	Slovakia BOP: Current Account: Goods & Services: Debit(NSA, Mil.EUR)	Haver Analytics/Statistical Office of the European Communities, B936D64W@EUDATA	interpolated from quarterly data
EXPQ_GER	Germany BOP: Current Account: Goods & Services: Credit(NSA, Mil.EUR)	Haver Analytics/Statistical Office of the European Communities, B134C64W@EUDATA	interpolated from quarterly data
EXPRQ_GER	Germany: Exp: Volume Indxes w/ World(SWDA, 2010=100)	Haver Analytics/Statistical Office of the European Communities, X134W01I@EUDATA	interpolated from quarterly data
IP_GER	Germany: Industrial Production: Manufacturing (SA, 2010=100)	Haver Analytics/Statistical Office of the European Communities, S134QC@EUDATA	
EXDEFA	Slovakia: Export Deflator	IMF: World Economic Outlook, 936TX_D.A	interpolated from annual data
IMDEFA	Slovakia: Import Deflator	IMF: World Economic Outlook, 936TM_D.A	interpolated from annual data
IP_EA	Euro Area 17: Industrial Production: Manufacturing (SA, 2010=100)	Haver Analytics/Statistical Office of the European Communities, S025QC@EUDATA	
ROW	Weighted sum of GDP of euro area's 16 trading partners	Chen et al (2014)	

AN OVERVIEW OF THE SLOVAK ECONOMY THROUGH THE LENSES OF THE NATIONAL FINANCIAL ACCOUNTS[1]

A. Introduction

1.   The purpose of this note is twofold: (i) to provide a broad overview of the main developments in the Slovak economy from the vantage point of the national financial accounts and (ii) to analyze whether (and to what extent) the economic crisis has prompted changes in the financial relationships among the main sectors of the economy.

2.   The financial accounts provide a broad overview of a country's financial transactions. The financial accounts and (the derived) flows of funds record the acquisition or disposal of financial assets and liabilities that take place among a country's economic sectors and between them and the rest of the world.[2] The balance indicates the net lending or net borrowing position of each sector. A net lending position arises when net saving and capital transfers are more than sufficient to finance the accumulation of non-financial assets (surplus), while a net borrowing position emerges when the opposite situation occurs. Therefore, the financial accounts show how net lending sectors allocate their surpluses, acquiring new financial assets or reducing outstanding liabilities, and how net borrowing sectors finance their deficits, incurring new liabilities or drawing down their assets

3.   The NBS publishes the national financial accounts information on a quarterly basis starting from 2004. Thanks to this detailed database, it is possible to build flow-of-funds matrices on a "from-whom-to-whom" basis, which allows analysis of the relationships and interconnections among the different sectors of the economy, including the types of financial assets held or transferred. The sectors considered in the analysis are:

- non-financial corporations (S.11);

- the National Bank of Slovakia (S.121);

- other monetary financial institutions (S.122, since this group comprises mainly commercial banks, for sake of simplicity, this terminology is used in the rest of the note);

- other financial corporations (which comprises other financial intermediaries (S.123), financial auxiliaries (S.124), insurance corporations and pension funds (S.125);

- the general government (S.13);

- households and non-profit institutions serving households (S.14 and S.15); and

---

[1] Prepared by Alessandro Giustiniani.

[2] In this note, the flows of funds are derived as differences between stocks at the end of the year.

- non-residents (S.2), also labeled as rest of the world in the rest of the text.

The analysis has been carried out on annual data in order to avoid short-term volatility of financial flows. The study also focuses on the changes in the net borrowing positions of nonfinancial corporations, households, general government and commercial banks before and after the 2009 global crisis.

4.   The results of this analysis have to be considered with some degree of caution. The year 2009 not only marks the global financial and economic crisis, but also the adoption of the euro by the Slovak Republic. This changeover generated some reshuffling of assets and liabilities among the NBS, the domestic commercial banks and the non-resident sector, in which the ECB is included.

B.   Main Findings

5.   The Slovak economy has been a net borrower of funds from the rest of the world for the whole period considered. In principle, this pattern is consistent with that of a small-open economy such as Slovakia that is in the process of catching-up with more advanced economies in the EU and hence in need of resources from abroad to fund domestic investment and thereby foster economic growth. Indeed, in the first four years after EU accession in 2004, Slovakia absorbed funds from abroad to the tune of 7 percent of GDP per year. Since 2008, Slovakia's net borrowing position gradually narrowed, reaching virtual balance in 2011. This might reflect two driving forces. On one hand, Slovakia may have entered a more mature state of development, which requires lower absorption of foreign savings to finance domestic investment. On the other hand, the 2009 crisis might have reduced non-residents' willingness to acquire Slovak assets. The fact that net borrowing resumed in 2012–13 tends to tilt the scale toward the latter. This development seems at odds with the contemporaneous shift of Slovakia's external current account balance into surplus, although large errors and omissions may cloud the link between balance-of-payments statistics and national financial accounts.[3]

Slovak Republic: Net Lending(+)/Borrowing(-), 2005-13
(In percent of GDP)
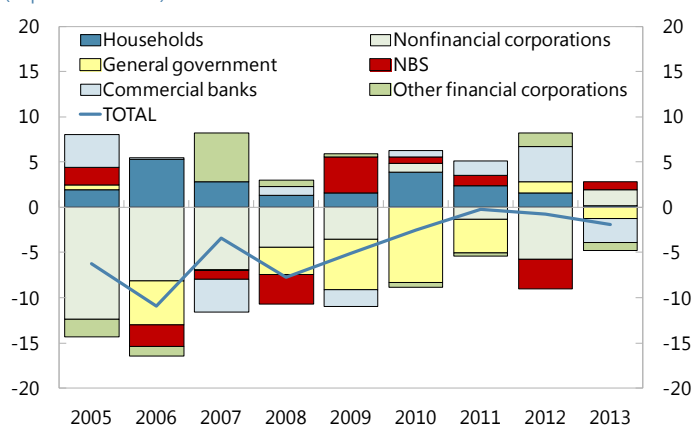
Sources: National Bank of Slovakia, Eurostat, and IMF staff calculations.

6.   Slovakia's net debtor position peaked in 2009–10 at 57 percent of GDP. This was partially due to the fall in nominal GDP that occurred in 2009 as consequence of the global

---

[3] There are anecdotal reports of branding, which could imply that a country's exports are likely to be overestimated.

economic crisis. Since then, it has gradually declined, falling slightly below 54 percent in 2012, before widening marginally to 55 percent of GDP in 2013.

7.   Considering the net borrowing position of each sector vis-à-vis the rest of the economy (including the non-resident sector), some specific patterns can be detected. In particular:

- Households' net lending position improved significantly in the aftermath of the 2009 crisis as households may have increased their saving for precautionary purposes given the increase in unemployment and the uncertain economic outlook (Figures 1 and 2). Since then, their net lending position has trended downward to become virtually nil in 2013 and their net financial wealth has stabilized at about 38 percent of GDP.

- The net borrowing position of the non-financial corporate sector gradually but steadily improved until 2010, when it reached virtual balance (Figures 3 and 4). Over the same period, private sector investment has decelerated, albeit with ample swings. The non-financial corporate sector's net borrowing position increased again in 2011–12, but in 2013, it became a net lender probably reflecting good profitability and low investment spending.

- The net borrowing position of the general government started deteriorating before the 2009 crisis and reached its peak in 2010 (Figure 5 and 6). The general government had a small net lending position in 2012, as the accumulation of assets outpaced the increase in liabilities. This is somewhat surprising given a sizeable deficit in the fiscal accounts, and reflects an increase in the government's shares and equities, possibly due to revaluation of the state's participation in non-financial corporations. The government returned to a net borrowing position in 2013.

- While in the years preceding the 2009 crisis, commercial banks oscillated between being net lenders to and net borrowers from the rest of the economy, in subsequent years, they have been consistently net lenders, except in 2013 (Figures 7 and 8). At first sight, this evidence seems to contradict the widespread opinion that banks have closed the taps of credit to the economy as a reaction to the global economic and financial crisis. However, this is not completely correct, as discussed later.

8.   In order to understand better the interlinkages among the various institutional sectors of the economy, a "from-whom-to-whom" matrix has been constructed. To simplify the analysis, the sample period has been split into before-the-crisis (2005–08) and after-the-crisis (2010–13). The average flows of funds are represented in Figure 11 (see also Tables 1 and 2), where the size of the bubble indicates the average net financial wealth position of each sector in percent of GDP. The color of the bubbles identifies whether a sector has a positive (green) or negative (red) net financial asset position. The arrows go from sectors that lend funds to those that borrow funds and the thickness of the arrows corresponds to the size of the change in net claims in percent of GDP.

9.   Before the crisis, the nonfinancial corporate sector was the largest borrower of funds from the rest of the world. The fact that the domestic NFCs have such close links with the rest of the world is not surprising. In fact, about half of the sector is foreign-owned, as indicated by the

portion of total shares and other equity in the hands of non-residents. Most of the financial flows from the rest of the world may represent intra-company lending. However, the flow of funds from non-residents has more-than-halved in the post-crisis period, falling from an average of 4.4 percent of GDP per year to 1.9 percent, probably reflecting the impact of the global crisis as well as fewer investment opportunities. At the same time, the flow of funds vis-à-vis commercial banks inverted its direction: while in the pre-crisis period the NFC sector was a net borrower from commercial banks, it has become a net lender in the post-crisis period. Whether this is the result of lower demand for credit by NFCs or lower supply of funds by commercial banks is to be determined. However, it is worth noting that there is significant intra-NFC lending, the amount of which exceeds intra-bank activity. NFCs seem to have increased their mutual financing in the form of both trade and financial credits partially offsetting lower bank funding.

10.   After 2009, the general government has significantly increased its borrowing from non-residents. While general government's borrowing from non-residents was marginal in the pre-2009 period (averaging 0.6 percent of GDP per year), it soared to about 4½ percent of GDP in the post-crisis period. This radical shift clearly has been facilitated by the fact that Slovakia joined the euro area on January 1, 2009. By removing foreign exchange risk and fostering the government's credibility, euro adoption has provided Slovakia with the access to a much wider financial market. The greater reliance on external funds has also been a deliberate choice of the authorities aimed at differentiating the investor base. The general government's net debtor position, which increased from 6 percent of GDP in 2004 to 11 percent in 2008, has reached 26 percent of GDP in 2013. If we consider the general government's total financial liabilities net of intra-governmental lending—which is a broader aggregate than general government debt according to the Maastricht definition––the general government's indebtedness has increased from 48 percent of GDP in 2004 to 59.3 percent of GDP in 2013; well above the threshold of 57 percent of GDP for general government debt that according to the national Fiscal Responsibility Act would require a balanced budget. However, if we take into account the general government's deposits, which are the most liquid assets, the net indebtedness of the general government would amount to 53.8 percent of GDP in 2013, lower than the threshold of 55 percent of GDP for general government debt that calls for a freezing of some lines of general government spending. These considerations raise the issue whether a gross or a net definition of general government debt might provide a better picture of the financial situation of the general government. Finally, it is worth noting that the state maintains sizeable equity participation in the nonfinancial corporate sector (22.3 percent of NFC shares and other equity, equivalent to 18 percent of GDP). Consequently, there might be scope for further privatization with potential benefits in terms of debt, the budget, and capital market development.

11.   The household sector has been, on average, a net lender of funds to the rest of the economy in both periods. However, the direction of the flow of funds has changed somewhat. Most notably, while in the pre-crisis period, households were a net lender of funds to the banking sector, in the aftermath of the crisis they became a net borrower. Contrary to some other countries in the region, Slovak households entered the 2009 crisis with a low level of debt, allowing them to increase their leverage somewhat. Slovak banks, which had loan-to-deposit ratios around 85–90 percent before the crisis and thus were not dependent on wholesale or parent funding, took this opportunity to expand their lending to households at a steady pace, mainly through mortgage lending. While households were deleveraging elsewhere in the region, the Czech Republic and Poland also saw household debt rise. At the same time, Slovak households' net lending position vis-à-vis the nonfinancial corporate sector has faded away because of retail investors' very limited appetite for bond and equity investment as well as the lack of an adequate legal, institutional and administrative framework conducive to capital market development. On the other hand, households' net lending position vis-à-vis other financial corporations has increased, reflecting the development of pension funds as well as some diversification of households' portfolios, although the bulk of their financial wealth remains invested in bank deposits (about 63 percent of total assets).

Households' Debt
(In percent of GDP)
Source: Harver.

Private Sector Credit
(Monthly data, year-on-year percentage changes)
Sources: ECB and IMF staff calculations.
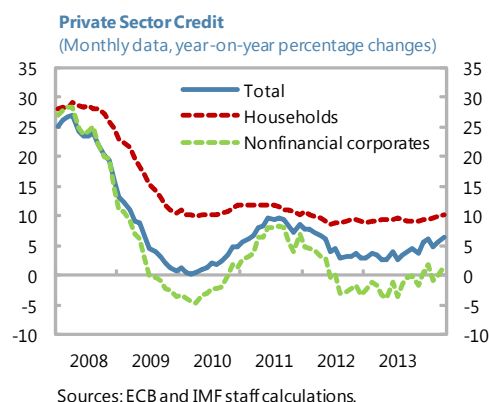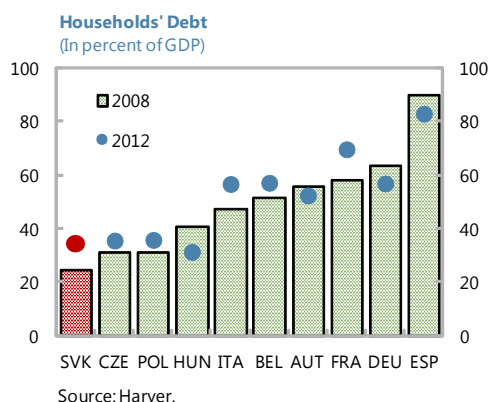
12.   If the financial sector as a whole is considered, its financial position in relation to the rest of the world has shifted from being a net borrower to a net lender of funds. Most of this variation seems to be due to the change in the net financial position of the NBS. Presumably, the adoption of the euro and the shift of monetary and liquidity responsibilities to the ECB, which is included in the aggregate rest of the world, has resulted in some reshuffling of assets and liabilities among the NBS, the domestic commercial banks, and the rest of the world. In 2009 in fact, it can be seen that commercial banks withdrew their excess liquidity deposited at the NBS, part of which was channeled back to parent banks (as indicated by the decline in the liabilities vis-à-vis non-residents) and part was invested in government bonds.

13.   However, the position of commercial banks may have not changed so significantly. The change in Slovak banks' net position seems to confirm the view that, because of the financial crisis, domestic credit institutions, which are mostly foreign owned, have rechanneled funds towards their respective parent banks, as has happened in other countries. However, this result is entirely due to a

significant outflow that occurred in 2012, probably in reaction to a tightening of prudential regulation on capital and dividend distribution as well the adoption of a special levy on banks' liabilities. Excluding that year, commercial banks have continued to channel funds into the country to the tune of 0.7 percent of GDP (broadly in line with what they did in the 2005–08 period), which seems to weaken the argument of foreign-banks' de-leveraging, at least in the case of Slovakia.

14.   The size and the role of other financial corporations, albeit still limited, have increased in recent years. Other financial corporations have maintained broadly unchanged their net borrowing/lending positions in relation to the other sectors of the economy. However, after 2009, their net asset position has become positive and the links with the household sector and rest of the world have intensified.

C.   Conclusions

15.   This note provides a brief overview of the financial interlinkages among the sectors of the Slovak economy and describes how the flows of funds have changed after 2009. In that year, two important structural breaks occurred: the global economic and financial crisis hit the Slovak economy and Slovakia joined the European Monetary Union.

16.   The Slovak economy has been a net borrower of funds from the rest of the world for the whole period considered. A net borrowing position is consistent with Slovakia still catching up with more advanced economies in Europe, and thus funding investment with foreign borrowing. While before the 2009 crisis, the non-financial corporate sector, which is mainly foreign-owned, was the largest borrower, in the last few years the general government has become the largest recipient of funds from abroad, as it has sought to diversify its investor base.

17.   The household sector has been, on average, a net lender of funds to the rest of the economy but the direction of the flow of funds has changed. Reflecting some deepening of the credit market, households' position vis-à-vis the banking sector has shifted from a net lender to a net borrower of funds. At the same time, households' net lending position vis-à-vis the nonfinancial corporate sector has faded away because of retail investors' very limited appetite for bond and equity investment as well as the lack of an adequate legal, institutional and administrative framework conducive to the development of capital markets. On the other hand, households' net lending position vis-à-vis other financial corporations has increased, reflecting the development of pension funds as well as some diversification of households' portfolios, although the bulk of their financial wealth remains invested in bank deposits.

18.   The role of domestic commercial banks does not seem to have significantly changed after the crisis. At first sight, the shift from a net borrowing to a net lending position vis-à-vis non-residents seems to confirm the view that, because of the financial crisis, Slovak banks, which are mostly foreign owned, have rechanneled funds towards their respective parent banks, as has happened in other countries. However, this result is entirely due to a significant outflow that occurred in 2012. Excluding that year, commercial banks have continued to channel funds into the

country , broadly in line with what they did in the pre-crisis period, which seems to weaken the argument of foreign-banks' de-leveraging, at least in the case of Slovakia.

Table 1. Slovak Republic: Flow of Funds, 2005–08
(In percent of GDP)

2004-08 (stock) 2005-08 (flow)	Average Net financial position (stock)	Houhesolds (flow)	Nonfinancial corporations (flow)	General government (flow)	NBS (flow)	Commercial banks (flow)	Other financial corporations (flow)	Rest of the world (flow)
Households	31.8	...	0.3	0.7	-0.5	0.6	1.7	0.0
Nonfinancial corporations	-65.9	-0.3	...	-1.0	-0.2	-0.9	-1.2	-4.4
General government	-8.0	-0.7	1.0	...	-1.4	0.7	-0.8	-0.6
NBS	-6.0	0.5	0.2	1.4	...	-1.9	0.0	-1.4
Commercial banks	5.7	-0.6	0.9	-0.7	1.9	...	-0.4	-0.8
Other financial corporations	-0.8	-1.7	1.2	0.8	0.0	0.4	...	0.2
Rest of the world	43.1	0.0	4.4	0.6	1.4	0.8	-0.2	...

Sources: National Bank of Slovakia, Eurostat and IMF staff calculations.

Table 2. Slovak Republic: Flow of Funds, 2010–13
(In percent of GDP)

2009-13 (stock) 2010-13 (flow)	Average Net financial position (stock)	Houhesolds (flow)	Nonfinancial corporations (flow)	General government (flow)	NBS (flow)	Commercial banks (flow)	Other financial corporations (flow)	Rest of the world (flow)
Households	37.0	...	0.0	-0.3	1.2	-1.0	2.1	0.0
Nonfinancial corporations	-71.0	0.0	...	-0.1	0.5	0.5	0.0	-1.9
General government	-24.0	0.3	0.1	...	1.0	0.2	-0.2	-4.4
NBS	-4.9	-1.2	-0.5	-1.0	...	-0.7	0.0	3.2
Commercial banks	4.8	1.0	-0.5	-0.2	0.7	...	-0.7	0.6
Other financial corporations	2.5	-2.1	0.0	0.2	0.0	0.7	...	1.1
Rest of the world	55.6	0.0	1.9	4.4	-3.2	-0.6	-1.1	...

Sources: National Bank of Slovakia, Eurostat and IMF staff calculations.

Figure 1. Slovak Republic: Households, 2004–13 (Stocks)

Total Financial Assets by Sector
(In percent of the total and total in percent of GDP)

Total Financial Liabilities by Sector
(In percent of the total and total in percent of GDP)

Total Financial Assets by Financial Instrument
(In percent of the total and total in percent of GDP)

Total Financial Liabilities by Financial Instrument
(In percent of the total and total in percent of GDP)

Net Financial Position by Sector
(In percent of GDP)

Net Financial Position by Financial Instrument
(In percent of GDP)

Sources: National Bank of Slovakia, Haver, and IMF staff calculations.

HH = Households; NFC = Nonfinancial corporations; GG = General government; NBS = National Bank of SLovakia; CB = Commercial banks; OFC = Other financial corporations; NR = Non residents.

Dep. = Currency and deposits; Bonds = Securities other than shares; Loans = Loans; Equity = Shares and other equity; Oth.acct. = Other account payable; Res. = Insurance technical reserves.

Figure 2. Slovak Republic: Households, 2004–13 (Flows)

Flows of Financial Assets by Sector
(In percent of GDP)

Flows of Financial Liabilities by Sector
(In percent of GDP)

Flows of Financial Assets by Financial Instrument
(In percent of GDP)

Flows of Financial Liabilities by Financial Instrument
(In percent of the total and total in percent of GDP)

Net Financial Flows by Sector
(In percent of GDP)

Net Financial flows by Financial Instrument
(In percent of GDP)

Sources: National Bank of Slovakia, Haver, and IMF staff calculations.

HH = Households; NFC = Nonfinancial corporations; GG = General government; NBS = National Bank of SLovakia; CB = Commercial banks; OFC = Other financial corporations; NR = Non residents.

Dep. = Currency and deposits; Bonds = Securities other than shares; Loans = Loans; Equity = Shares and other equity; Oth.acct. = Other account payable; Res. = Insurance technical reserves.

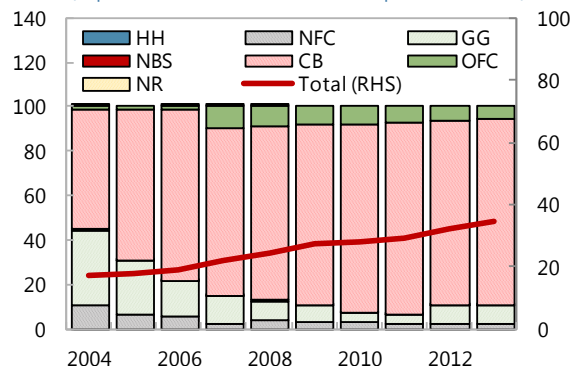## Figure 3. Slovak Republic: Nonfinancial Corporations, 2004–13 (Stocks)

Total Financial Assets by Sector
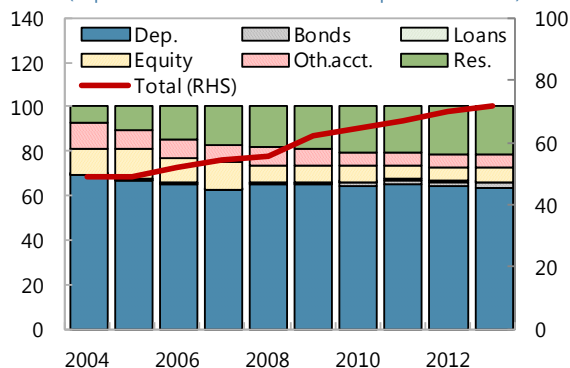(In percent of the total and total in percent of GDP)

Total Financial Liabilities by Sector
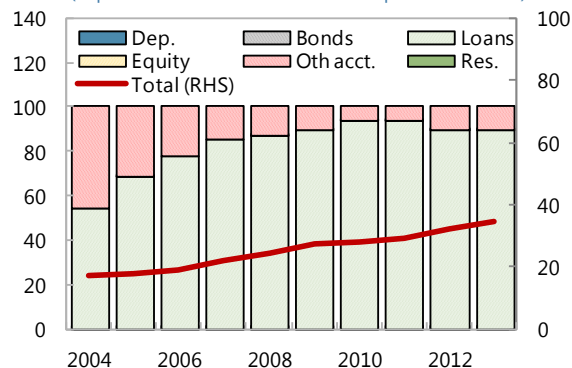(In percent of the total and total in percent of GDP)

Total Financial Assets by Financial Instrument
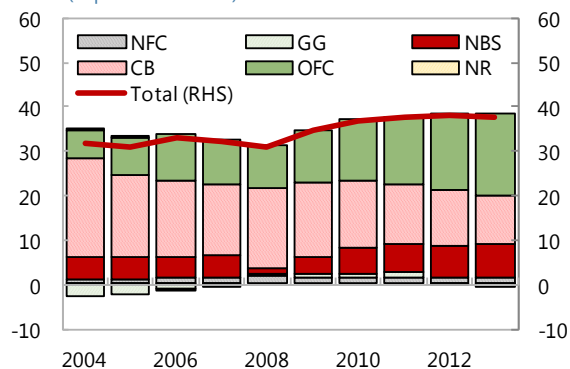(In percent of the total and total in percent of GDP)

Total Financial Liabilities by Financial Instrument
(In percent of the total and total in percent of GDP)

Net Financial Position by Sector
(In percent of GDP)

Net Financial Position by Financial Instrument
(In percent of GDP)

Sources: National Bank of Slovakia, Haver, and IMF staff calculations.

HH = Households; NFC = Nonfinancial corporations; GG = General government; NBS = National Bank of SLovakia; CB = Commercial banks; OFC = Other financial corporations; NR = Non residents.

Dep. = Currency and deposits; Bonds = Securities other than shares; Loans = Loans; Equity = Shares and other equity; Oth.acct. = Other account payable; Res. = Insurance technical reserves.

Figure 4. Slovak Republic: Nonfinancial Corporations, 2005–13(Flows)

Flows of Financial Assets by Sector
(In percent of GDP)

Flows of Financial Liabilities by Sector
(In percent of GDP)

Flows of Financial Assets by Financial Instrument
(In percent of GDP)

Flows of Financial Liabilities by Financial Instrument
(In percent of the total and total in percent of GDP)

Net Financial Flows by Sector
(In percent of GDP)

Net Financial flows by Financial Instrument
(In percent of GDP)

Sources: National Bank of Slovakia, Haver, and IMF staff calculations.

HH = Households; NFC = Nonfinancial corporations; GG = General government; NBS = National Bank of SLovakia; CB = Commercial banks; OFC = Other financial corporations; NR = Non residents.

Dep. = Currency and deposits; Bonds = Securities other than shares; Loans = Loans; Equity = Shares and other equity; Oth.acct. = Other account payable; Res. = Insurance technical reserves.

Figure 5. Slovak Republic: General Government, 2004–13 (Stocks)

Total Financial Assets by Sector
(In percent of the total and total in percent of GDP)

Total Financial Liabilities by Sector
(In percent of the total and total in percent of GDP)

Total Financial Assets by Financial Instrument
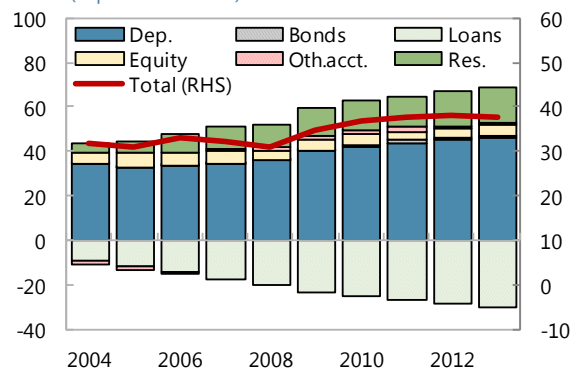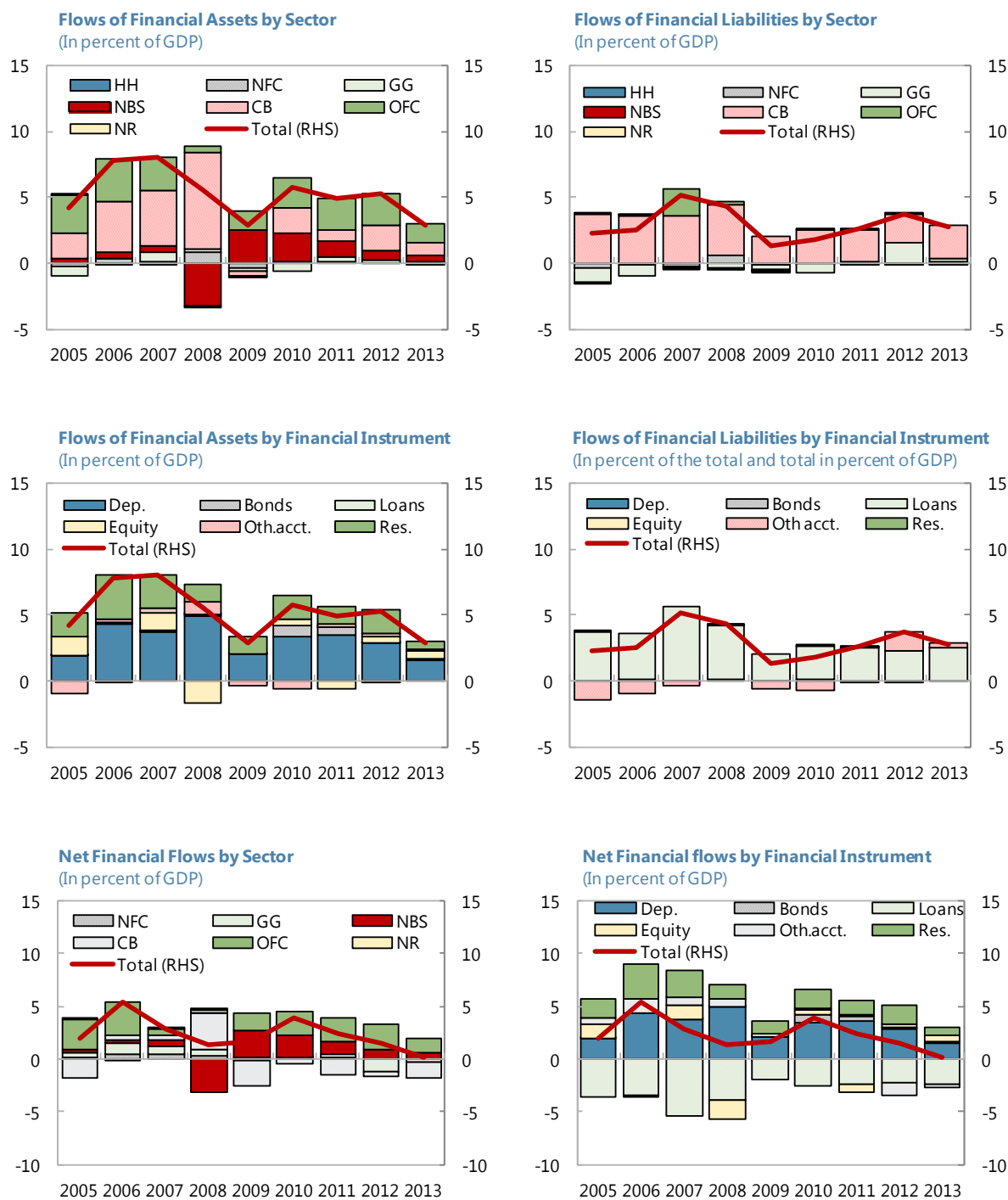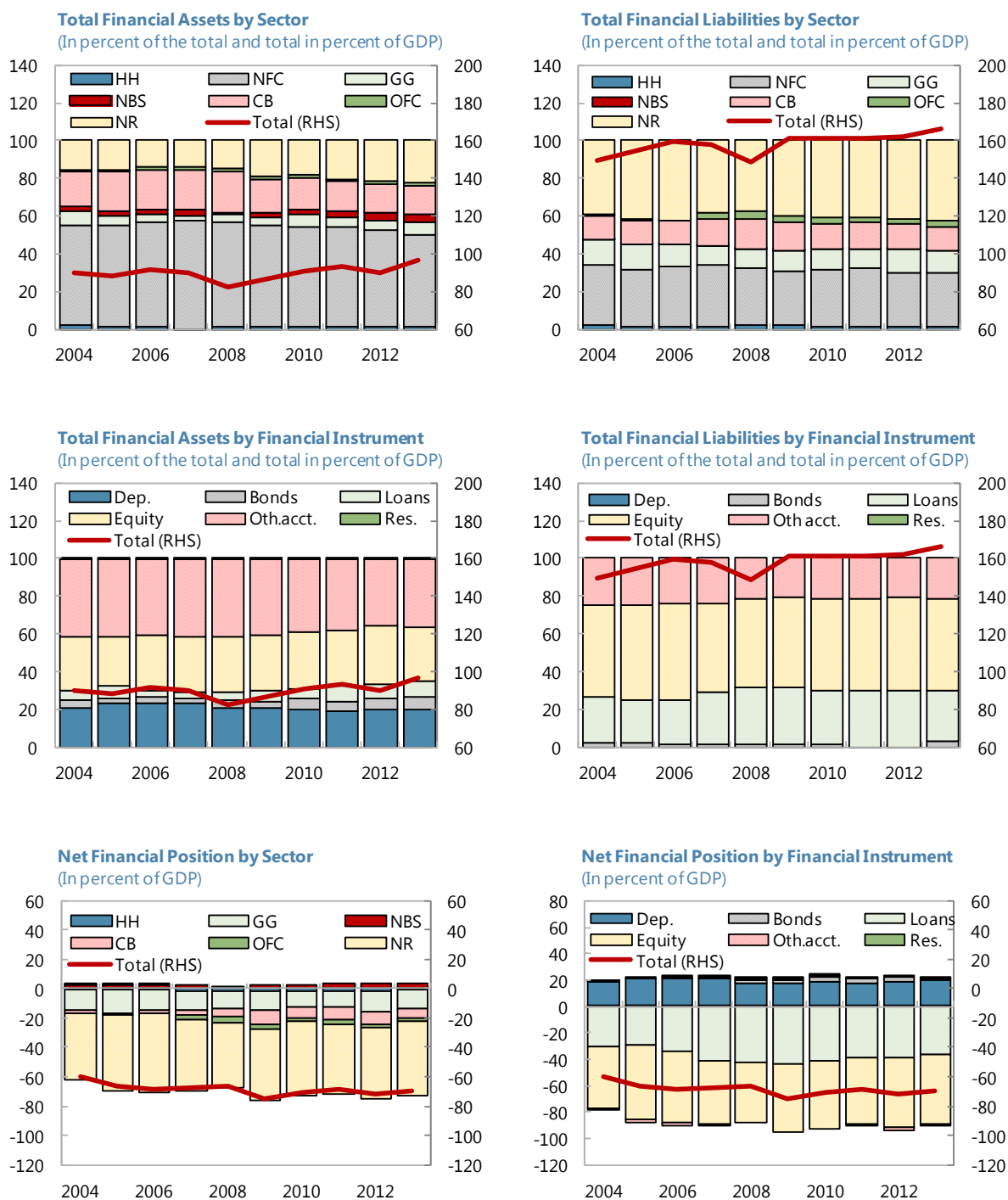(In percent of the total and total in percent of GDP)

Total Financial Liabilities by Financial Instrument
(In percent of the total and total in percent of GDP)

Net Financial Position by Sector
(In percent of GDP)

Net Financial Position by Financial Instrument
(In percent of GDP)

Sources: National Bank of Slovakia, Haver, and IMF staff calculations.

HH = Households; NFC = Nonfinancial corporations; GG = General government; NBS = National Bank of SLovakia; CB = Commercial banks; OFC = Other financial corporations; NR = Non residents.

Dep. = Currency and deposits; Bonds = Securities other than shares; Loans = Loans; Equity = Shares and other equity; Oth.acct. = Other account payable; Res. = Insurance technical reserves.
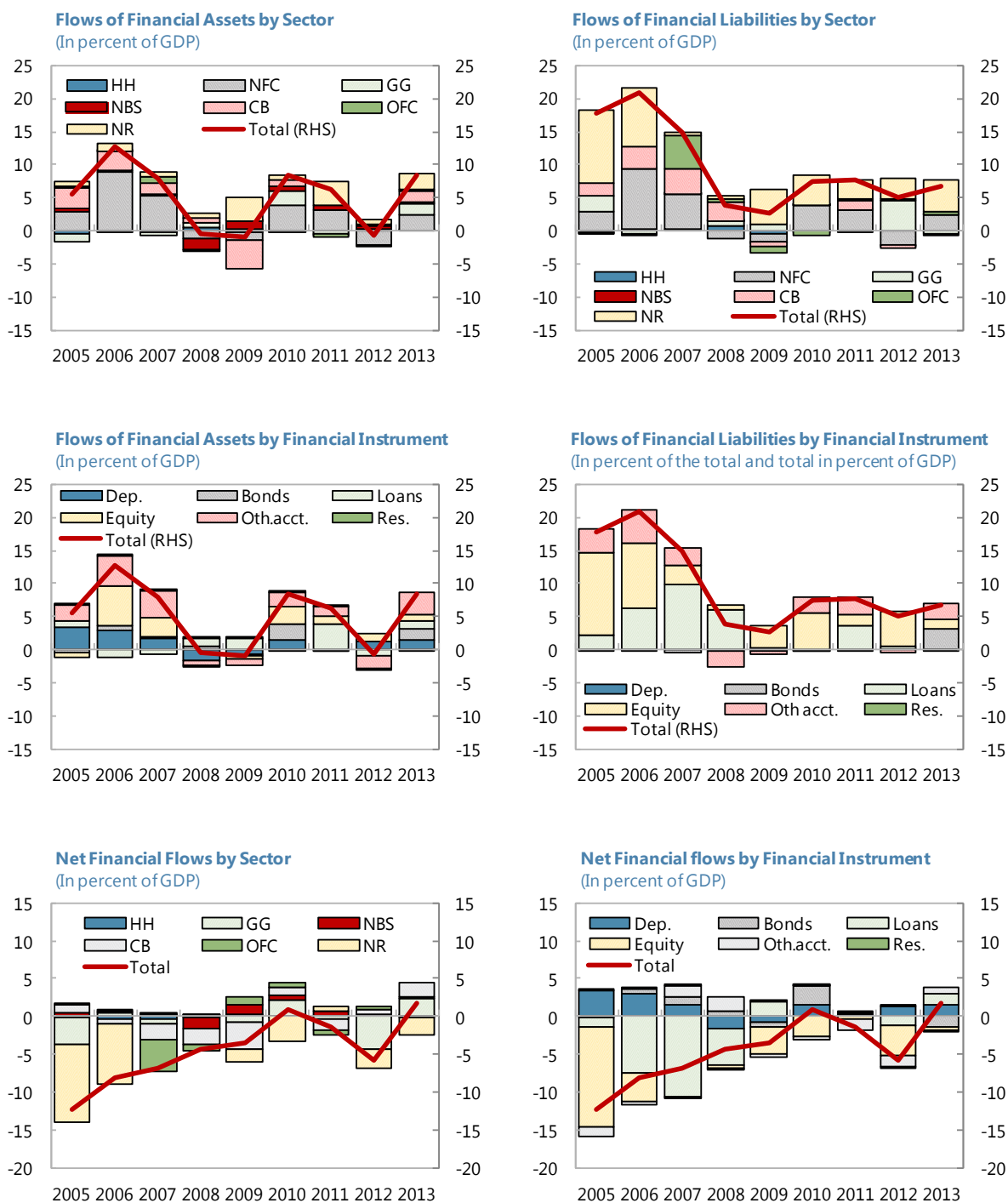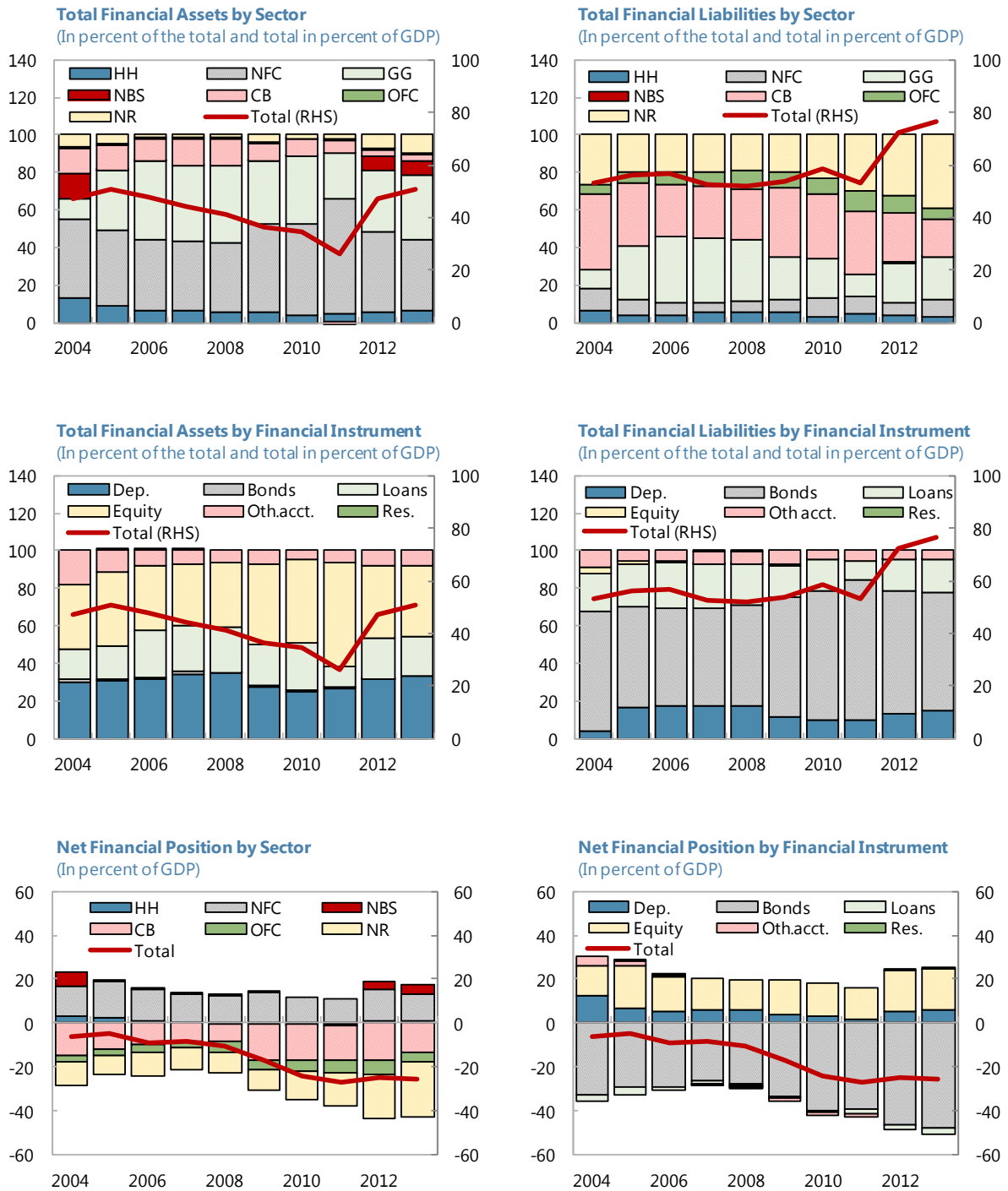
Figure 6. Slovak Republic: General Government, 2005–13 (Flows)

Flows of Financial Assets by Sector
(In percent of GDP)

Flows of Financial Liabilities by Sector
(In percent of GDP)

Flows of Financial Assets by Financial Instrument
(In percent of GDP)

Flows of Financial Liabilities by Financial Instrument
(In percent of the total and total in percent of GDP)

Net Financial Flows by Sector
(In percent of GDP)

Net Financial flows by Financial Instrument
(In percent of GDP)

Sources: National Bank of Slovakia, Haver, and IMF staff calculations.

HH = Households; NFC = Nonfinancial corporations; GG = General government; NBS = National Bank of SLovakia; CB = Commercial banks; OFC = Other financial corporations; NR = Non residents.

Dep. = Currency and deposits; Bonds = Securities other than shares; Loans = Loans; Equity = Shares and other equity; Oth.acct. = Other account payable; Res. = Insurance technical reserves.
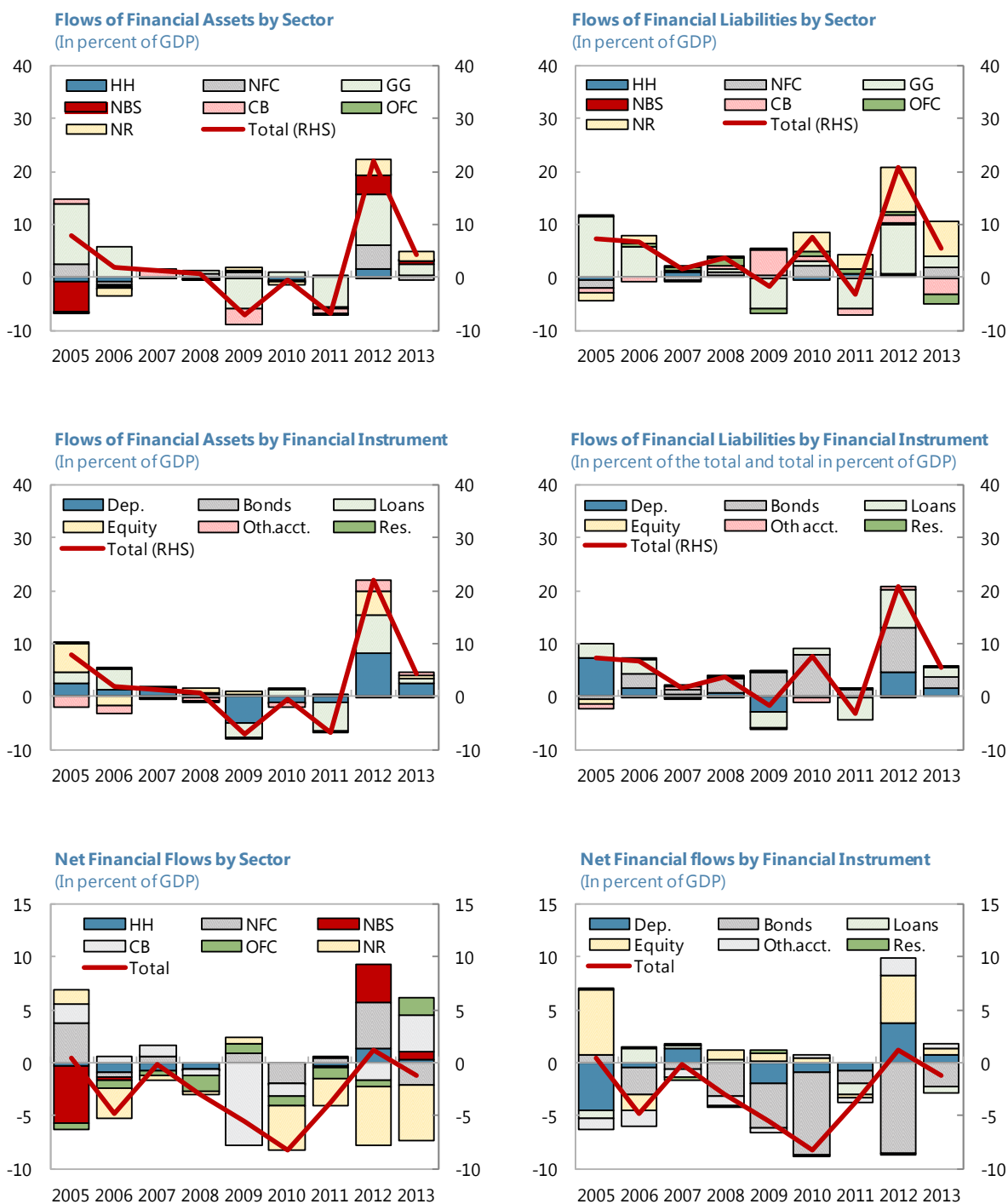
Figure 7. Slovak Republic: Commercial Banks, 2004–13 (Stocks)

Total Financial Assets by Sector
(In percent of the total and total in percent of GDP)

Total Financial Liabilities by Sector
(In percent of the total and total in percent of GDP)

Total Financial Assets by Financial Instrument
(In percent of the total and total in percent of GDP)

Total Financial Liabilities by Financial Instrument
(In percent of the total and total in percent of GDP)

Net Financial Position by Sector
(In percent of GDP)

Net Financial Position by Financial Instrument
(In percent of GDP)

Sources: National Bank of Slovakia, Haver, and IMF staff calculations.

HH = Households; NFC = Nonfinancial corporations; GG = General government; NBS = National Bank of SLovakia; CB = Commercial banks; OFC = Other financial corporations; NR = Non residents.

Dep. = Currency and deposits; Bonds = Securities other than shares; Loans = Loans; Equity = Shares and other equity; Oth.acct. = Other account payable; Res. = Insurance technical reserves.
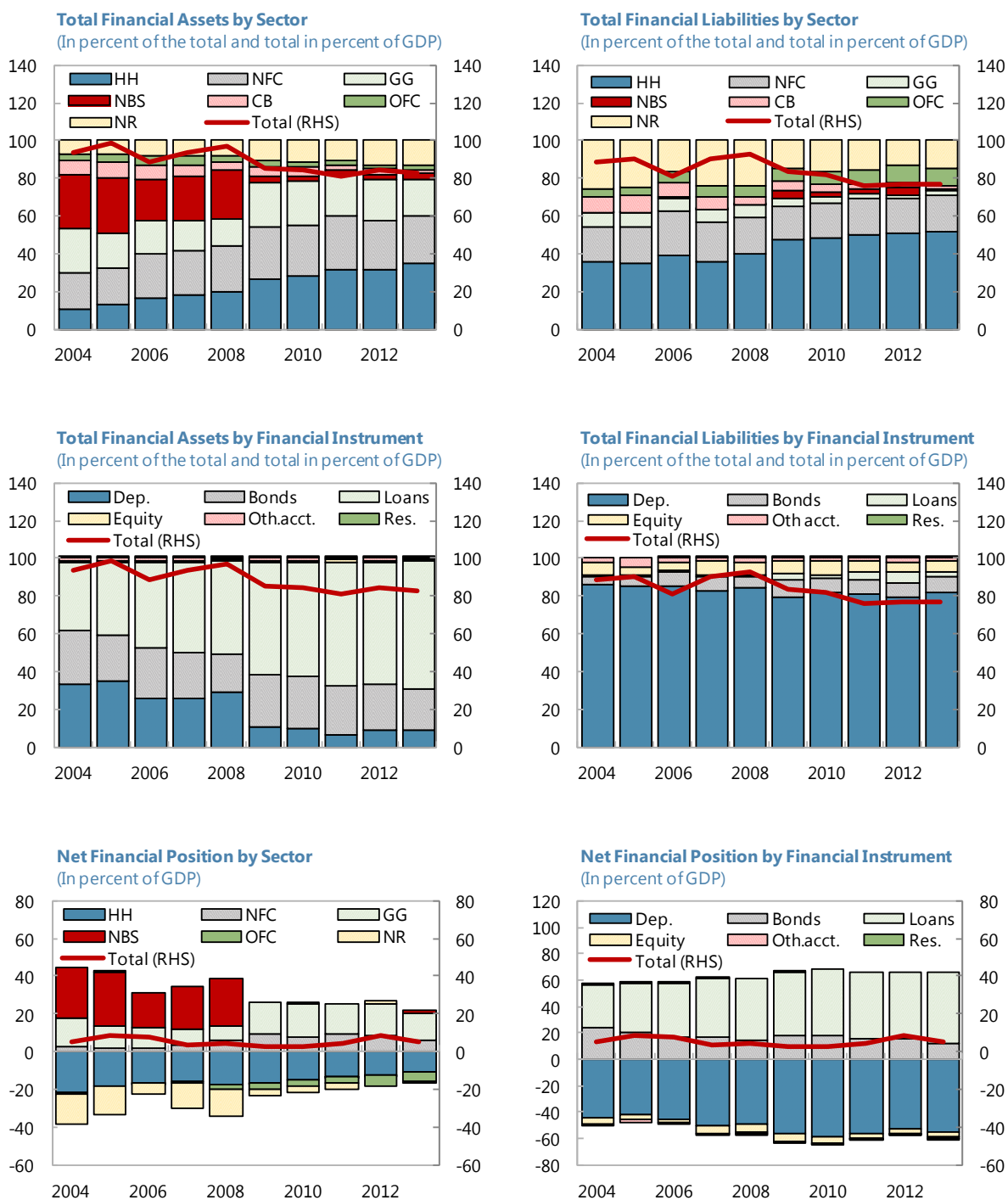
Figure 8. Slovak Republic: Commercial Banks, 2005–13 (Flows)

Flows of Financial Assets by Sector
(In percent of GDP)

Flows of Financial Liabilities by Sector
(In percent of GDP)

Flows of Financial Assets by Financial Instrument
(In percent of GDP)

Flows of Financial Liabilities by Financial Instrument
(In percent of the total and total in percent of GDP)

Net Financial Flows by Sector
(In percent of GDP)

Net Financial flows by Financial Instrument
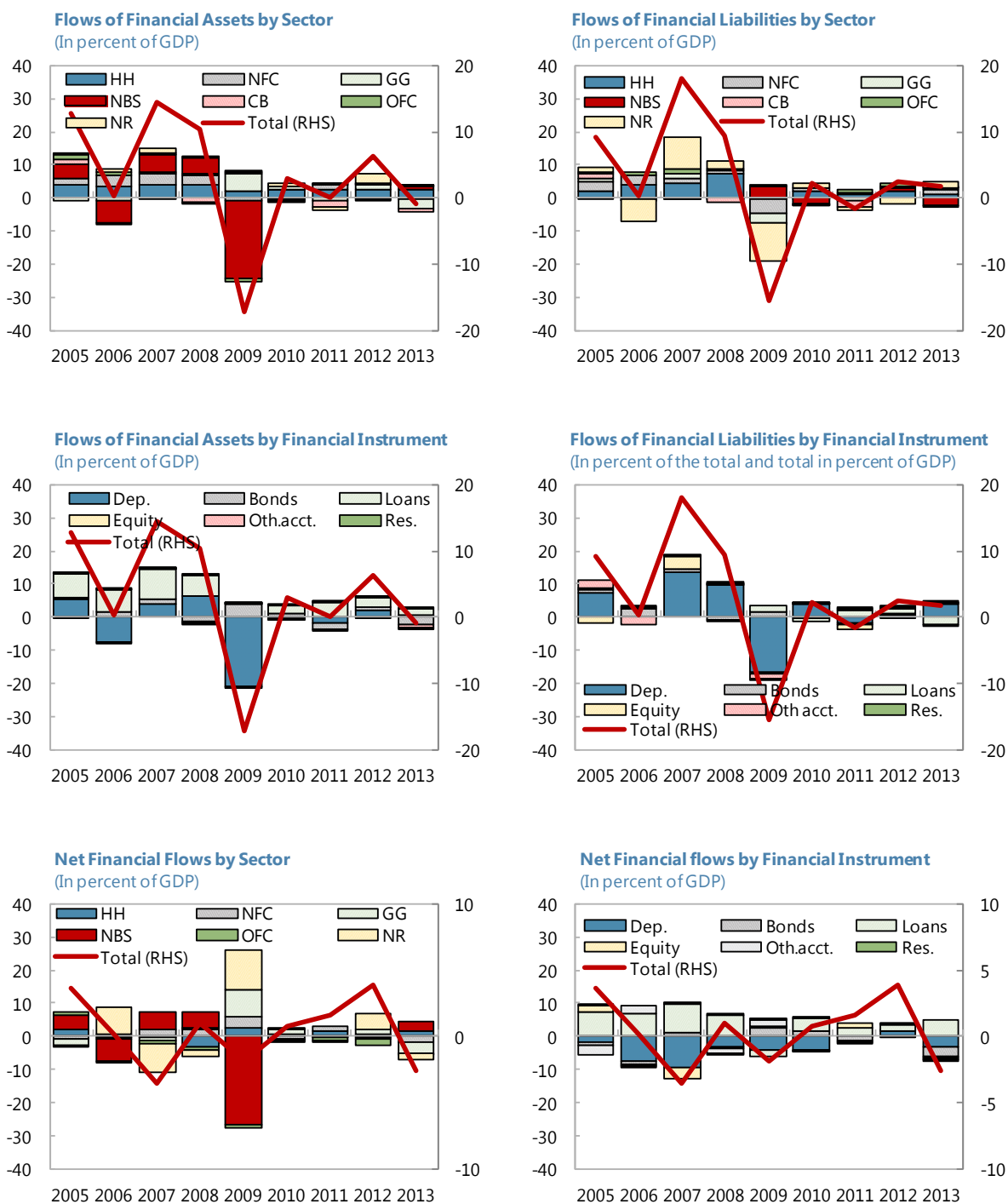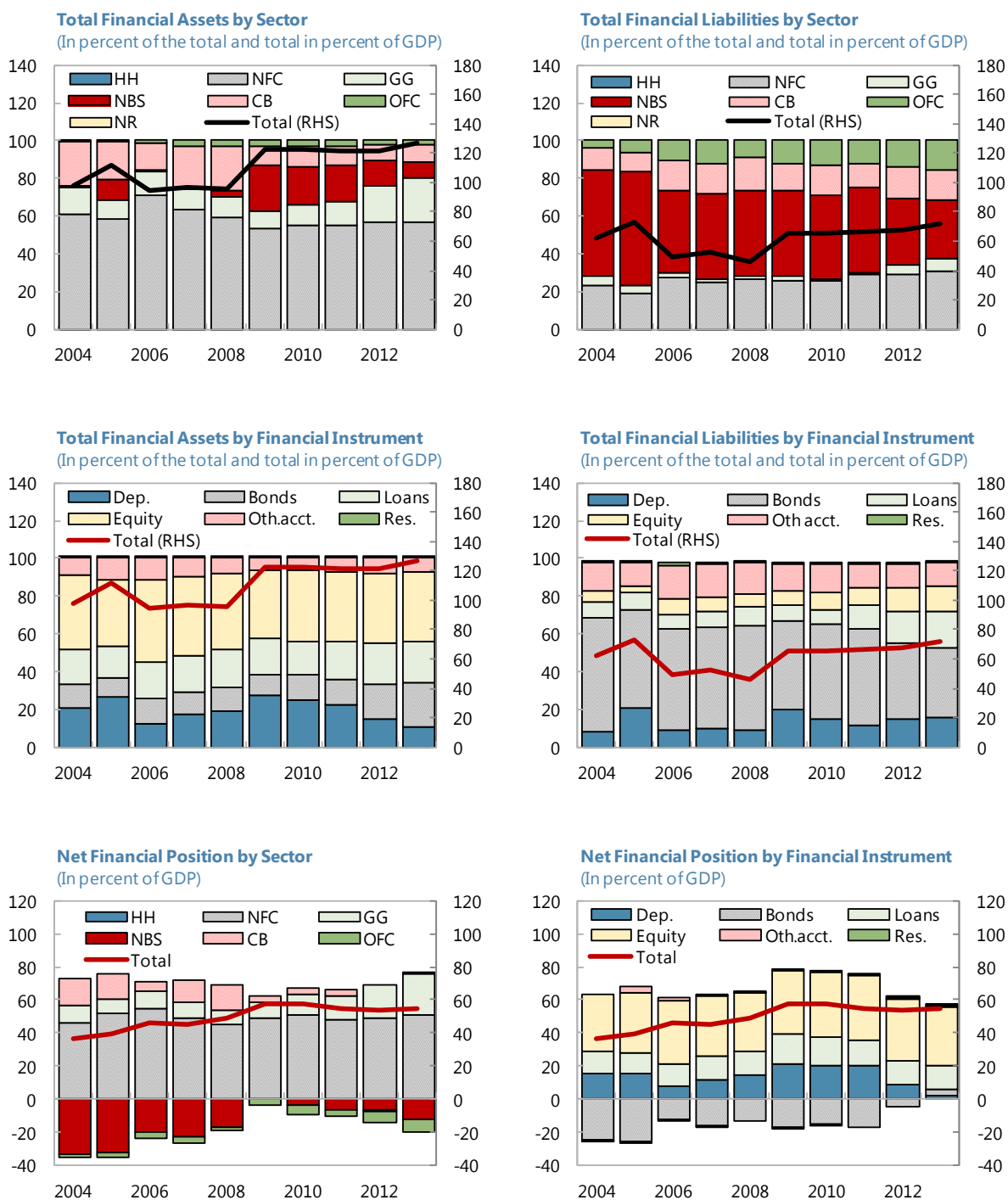(In percent of GDP)

Sources: National Bank of Slovakia, Haver, and IMF staff calculations.

HH = Households; NFC = Nonfinancial corporations; GG = General government; NBS = National Bank of SLovakia; CB = Commercial banks; OFC = Other financial corporations; NR = Non residents.

Dep. = Currency and deposits; Bonds = Securities other than shares; Loans = Loans; Equity = Shares and other equity; Oth.acct. = Other account payable; Res. = Insurance technical reserves.

Figure 9. Slovak Republic: Rest of the World, 2004–13 (Stocks)

Total Financial Assets by Sector
(In percent of the total and total in percent of GDP)

Total Financial Liabilities by Sector
(In percent of the total and total in percent of GDP)

Total Financial Assets by Financial Instrument
(In percent of the total and total in percent of GDP)

Total Financial Liabilities by Financial Instrument
(In percent of the total and total in percent of GDP)

Net Financial Position by Sector
(In percent of GDP)

Net Financial Position by Financial Instrument
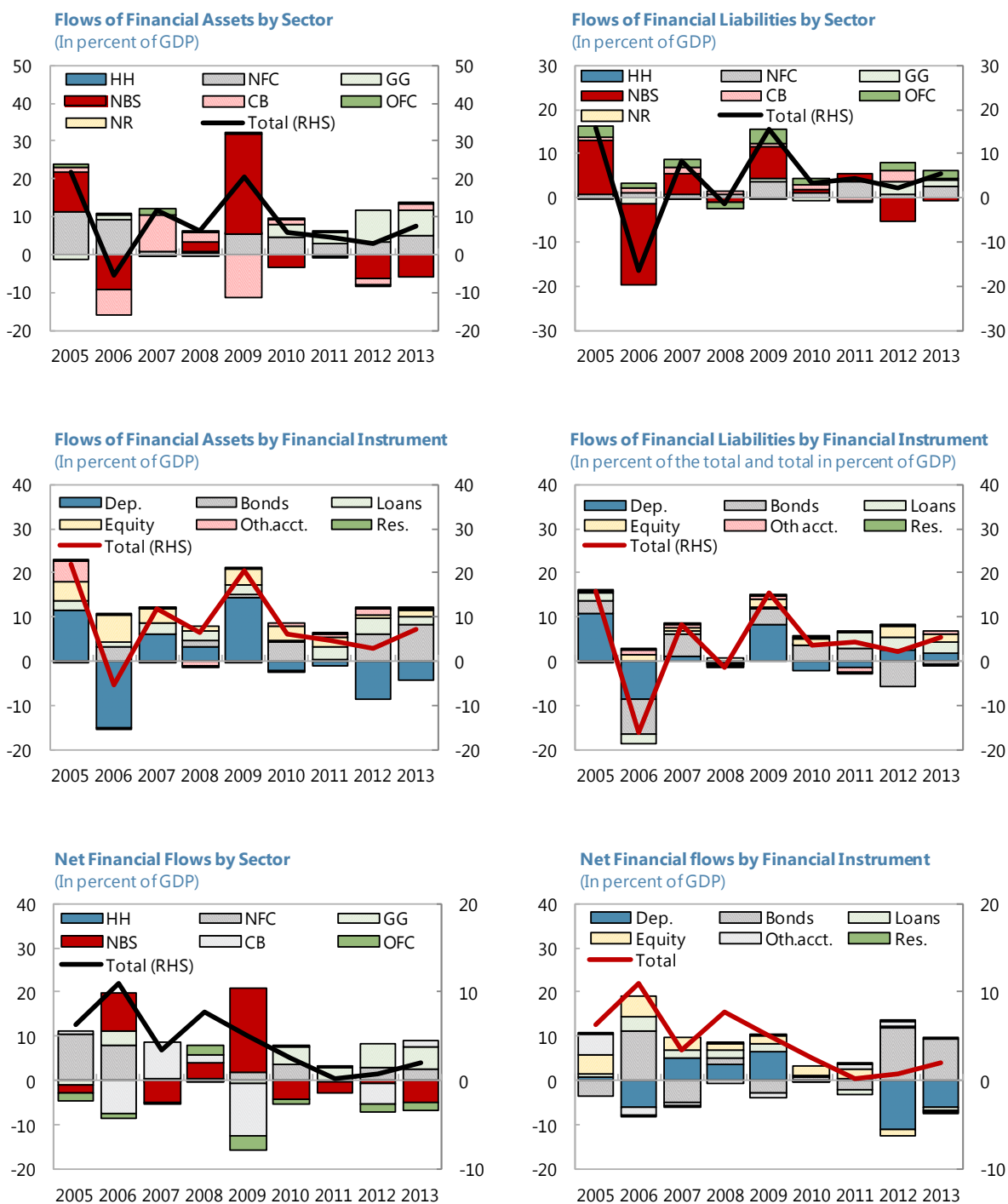(In percent of GDP)

Sources: National Bank of Slovakia, Haver, and IMF staff calculations.

HH = Households; NFC = Nonfinancial corporations; GG = General government; NBS = National Bank of SLovakia; CB = Commercial banks; OFC = Other financial corporations; NR = Non residents.

Dep. = Currency and deposits; Bonds = Securities other than shares; Loans = Loans; Equity = Shares and other equity; Oth.acct. = Other account payable; Res. = Insurance technical reserves.

Figure 10. Slovak Republic: Rest of the World, 2005–13 (Flows)

Flows of Financial Assets by Sector
(In percent of GDP)

Flows of Financial Liabilities by Sector
(In percent of GDP)

Flows of Financial Assets by Financial Instrument
(In percent of GDP)

Flows of Financial Liabilities by Financial Instrument
(In percent of the total and total in percent of GDP)

Net Financial Flows by Sector
(In percent of GDP)

Net Financial flows by Financial Instrument
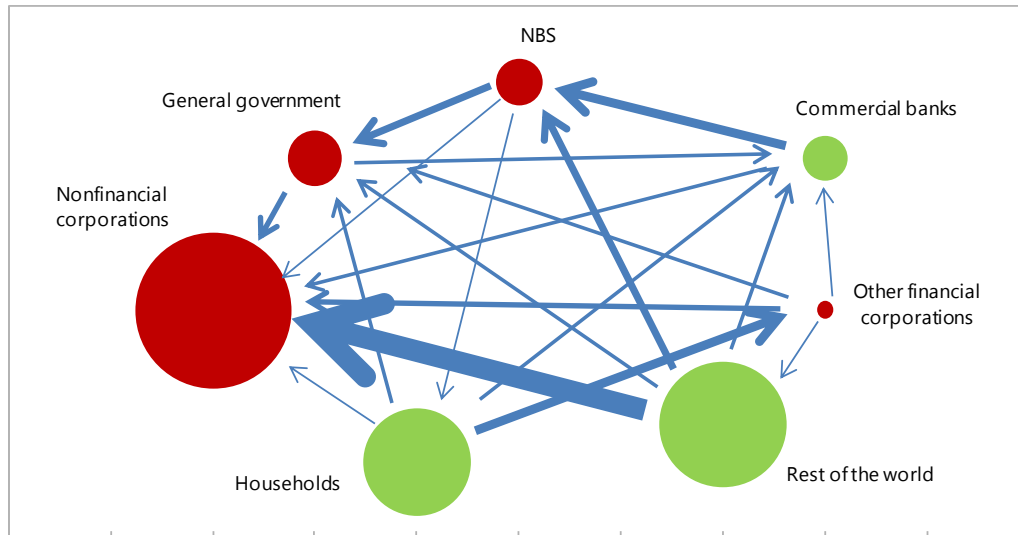(In percent of GDP)

Sources: National Bank of Slovakia, Haver, and IMF staff calculations.

HH = Households; NFC = Nonfinancial corporations; GG = General government; NBS = National Bank of SLovakia; CB = Commercial banks; OFC = Other financial corporations; NR = Non residents.
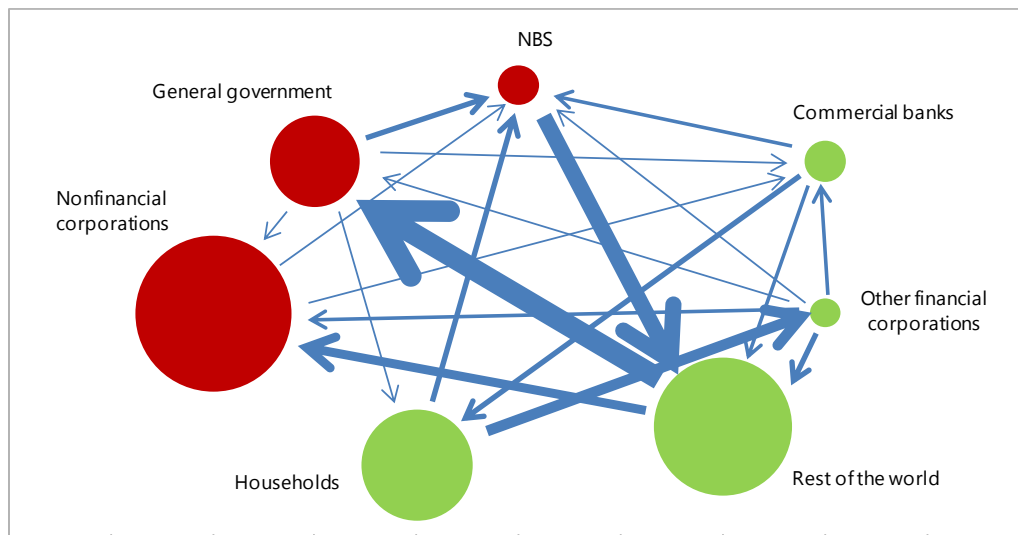
Dep. = Currency and deposits; Bonds = Securities other than shares; Loans = Loans; Equity = Shares and other equity; Oth.acct. = Other account payable; Res. = Insurance technical reserves.

Figure 11. Slovak Republic: Flow of Funds, 2005–13

Flow of Funds, 2005-08
(Averages, in percent of GDP)

Flow of Funds, 2010-13
(Averages, in percent of GDP)

Source: National Bank of Slovakia, Eurostat and IMF staff calculations.