Republic of Slovenia: Selected Issues

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REPUBLIC OF SLOVENIA

Selected Issues

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Figures

Tables

I. WHAT CAN WE LEARN FROM THE SPIKE OF INFLATION IN SLOVENIA IN 2007–08?[1]

1.   **The spike in Slovenian inflation in 2007 and 2008 (an increase from 3.8 percent in 2007 to 5.5 percent in 2008, well above the euro-area average) has shown how structural bottlenecks may hamper Slovenian growth in the future**. This paper investigates the role of supply factors (i.e., the increase in commodity prices and the catching-up effect) and demand-side effects (i.e., business cycle) in explaining this surge. Commodity related cost-push factors account for about 30 percent of the 2007–2008 surge in inflation while demand-pull factors explain approximately 37 percent; the remaining third is explained by other factors, including possibly labor cost pressure.

A. Context

2.   **Inflation in Slovenia (measured as percentage change Harmonized index of consumer prices, HICP) has always been higher than that in other Euro area countries but the gap has changed over time.**[2]
Slovenian inflation was 6.8 percent greater than Euro area inflation in 2000 but the gap decreased in the first half of the 2000s, reaching 0.3 percent in 2005, mainly due to the monetary policy framework focusing on price stability in 2001 and the introduction of Exchange Rate Management II (ERMII) in June 2004. Inflation diverged again in 2007 with the gap widening from 1.6 percent in 2007 to 2.2 percent in 2008 (see

Figure 1: Slovenia Inflation

Source: Eurostat

Figure 1). Core inflation, which excludes food and fuel, followed the same path.
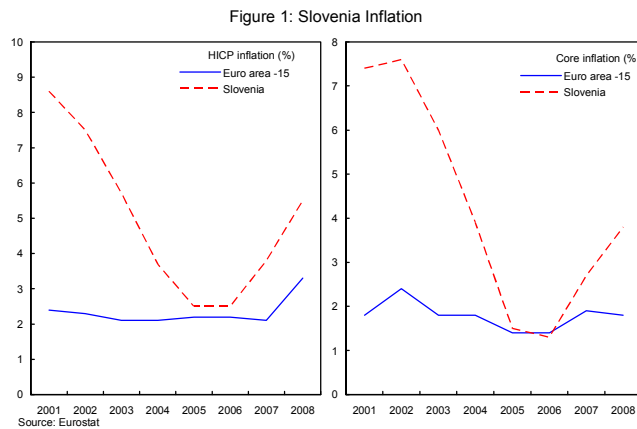
Supply-Side: The Effect of Commodity Price Increase

3.   **The increase in food and fuel prices contributed greatly to the sharp rise in inflation in 2007 and 2008**. In 2007, international food and fuel prices increased by 15.2 and 10.4 percent, respectively. The combined commodity price increases contributed directly to Slovenia's HICP inflation of about 2 percent.[3] The effect intensified in 2008 when the surge of 23.4 and

Figure 2: Food and Fuel Prices

Source: Eurostat, IMF staff calculation

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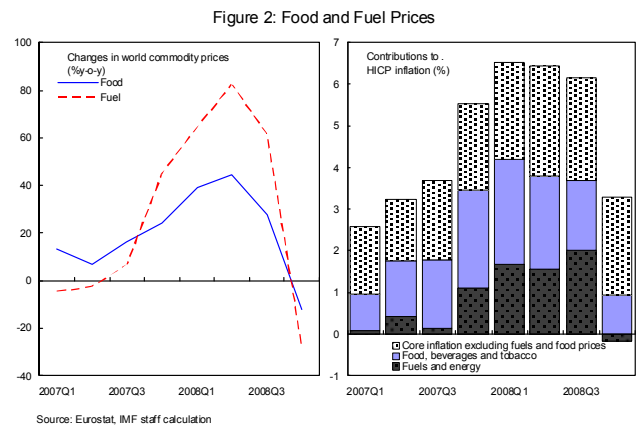
[1] Prepared by Piyaporn Sodsriwiboon.

[2] Through out this paper we use inflation for HICP inflation unless specified otherwise.

[3] The contribution of domestic commodity prices in the HICP inflation shown in Figure 2 is calculated as the increase in domestic food and fuel prices weighted by their shares in the HICP basket.

40.1 percent in world food and fuel prices translated into 3.1 percent increase in Slovene inflation (Figure 2).

4. **The pass-through of food and fuel prices to Slovenian prices is high for three reasons:**

- First, the share of food and fuel in Slovenia's HICP basket (35.3 percent) is higher than that of the euro area (28.5 percent), leading mechanically to a large first round effect (Surti, 2007).
- Second, increases in international prices translate to high increases in domestic fuel prices: a one percent increase in world fuel prices leads to a 0.29 percent increase in domestic fuel prices.[4] This estimate is comparable to that of advanced economies and twice as much as the average of emerging economies. Assuming that all pass-through was completed during the first year, the first-round fuel pass-through effect accounted for 2.4 percentage points of inflation in the first nine months of 2008 (see Figure 3).
- Third, the second-round pass-through effect from domestic food and fuel prices to core inflation in Slovenia is elevated.[5] The food price pass-through is 0.66 percent for a one percent increase in domestic food prices, which is approximately three

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[4] The pass-through from international to domestic prices of food and fuel is obtained from country-by-country bivariate regressions (WEO, Oct 2008):

$$\pi_t^{food,domestic} = \alpha + \sum_{i=1}^{4} \beta_i \pi_{t-i}^{food,domestic} + \sum_{i=0}^{4} \delta_i \pi_{t-i}^{food,world} + \varepsilon_t$$

$$\pi_t^{fuel,domestic} = \alpha + \sum_{i=1}^{4} \beta_i \pi_{t-i}^{fuel,domestic} + \sum_{i=0}^{4} \gamma_i \pi_{t-i}^{fuel,world} + \upsilon_t$$

$$\text{Food price pass-through} = \frac{\sum_{i=0}^{4} \delta_i}{1 - \sum_{i=1}^{4} \beta_i} \qquad \text{Fuel price pass-through} = \frac{\sum_{i=0}^{4} \gamma_i}{1 - \sum_{i=1}^{4} \beta_i}$$

[5] The pass-through from domestic commodity prices to core inflation is estimated using Phillips curve equations with domestic prices net of any influences. The full long-term pass-through is calculated as the sum of coefficients on the current value and four lags of the independent variable divided by one minus the sum of coefficients on the four lags of the dependent variable. (WEO, Oct 2008)

$$\pi_t = \alpha + \sum_{i=1}^{4} \beta_i \pi_{t-i} + \sum_{i=0}^{4} \gamma_i (y_{t-i} - y_{t-i}^*) + \sum_{i=0}^{4} \phi_i \pi_{t-i}^{food} + \sum_{i=0}^{4} \varphi_i \pi_{t-i}^{fuel} + \varepsilon_t$$

$$\text{Food price pass-through} = \frac{\sum_{i=0}^{4} \phi_i}{1 - \sum_{i=1}^{4} \beta_i} \qquad \text{Fuel price pass-through} = \frac{\sum_{i=0}^{4} \varphi_i}{1 - \sum_{i=1}^{4} \beta_i}$$

The reported estimates show the weighted averaged of country-by-country estimates using quarterly data from 1995 to 2008 for 25 emerging economies and 21 advanced economies, and from 2001 to 2008 for Slovenia.

times as much as that of advanced countries and 0.11 percent greater than that of emerging economies.[6]

Figure 3: Commodity Price Pass-through

Source: IMF Staff calculation
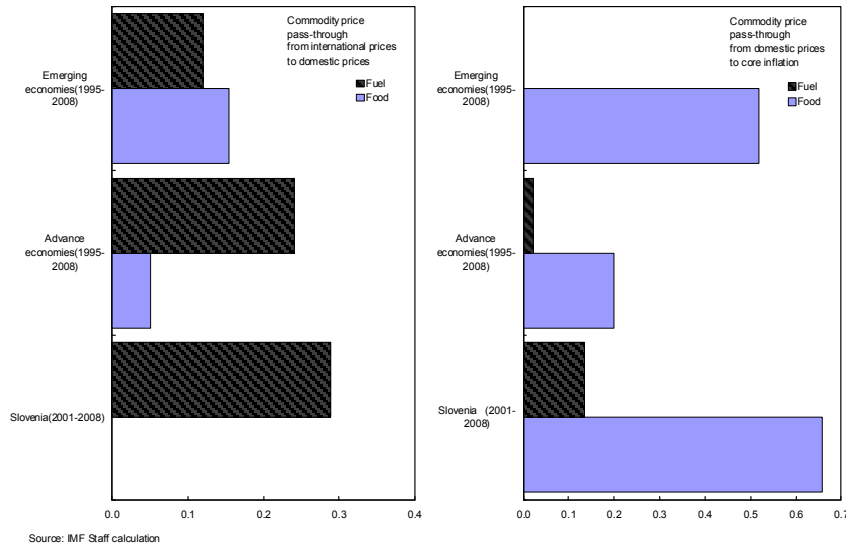
B. The Euro Adoption

5.   **The surge in Slovene inflation is only partly due to the introduction of the Euro.** The Euro adoption could have resulted in both a short-term currency changeover effect and   the catching-up effect as observed also in other non-core countries joining the euro area. Figure 4 presents the difference between each country's and the average euro-area inflations in the years immediately before and after the Euro adoption. In all cases, the inflation differential increased after the introduction of the Euro; in the cases of Greece, Ireland, and Slovenia one year after the adoption of the Euro; in the case of Portugal, after two years.

Figure 4: Inflation Response to the Euro Adoption

Source: Eurostat
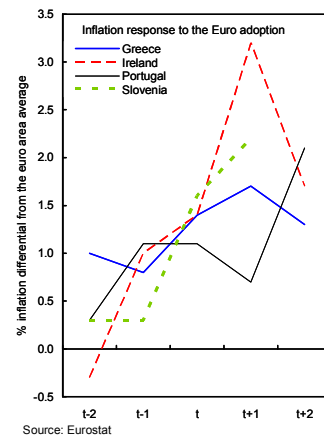
6.   **The Euro changeover effect was rather small**. During the transition period, inflation perceptions could have been blurred by expectations of price increases and the complexity of the conversion rate from national currency to the Euro. Some retailers may have used the changeover to increase short-term profits by increasing prices. For Slovenia, nonetheless, the Euro changeover contributed only 0.13 and 0.10 percent to inflation in December 2006 and January 2007 respectively, and it mostly affected prices of services (IMAD, 2007). The limited effect of currency changeover may be due to price control policies enacted during the first half of 2007.

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[6] The estimate is slightly smaller than a recent finding by Caprirolo (2008) that a one percent increase in food prices resulted in a 0.88 percent increase in core inflation in the long run.

7.   **The catching-up effect is plausible, but its magnitude is negligible.**[7] A Balassa-Samuelson effect is plausible because productivity growth in tradable sector has been leading the increase in prices of nontradables after the ERMII. Table 1 presents the estimates of catching-up effect for Slovenia in   2000–2008 and the two sub-periods before and after the ERMII. A one percent difference of the productivity growth between tradable and non-tradable sectors results in a 0.04–0.11 percent increase in the relative price of nontradables.

8.   **Nonetheless, the contribution of the catching-up effect to Slovene HICP inflation appears to be small and relatively stable in the past four years.** Figure 5 shows the catching-up effect in 2005–2007, using the estimates from equation 4 after the ERMII and assuming that factor intensities are the same in both tradables and nontradables. The estimated catching-up effect was about 0.3 percent in 2005–2007, explaining only 10 percent of Slovenia's inflation. Consequently, the catching-up effect does not account for a recent surge in inflation (Figure 5).

Figure 5: The Catching-up Effect
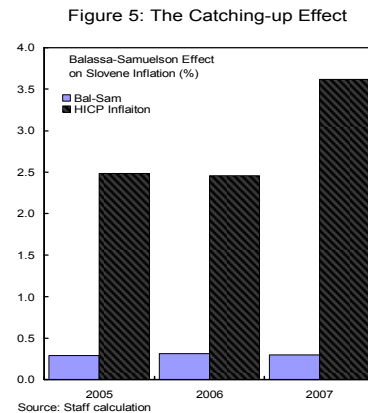
C. Demand-Side: Business Cycle

9.   **This study applies the traditional Phillips curve framework to analyze the demand-pull effect on inflation.** The augmented Phillips curve is estimated to address the relationship between output and inflation, i.e., regresses the inflation on its lag level (to measure persistence), the output gap, and other controls. The sample includes Euro-12 countries and Slovenia. The data are annual from 1997 to 2007. The results are shown in Table 2.

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[7] The greater trade and investment opportunities after the entry in the euro area may have contributed to the improvement of Slovene productivity, particularly in the tradable sector. The Balassa-Samuelson model provides a supply-side explanation for the relative price of tradables and non-tradables in an economy. Specifically, Balassa (1964) and Samuelson (1964) argued that faster productivity growth in the tradable sector pushes up overall wages if wages are equalized across sectors, leading to a rise in the relative price of non-tradable goods. This would explain why inflation is faster in economies that are catching up with richer trading partners.

Table 1: The Estimates of Catching-up Effect

	Log(CPI/PPI) (1)	Log(CPI$_{service}$/CPI) (2)	Log(CPI$_{service}$/PPI) (3)	Log(CPI$_{service}$/CPI$_{good}$) (4)
	Dependent Variables: Proxy for $Log(\frac{P_t^{NT}}{P_t^T})$			
Entire sample: 2000:Q1-2008:Q2				
Constant	-0.00	-0.00	0.01	0.00
	(0.00)	(0.00)	(0.00)*	(0.00)
Lagged dependent variable	0.93	0.98	0.92	1.01
	(0.06)**	(0.16)**	(0.05)**	(0.11)**
$Log(LP_t^T - LP_t^{NT})$	-0.02	-0.05	0.03	-0.03
	(0.02)	(0.02)**	(0.02)	(0.01)**
Number of observations	26	30	26	30
J-statistics	6.32	6.06	3.97	5.84
Before ERMII: 2000:Q1-2004:Q2				
Constant	-0.04	0.02	-0.03	-0.00
	(0.04)	(0.02)	(0.01)**	(0.01)
Lagged dependent variable	1.38	0.36	0.86	0.87
	(0.36)***	(0.31)	(0.09)***	(0.09)***
$Log(LP_t^T - LP_t^{NT})$	-0.13	0.05	-0.14	-0.04
	(0.10)	(0.05)	(0.03)***	(0.03)
Number of observations	12	16	11	15
J-statistics	2.91	1.29	2.19	1.12
After ERMII: 2004:Q3-2008:Q2				
Constant	0.02	0.01	0.01	0.01
	(0.00)***	(0.00)***	(0.00)***	(0.00)***
Lagged dependent variable	0.36	1.02	0.75	0.95
	(0.07)***	(0.07)***	(0.04)***	(0.06)***
$Log(LP_t^T - LP_t^{NT})$	0.11	0.05	0.04	0.06
	(0.02)***	(0.02)***	(0.01)***	(0.02)***
Number of observations	16	16	16	16
J-statistics	4.02	3.57	3.05	3.70

Note: The above table shows the estimates of the catching-up effect for Slovenia following the empirical specification, $Log(\frac{P_t^{NT}}{P_t^T}) = \alpha + \beta.Log(\frac{P_{t-1}^{NT}}{P_{t-1}^T}) + \phi.Log(\frac{\delta}{\gamma}\frac{LP_t^T}{LP_t^{NT}}) + \varepsilon_t$, where ($P^{NT}/P^T$) is the relative price of non-tradable goods and (LP^T/LP^{NT}) denote the ratio of labor productivity of tradable to non-tradable sector. The quarterly data range from 2000:Q1 to 2008:Q2. The labor productivity of tradable sector considers the ratio of output to employment in agriculture, fishing, mining and manufacturing, while that of non-tradable sector is the ratio of output to employment of the rest in national account. The above equation is estimated by GMM estimation using lagged dependent and independent variables up to 4 lags as instrument variables. Robust standard errors are shown in parenthesis. ***, ** and * imply significance level at 1 percent, 5 percent and 10 percent respectively.

10. **Large part of Slovene inflation is explained by business cycle.** A traditional Phillips curve analysis confirms that lagged inflation and output gap are important determinants of current inflation, in addition to international food and fuel prices. The estimated degree of inflation persistence is about 0.8, whereas the result shows a one percent increase in output gap pushes up the inflation by 0.28 percent. The lagged inflation and the output gap together explain approximately 60 percent of Slovene inflation.

11. **In particular, the demand-pull impacts on Slovene inflation are more evident than those of the Euro-area's inflation.** By interacting the lagged inflation and the output gap with a Slovene dummy, the result shows that their country-specific impacts on Slovenia's inflation are significantly larger than those of the Euro-area's inflation. Specifically, the greater degree of inflation persistence and the stronger effect of the deviation from the economy's potential could result from the more rigid labor markets (see Figure 6).

12.   **The overheating of the economy and the high persistence of inflation contributed to the rise in inflation in 2007–2008** (Figure 6). Slovenia's output gap increased from about 1 percent in 2006 to 4.4 percent in 2008, while the increase was much smaller in the rest of the euro-area. In 2007–2008, the demand-pull factors, therefore, explained approximately 37 percent of the increase in inflation. At the same time, the effect of cost-push factors accounted for about 30 percent.

Table 2: Augmented Phillips Curve

Explanatory variables	Dependent variable: HICP inflation			
	Arellano-Bond Dynamic Panel Estimation			
	(1)	(2)	(3)	(4)
Lagged HICP inflation	0.77	0.79	0.77	0.35
	(0.06)***	(0.06)***	(0.04)***	(0.19)*
Output gap	0.28	0.27	0.29	0.29
(% deviation from potential output)	(0.05)***	(0.05)***	(0.06)***	(0.06)***
Oil price inflation		0.01	0.01	0
		(0.00)**	(0.00)**	(0.00)*
Food price inflation				0.02
				-0.01
Slovene dummy				-3.41
				(1.78)*
Interaction of Slovene dummy with:				
Lagged HICP inflation				0.74
				(0.23)***
Output gap				0.68
				(0.21)***
Oil price inflation				0
				(0.01)*
Food price inflation				0.04
				(0.05)*
Dummy for Euro adoption			-0.28	-1.06
			(0.14)**	(0.56)*
Constant	0.53	0.39	0.66	1.43
	(0.14)***	(0.15)***	(0.17)***	(0.54)***

Note: The above table reports the estimates of the augmented Phillips curve of Euro-12 and Slovenia. The regression takes form:

$\pi_{i,t} = \alpha + \beta.\pi_{i,t-1} + \gamma.(y - y^*)_{i,t} + \phi.X_{i,t} + \varepsilon_{i,t}$ where π is HICP inflation, $(y\text{-}y^*)$ is output gap as percentage deviation from potential output, and X is the set of control variables, e.g., change in oil price and a dummy for Euro adoption equal to 1 after Euro adoption and 0 otherwise. The annual data range from 1997–2007. The regression is estimated by Arellano-Bond dynamic panel technique. Robust standard errors are shown in parenthesis. ***, ** and * imply significance level at 1 percent, 5 percent and 10 percent respectively.

Figure 6: Explaining Slovenia's Inflation in 2007-2008
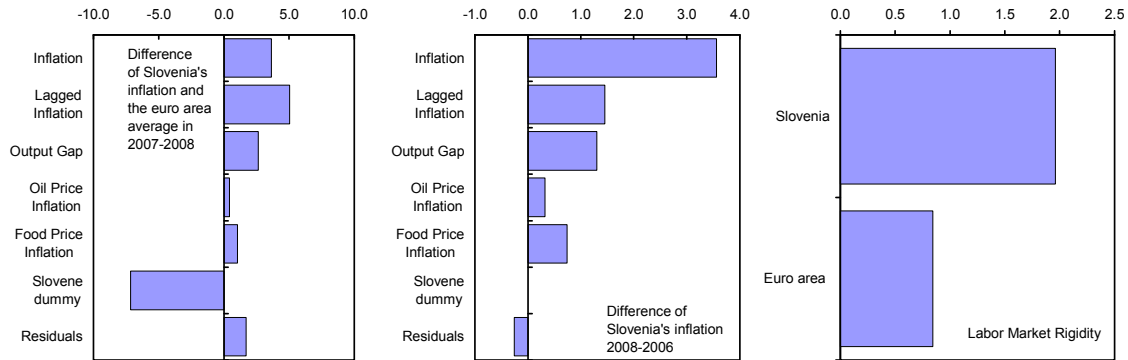
Source: Staff Calculation. Left figure presents the deviation of Slovenia's contribution from the euro area average's in 2007 and 2008 combined. Middle figure shows the difference of Slovenia's contribution from 2006 to 2008. Labor market rigidity indicator in right figure is the first principal component of 9 competition variables from Fraser Institute and World Bank Doing Business, i.e., difficulty of hiring, difficulty of firing, hiring cost, firing cost, rigidity of employment, rigidity of hours, effectivie minimum wage, coverage of collective bargaining, hiring and firing pratices. Higher indicator means more rigid labor market.

D. Conclusions

13.   **The spike in Slovenian inflation in 2007–08 was a consequence of cost-push and demand-pull factors**. The supply-side factors including the spike in commodity prices and demand-pull factors related to the business cycle explained approximately two-third of the surge. Currently, the global recession is alleviating the inflationary pressures; however, inflation differentials with other countries in the Euro area persist. The structural bottlenecks, i.e. the more-rigid labor market, would continue putting labor cost pressures, thus potentially hindering Slovenian growth in the future. Consequently, greater wage flexibility, and further liberalization of employment protection legislation would be the key requirements for Slovenia to achieve faster price adjustments and successful competition in the Euro area.

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APPENDIX

This study estimates the catching-up effect of Slovenia, comparing the periods before and after the ERM II. The empirical specification of Balassa-Samuelson catching-up model (Mihaljek and Klau, 2003) is as follows:

$$Log\left(\frac{P_t^{NT}}{P_t^{T}}\right) = \alpha + \beta.Log\left(\frac{P_{t-1}^{NT}}{P_{t-1}^{T}}\right) + \phi.Log\left(\frac{\delta}{\gamma}\frac{LP_t^{T}}{LP_t^{NT}}\right) + \varepsilon_t$$

where P^{NT} and P^{T} denote indices of non-tradable and tradable prices. LP^{T} and LP^{NT} denote labor productivity of tradable and non-tradable sector respectively. δ and γ are factor intensities in non-tradable and tradable in tandem. For simplicity, δ and γ are assumed to be equal.

Several sets of price indices from the harmonized index of consumer prices (HICP) and producer price index (PPI) are considered as proxies for the relative price of non-tradable goods (P^{NT}/P^{T}). The first three ratios follow Egert et al. (2003). The first ratio-HICP over PPI- assumes all items except goods in HICP are non-tradables. The ratio measures the sum of non-tradable and tradable prices divided by tradable prices. On the other hand, the second ratio-services in HICP over HICP- can be viewed as non-tradable prices divided by the sum of tradable and non-tradable prices. The third ratio defines as services in HICP over PPI. The ratio becomes closer to the definition of the relative price of non-tradables, however, it is hard to quantify the effect of an increase in service prices on overall inflation. The last ratio uses services in HICP over goods in HICP which seems to be the closet approximation for non-tradable to tradable price ratio and the two combined should capture all changes in inflation.

Labor productivity is calculated from sectoral output and employment data of national account.[8] The labor productivity of tradable sector is measured by the ratio of output to employment in agriculture, fishing, mining and manufacturing. That of non-tradable sector is then the ratio of output to employment of the rest in national account. Quarterly data range from 2000:Q1 to 2008:Q2.

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[8] Value added by activities and GDP at 1995 prices and employment by activities and by sectors from the statistical office of the republic of Slovenia

II. IMPACT OF GLOBAL FINANCIAL CRISIS ON SLOVENIAN BANKING SECTOR[9]

14.   This chapter provides an overview of the Slovenian banking sector and its recent developments, especially in relating to the challenges from the global financial crisis. It is organized as follows: Section A provides an overview of the market structure and main features of the banking sector in Slovenia. Section B reviews the impact of the global financial crisis on Slovenian banking sector, along with the government's response. Section C discusses the main vulnerabilities in the current environment. Section D concludes.

A. Market Structure and Recent Trends

15.   **Despite rapid financial deepening in recent years, Slovenia's financial system is still developing, and is dominated by banks.** Financial assets of the system amounted to 177 percent of GDP as of late 2007, about 40 percent of the depth of the euro area. It is dominated by banks, which accounted for 70 percent of the total assets of the financial system, a figure that is higher than the euro area average.

16.   **State presence in the banking sector is significant, while foreign ownership is moderate (Table 1).** There are twenty-one banks (including three branches foreign banks) and three savings banks (whose shares are negligible) in Slovenia. By far the two largest banks are Nova Ljubljanska Banka d.d. (NLB) and Nova Kreditna Banka Maribor d.d. (NKBM), both controlled by the state, which accounted for 30.7 and 12.5 percent of total banking assets at the beginning of 2008 (Table 2). There are nine foreign subsidiaries, mainly from Austria and Italy. The government's presence in the banking sector declined with the partial privatization of NKMB in 2007. As of end-2008, the government, nonresidents, and domestic private entities held 17.7,

Table 1. Assets of Foreign Subsidiaries and Branches
(Percent of toal assets, 2007)

	EU Banks	Non EU Banks
Czech	91.5	5.6 1/
Estonia	98.8	0.0
Latvia	60.1 1/	7.2
Lithuania	83.7	0.0
Hungary	54.3	3.0
Poland	62.1	8.4
Slovenia	**28.5**	**0.0**
Slovakia	95.9	na
MU13	17.4	2.1
EU27	20.5	8.2

Source: ECB, EU Banking Structure.
1/ 2006.

38.1, and 44.2 percent of the banking equity, respectively. Although foreign capital is significant, a part of it is represented as noncontrolling shares. For example, the Belgian KBC Bank holds about ⅓ of NLB's equity, just below the share of the Slovenian government. As the consequence, in terms of market share, the government-controlled banks, foreign subsidiaries and branches, and domestic private banks accounted for 47.7, 30.4, and 22.0 percent of banking sector's total assets at the beginning of 2008. Foreign ownership is somewhat higher than euro area average, but significantly lower than that of the New Member States (Table 1, 2). As Table 1 shows, foreign banks dominate the banking sectors of some of the New Member States. These banks are subject to their parent banks' decisions

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[9] Prepared by Yuan Xiao.

on funding and business strategy, which are likely to transmit shocks in the home countries to the host countries. Thus the relatively low level of foreign ownership makes the Slovenian banking system less vulnerable to international spillovers than countries with high shares of foreign banks. Three banks (NKBM, Abanka, and Probanka) are listed on the local stock exchange.

Table 2. Structure of Slovenian Banks			
	Total assets	Market share 1/	Ownership 2/
Bank	(EUR 000)	(%)	
Nova Ljubljanska banka d.d., Ljubljana	12,945,034	30.7	S
Nova Kreditna banka Maribor d.d., Maribor	5,291,434	12.5	S
Abanka Vipa d.d.	3,439,008	8.2	P
Banka Celje d.d.	2,305,449	5.5	P
SKB banka d.d.	2,295,677	5.4	FR
Banka Koper d.d., Koper	2,239,211	5.3	IT
UniCredit Banka Slovenija d.d.	2,132,695	5.1	IT
Hypo Alpe-Adria-Bank d.d.	1,906,206	4.5	AT
Gorenjska banka d.d., Kranj	1,732,976	4.1	P
Raiffeisen banka d.d.	1,259,559	3.0	AT
SID banka d.d., Ljubljana	1,248,711	3.0	S
Probanka d.d.	1,041,857	2.5	P
Banka Sparkasse d.d.	886,628	2.1	AT
Deželna banka Slovenije d.d.	756,905	1.8	P
Factor banka d.d.	630,760	1.5	NL
Poštna banka Slovenije d.d., NKBM Banking Group	629,309	1.5	S
Volksbank-Ljudska banka d.d.	618,324	1.5	AT
Bawag banka d.d.	596,297	1.4	AT
BKS bank AG, bank branch	196,194	0.5	B
Zveza bank, Ljubljana branch	22,776	0.1	B
RCI Banque Societe Anonyme, bank branch	22,709	0.1	B
Total	42,194,719	100.0	

Source: Bank of Slovenia
1/ As of end-2007.
2/ S=state controlled, P=private, FR=France, IT=Italy, AT=Austria, NL=Netherlands, B=branch

17.   **Concentration in the banking sector, although declined in 2007, remained higher than the level for the euro area.** As can be seen in Table 3, the Herfindahl index, while declining over time, was higher than the euro area average. This in part reflects the small size of the Slovenian market, and is similar to a number of regional peers. The top three banks accounted for about half of the market, while the top five banks accounted for 60 percent. A recent paper by IMF staff finds that Slovenian banks are among the least efficient in Europe, which may reflect the low contestability compared to EU peers[10]. Slovenia lagged behind the New Member States in cost efficiency, owning to high labor costs. Profitability is also lower than regional peers, driven by declining net interest margins. Moreover, evidence from large cross country studies suggests a negative relationship between banking efficiency and the levels of market concentration and state ownership[11], although no direct studies on Slovenian banks have been conducted.

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[10] Bems, R. and P. Sorsa (2008).

[11] See the literature surveyed in Berger, A. and others (2004).

Table 3. Herfindahl Index for Banks and Share of the 5 Largest Banks in Total Assets
(index ranging from 0 to 10,000 and share of the 5 largest banks in percent)

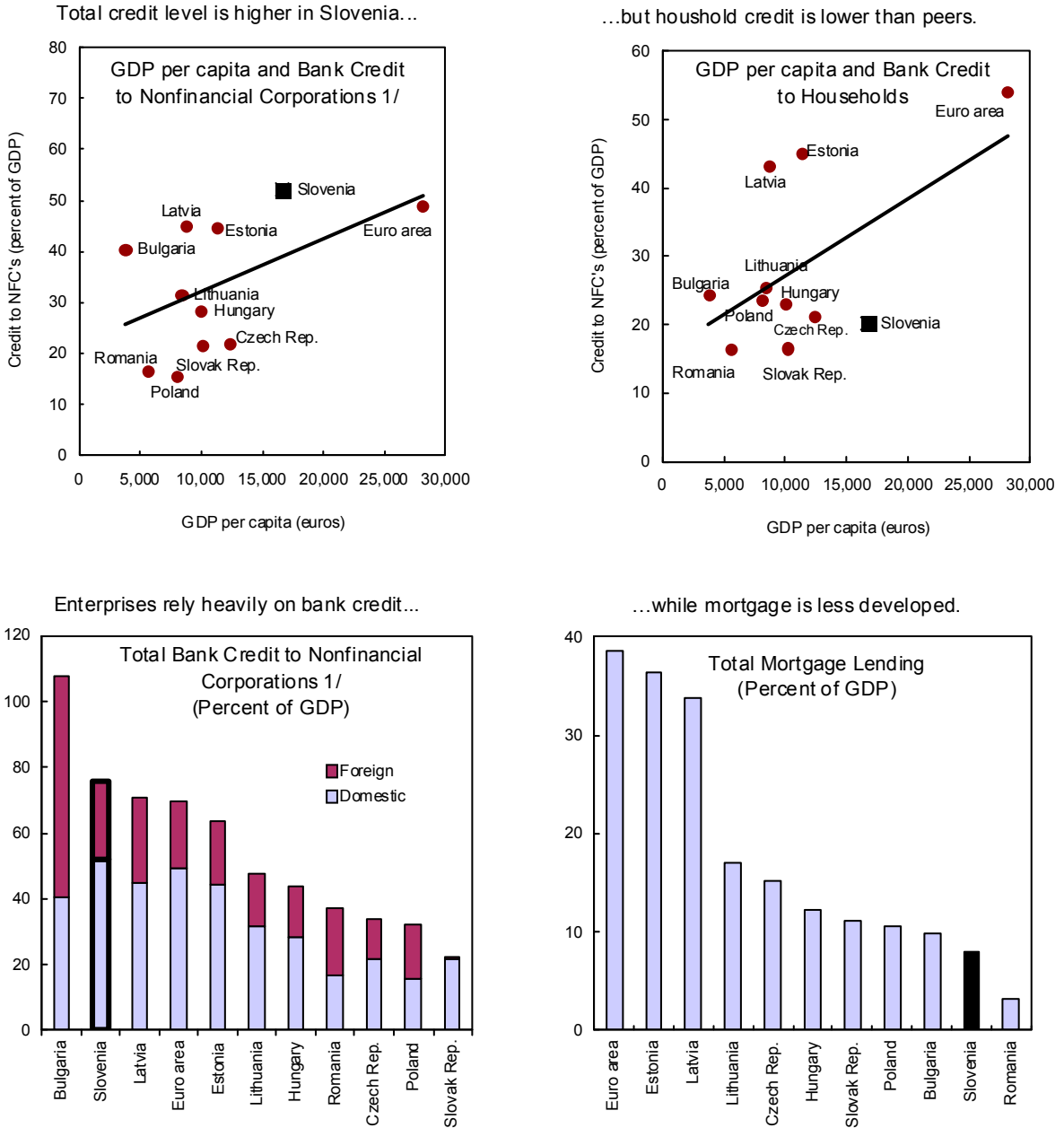|	Herfindahl index for banks					Share of the 5 largest banks in total assets				
	2003	2004	2005	2006	2007	2003	2004	2005	2006	2007
Czech	1,187	1,103	1,155	1,104	1,100	65.8	64	65.5	64.1	65.7
Denmark	1,114	1,146	1,115	1,071	1,120	66.6	67	66.3	64.7	64.2
Estonia	3,943	3,887	4,039	3,593	3,410	99.2	98.6	98.1	97.1	95.7
Latvia	1,054	1,021	1,176	1,271	1,158	63.1	62.4	67.3	69.2	67.2
Lithuania	2,071	1,854	1,838	1,913	1,827	81	78.9	80.6	82.5	80.9
Hungary	783	798	795	823	839	52.1	52.7	53.2	53.5	54.1
Poland	754	692	650	599	640	52	50	48.5	46.1	46.6
Slovenia	1,496	1,425	1,369	1,300	1,282	66.4	64.6	63	62	59.5
Slovakia	1,191	1,154	1,076	1,131	1,082	67.5	66.5	67.7	66.9	68.2
MU13	579	599	642	630	654	40.5	41.6	42.6	42.8	44.1
unweighted	983	997	1,029	996	1,006	54.2	54.2	54.9	54.4	54.7
EU27	545	567	600	588	628	39.7	40.9	42.1	42.1	44.4
unweighted	1,145	1,114	1,135	1,104	1,102	58.8	58.5	59.3	58.9	59.4

Source: ECB, EU Banking Structure

18.   **Partly reflecting the catching up process, Slovenia has witnessed fast credit growth in recent years.** Growth of credit to nonbanking sectors reached its peak in 2007, at an annual rate of over 30 percent, mainly driven by corporate credit. It slowed down since the onset of the financial crisis, to 18 percent at end-2008 (Figure 1).

19.   **Corporate lending dominated total credit, while mortgage lending was less developed compared to other European countries.** About ⅔ of the loans extended by the banks were to nonfinancial corporations; ¼ to households (of which around one-half were for housing); less than 10 percent to other nonmonetary financial institutions. As Figure 1 suggests, the share of corporate loans was significantly higher than in peer countries, while the share of household credit, including mortgage loans, lagged behind the peers. Household indebtedness was rising, but, at 30 percent of GDP as of Q3 2008, remains low compared to other EU countries.

Figure 1. Credit growth to private sector

Source: Bank of Slovenia.
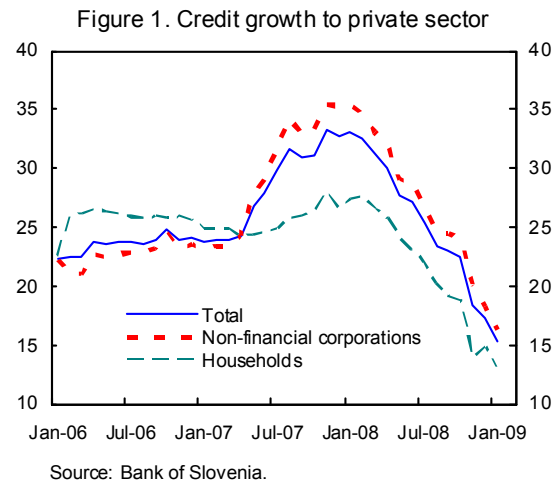
20.   **Rapid growth of corporate lending has caused corporate indebtedness (close to 87.5 percent as of Q3 2008) to reach the euro area average.** The most indebted sectors were transport, construction, and trade, and indebtedness in real estate and business activities is also rising. However, loans appeared to be rather diversified, with manufacturing, trade, transport and business activities receiving the largest shares. These sectors also had high growth in net profits. Debt service burden was low, but may rise in the current economic environment.

Figure 2. Bank Credit to Households and Nonfinancial Corporations in European Emerging Markets, 2007

Total credit level is higher in Slovenia...

...houshold credit is lower than peers.

Enterprises rely heavily on bank credit...

...while mortgage is less developed.

Sources: Eurostat; European Central Bank; and IMF staff estimates.

1/ Credit figures include domestic and foreign loans. For EMU, loans to enterprises include loans to domestic and (other) Euro area countries.

Figure 3. Slovenia: High-Frequency Financial Indicators 1/

Banking shares slid ...

Equities (1/1/2008 = 100)

Nova Kreditna Banka Maribor
Probanka Prednoste
Deutsche

… as did the general stock indices.

Stock Indices

Ljubljana
Blue Chip Index
Euro Stoxx 50 (right scale)

Interest rates fell recently...

Interbank Money Market Rates
(Percent)

Overnight
3 month

…but the spread remained high.

Government Interest Rates
(Percent)

10 year
3 month
Spread over German 10 yr (right scale)

Sources: Thomson Financial/DataStream; and Bloomberg.
1/ The latest observation is as of March 18, 2009.

B. The Impact of Global Financial Turmoil

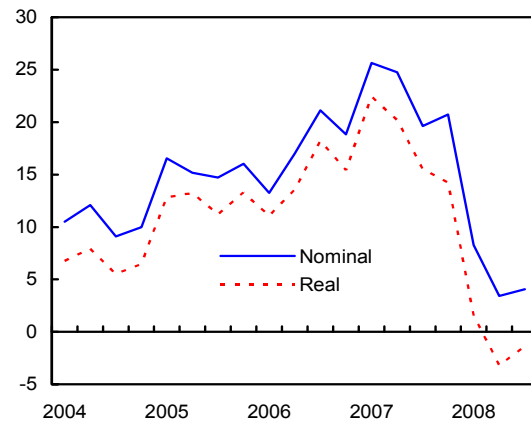21.   **The outbreak of the global financial crisis in summer 2007 has had profound effects on the operating environment of Slovenian banks.** Given their retail-oriented nature and low exposure to subprime securities, Slovenian banks were not affected directly by the US subprime crisis and its ramifications. Nevertheless, Slovenian banks cannot be immune to the global environment. International interbank market has become more risk averse and the liquidity condition has tightened significantly. As a consequence, loan growth in Slovenia has slowed sharply and banks have adjusted their balance sheets to cope with the new environment.

22.   **High frequency indicators have followed international trends (Figure 3).** Both the general equity market and banking stocks tumbled. By the end of 2008, the stock market index had lost ⅔ of its end-2007 value. Banks' funding costs were significantly affected. Interest rates rose substantially, although fell somewhat recently after the European Central Bank's (ECB) monetary policy actions. Sovereign risk spreads increased sharply, with the spread vis-à-vis the German ten-year government bond topping 100 bps, as markets searched for safe havens and bank funding pressures rose. Housing price, after rapid increases in recent years, decelerated since the beginning of the crisis (Figure 4).

Figure 4. Housing Price Inflation (percent)

Source: Slovenian authorities.

23.   **The global crisis has prompted balance sheet adjustments by the banks (Figure5, 6).** On the asset side, loan growth has decelerated since the outbreak of the subprime crisis in summer 2007, and it slowed especially sharply in the last months of 2008. This development reflects both the tight interbank market and a deceleration in loan demand due to dwindling exports, especially in the last quarter of 2008. Corporate lending stalled, while household lending remained weak. Banks such as NKBM also indicated that they had suspended plans for expansion in the Balkan countries. On the liability side, Slovenian banks' foreign borrowing showed resistance in the early phase of the crisis. However, as the crisis deepened, Slovenian banks had to partly substitute foreign financing with other sources including ECB funds and government deposits and the banks made net repayment to their foreign creditors in the last months of 2008. The speed of accumulating domestic deposits and capital and reserves also slowed. Slovenian banks' recourse to ECB lending had increased.

Figure 5. Credit to Private Sector (month-on-month percent change)
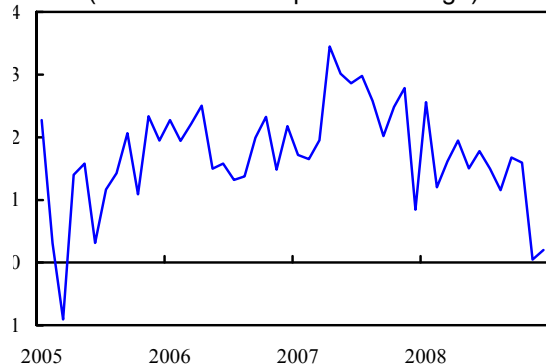
Source: Bank of Slovenia.

The banking system's liabilities to the Eurosystem reached €1.2 billion at the end of 2008, or 2.5 percent of its total assets. To help the banks, the government issued treasury bonds in the amount of €1 billion in January 2009, and temporarily deposited the proceeds with the domestic banking system.

Figure 6. Changes to Main Balance Sheet Components

Assets

Liabilities
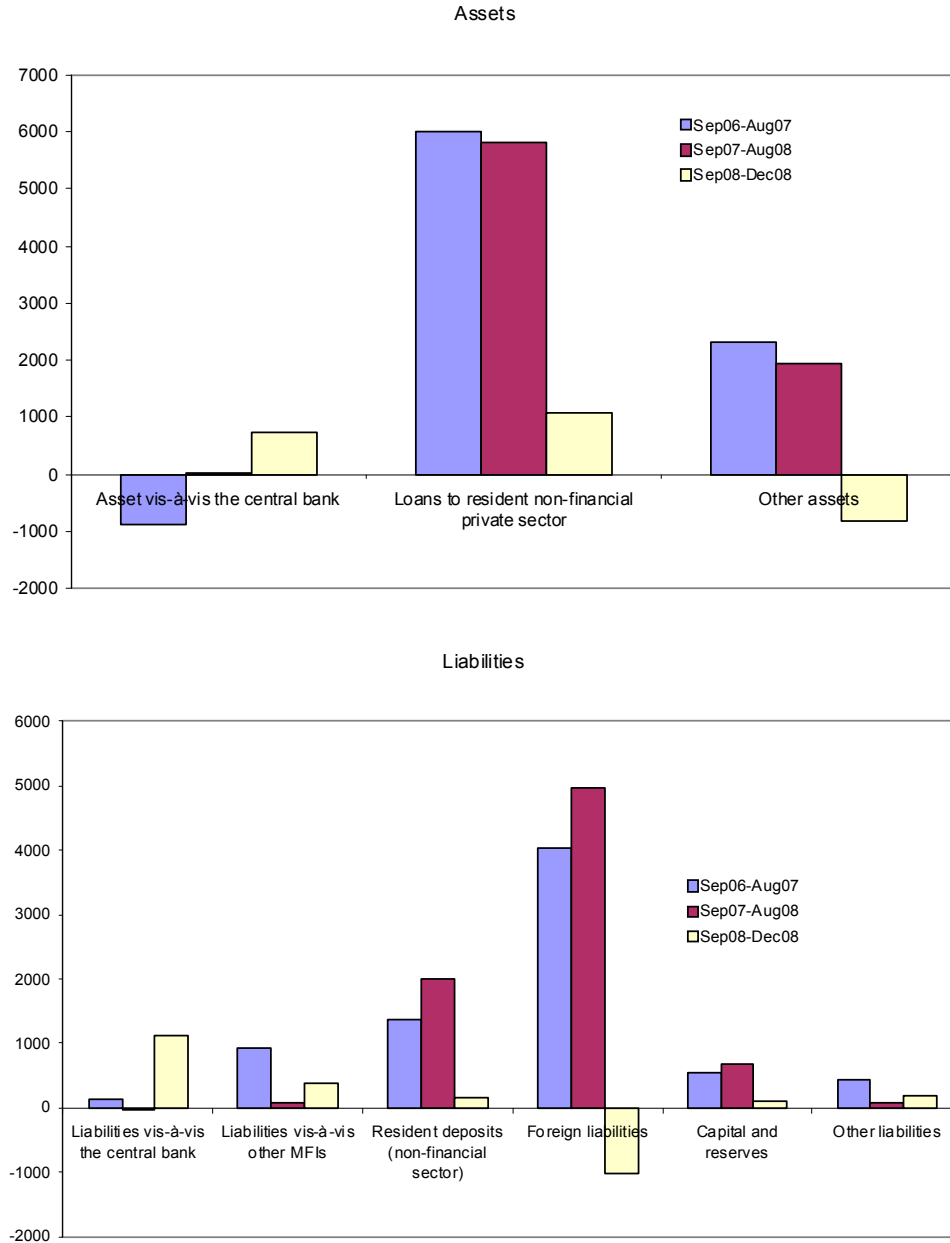
Source: Bank of Slovenia

Table 4. Slovenia: Banking Sector Soundness Indicators, 2004–08
(Percent, end of period)

|	2004	2005	2006	2007	2008
Capital adequacy					
Regulatory capital to risk-weighted assets	11.8	10.5	11.1	11.2	10.5 1/
Regulatory Tier 1 capital to risk-weighted assets	9.0	8.9	9.4	8.9	8.5 1/
Capital (net worth) to assets	8.1	8.5	8.4	8.4	8.4
Asset quality					
Nonperforming assets to classified claims	3.0	2.9	2.5	1.8	1.6 1/
Large exposures to capital	196.2	226.2	222.9	217.4	201.6 1/
Earnings and profitability					
Net interest margin to average interest bearing assets	2.9	2.6	2.4	2.3	2.2
Operating expenses to average assets	2.7	2.5	2.2	2.0	1.7
Return on average assets (before tax)	1.0	1.0	1.3	1.4	0.7
Return on average equity (before tax)	12.5	13.8	15.1	16.3	9.0
Liquidity					
Average liquid assets to average total assets	5.3	4.8	4.5	3.6	3.0
Average liquid assets to average short-term deposits	9.68	9.51	9.72	8.4	7.4
Foreign exchange risk					
Foreign currency-denominated loans to total loans	38.6	48.7	55.9	6.4	6.4
Foreign currency-denominated liabilities to total liabilities	44.5	49.4	53.3	5.9	6.1
Market risk					
Assets with maturity of more than 1 year					
(percent of total loans to non-bank sector)	34.1	32.3	33.4	35.1	37.0
Liabilities with maturity of less than 3 months					
(percent of total liabilities to non-bank sector)	64.5	66.9	68.2	66.3	57.1
Memorandum item:					
Ownership of banking sector (percent of equity capital)					
Nonresidents	32.3	34.9	37.7	37.7	38.1
Central government	19.1	18.2	17.4	15.1	17.7
Other domestic entities	48.6	46.9	44.6	47.2	44.2

Source: Bank of Slovenia.

1/ Figures refer to Q3.

24.   **Banking soundness indicators have been affected mainly in terms of significantly lower profits (Table 4, Figure 7).** There has been slight deterioration of regulatory capital and Tire 1 capital. The level of nonperforming loans (NPLs) remained unchanged although any deterioration in loan qualities can only be reflected in NPLs with a lag. According to unaudited figures, the banking system's profit in 2008 was down over ⅓ on the previous year's. The largest bank, NLB, suffered near 85 percent drop in net profits compared to 2007, and the second largest bank, NKBM, posted a more than 50 percent drop in net profits, on account of net losses from financial assets and liabilities and higher provisions.

Figure 7. Distribution of Banks' Gross Income
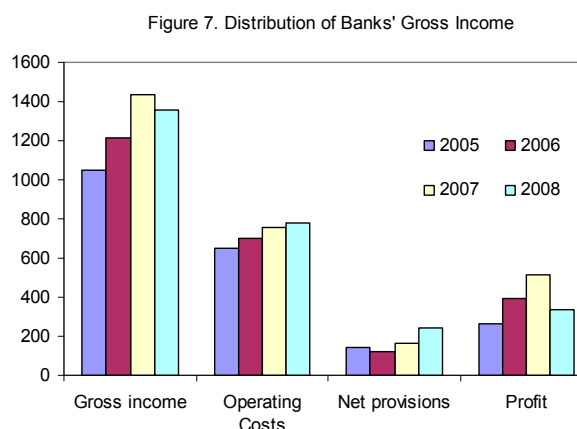
25.   **The deterioration of the global environment has prompted some rating changes on Slovenian banks.** In late 2008, Moody's downgraded the outlook on the long-term deposits of both NLB and NKBM from stable to negative. Bank Financial Strength Ratings of NLB was also changed from stable to negative, while NKBM remained stable. On the other hand, Fitch Ratings affirmed Slovenia Long-term foreign and local currency Issuer Default Ratings (IDRs) at "AA" with stable outlook, and Standard & Poor's revised up (indicating more strength) its Banking Industry Country Risk Assessment (BICRA) on the Slovenian banking system, putting Slovenia in the same group are the Czech Republic, Slovak Republic, Israel, Greece, and Mexico.

26.   **Facing new challenges, the authorities were proactive in response to the turmoil.** So far the government's priorities have been to address the funding need of the banks, to boost the public confidence, and to encourage banks to retain profits to strengthen their capital. The government expanded the deposit guarantee scheme, offered state guarantees on new debt issuance by credit institutions, established crisis management groups, and announced its intention to further intervene if the situation worsens (Box 1).

Box 1. Slovenian Government's Response to the Crisis

The Bank of Slovenia established a crisis management group, and implemented liquidity stress tests. In November 2008, the new government formed a special task force to craft and coordinate measures in response to the financial turmoil. Prime Minister Borut Pahor indicated the government planned to retain large stakes in main financial institutions and companies.

In October 2008, the government and the central bank announced unlimited deposit guarantee for all individuals and small and medium enterprises for the period of one year, coordinating with similar measures by other European countries. Previously deposit insurance covered 22,000 euros per account, or around 95 percent of the number of deposits but only 75 percent of the amount of deposits.

The Ministry of Finance also decided to provide €12 billion in guarantees on banks' new issuance of debt, which would be made available to financial institutions on a per need basis. The measure will be in place until the end of the crisis.

In December 2008, the government adopted amendments to the Public Finance Act to empower the government to lend and provide guarantees to financial institutions, recapitalize banks, and purchase bank assets.

The Bank of Slovenia recommended Slovenian banks to raise additional capital and use most of their 2008 profits to bolster their balance sheets during the global downturn.

The government issued treasury bonds in the amount of €1 billion in January 2009, which were temporarily deposited with the domestic banking system.

In February 2009, the government announced €1.2 billion partial government guarantees for loans to nonfinancial companies to boost credit flow.

C. Main Risks in Current Environment

27.   **The global financial and economic crisis has increased the vulnerabilities of Slovenian banks in three major ways.** (i) As a main funding source for Slovenian banks, international liquidity will remain tight in the near future. (ii) As the recession deepens, nonperforming loans will increase, credit growth will slow, banks' profits will decline

further. (iii) Given the number of foreign banks operation in Slovenia and banks' loan exposure to the neighboring countries, the banking system is vulnerable to cross-border spillovers.

28.   **Slovenian banks, especially foreign-owned, rely heavily on wholesale funding.** As deposit growth remained low, the rapid credit expansion was mainly financed by banks' foreign borrowing, which accounted for about ⅓ of total liabilities of the banks—this share is the largest for foreign banks (52.3 percent) and smaller for domestic large banks (27 percent) and small banks (24 percent). Compared to other EU banks, the reliance on wholesale funding is much higher, while the shares of deposits and securities are lower.

29.   **As international liquidity tightened, the share of foreign liabilities that Slovenian banks needed to rollover in the short term increased.** The proportion of the foreign liabilities with maturity of up to three and up to six months increased in 2008. At the end of 2008, banks in Slovenia had to repay €3.8 billion to foreign banks within six months. This was about a quarter of the banking sectors' total debt to foreign banks and 8 percent of the banking sectors' total assets. A year earlier these figures were lower: liabilities with maturity of up to six months amounted to €2.1 billion, 14.5 percent of banking sectors' debt to foreign banks and 4.9 percent of banking sectors' total assets. The proportion of the liabilities to foreign banks with maturity

Figure 8. Banks' Foreign Liabilities

Source: Bank of Slovenia

of up to six months was the highest for the group of large domestic banks, accounting for about ⅓ of their total foreign liabilities at the end of 2008.

30.   **Solvency of the banks is not a major concern in this regard.** The regulation requires that banks periodically calculate their liquidity positions with liquidity ratios in two categories[12]. The liquidity ratio in category one is required to be maintained at a level above one. In practice, banks also have maintained liquidity ratio in category two at a level higher than one. This practice, along with the aforementioned regulation and supervision by the BoS, helps to ensure adequate liquidity positions of the banks. Moreover, the level of marketable assets held by the banks which could serve as collaterals to borrow from the ECB appears to be strong. As of January 2009, it is estimated that the banks had €2.7 billion

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[12] The liquidity ratio is the ratio between the sum of financial assets in local and foreign currencies and the sum of liabilities in local and foreign currencies with regard to residual maturity. A bank will classify financial assets and liabilities by residual maturity in the following two categories of maturity bands: (i) category one: financial assets and liabilities with a residual maturity of up to 30 days, and (ii) category two: financial assets and liabilities with a residual maturity of up to 180 days.

borrowing capacity for ECB funds, of which only 34 percent were used. However, the banks prefer not to rely on them to finance lending because of maturity mismatch and the uncertainty that this facility can potentially be withdrawn unilaterally.

31.   **The challenge is to secure funding at maturities longer than six months and a contingency plan has been put in place.** Funding at longer maturity is needed in order to support loan expansion. Stress tests conducted by the BoS in 2008 suggested that, in the scenario that Slovenian banks were cut off from the international markets, loan growth could drop by 8.2 percentage points in 2009 and 11.6 percent in 2010, compared to the baseline scenario (Box 2). At the beginning of 2009, it was estimated that the banking sector's need for funding amounted to about €5 billion for the year. The Slovenian authorities planned to tackle the issue with two measures. First, the government placed a three-year treasury bond of €1 billion internationally in January and deposited the receipts as short term deposits in the banking system. The deposits were allocated by the market shares of the banks. A second tranche was schedule in May. Second, larger domestic banks, such as NLB, NKBM, and Abanka, were considering the issuance of interbank debts under the new state guarantee scheme. It was estimated that these measures should cover the banking sector's funding need for 2009. As a last resort, the BoS could also repatriate some of its assets abroad to the domestic banking system.

32.   **On the asset side, rapid credit growth in the past few years and the severe economic downturn have also increased banks' credit risk.** The level of corporate debt (87.5 percent of GDP in 2008) has approached the euro-area average. Loan concentration is high. Corporate vulnerability indicators do not compare well with peers (Table 5). As the recession deepens, nonperforming loans are likely to increase. Certain industries, e.g., automakers, manufacturing, pharmaceutical, are more vulnerable. In addition, some recent leveraged management buyouts could result in defaults as the value of the collateral has plummeted. In such situations bank's capital may fall below the regulatory requirement and recapitalization is needed.

Table 5. Indicators of Corporate Vulnerabilities, 2007

	Czech	Euro zone	Greece	Hungary	Portugal	**Slovenia**
Debt-to-assets ratio, in percent	14.0	24.4	27.7	17.0	41.2	**29.6**
Interest coverage ratio	65.0	19.0	21.9	35.4	3.7	**6.6**
Return on assets	5.9	5.0	6.6	8.5	5.2	**8.0**
Price to earning ratio	13.8	14.9	12.9	14.7	16.8	**23.2**

Source: Corporate Vulnerabilities Database.

Box 2. Macro and Micro Stress Tests

Macro stress tests. The BoS conducts annual macro stress tests to assess the banking system's resilience to shocks to selected risk factors. In 2008, the tests focused on shocks to real growth, the interest rates, and liquidity. There were four scenarios (all relative to the baseline scenario): (i) real growth down by 2.8 percentage points; (ii) interest rates up by 2 percentage points; (iii) stop of foreign financing to the banks; and (iv) stop of foreign financing to the banks and an increase of 1 percentage point in the risk premium. The results are summarized in the following table:

Effects on Banks' Balance Sheet (changes relative to baseline, percentage points unless stated otherwise)

Shock	2009				2010			
	Profit (EUR million)	ROE	Capital adequacy	Loan growth	Profit (EUR million)	ROE	Capital adequacy	Loan growth
1 Growth	-22.9	-0.5	0.3	-5.7	-69.2	-1.4	0.8	-8.6
2 Interest rate	-197.5	-4.5	0.1	-2.6	-69.0	-1.4	0.2	-3.7
3 Liqudity	-46.3	-1.0	0.8	-8.2	-106.6	-2.1	1.4	-11.6
4 Liquidity + risk premium	-206.9	-4.7	0.8	-8.2	-252.1	-5.0	1.4	-11.6

Source: Bank of Slovenia

Scenario (i) is already outdated given the latest growth outlook, and the tests did not consider changes to NPLs (so capital adequacy actually rose due to lower loan growth), but the last two scenarios show how profits would fall and loans would contract in case foreign financing stops completely and when risk premium rises.
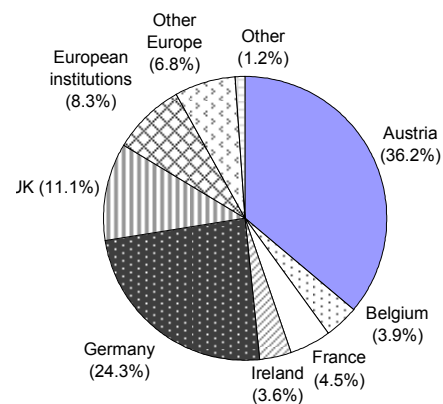
Micro stress tests. Slovenia fully implemented Capital Requirements Directives (CRD) in 2008. Under Pillar II banks are obliged to calculate their internal capital. Individual bank stress testing is an integral part of the Internal Capital Adequacy Assessment Process (ICAAP). Banks are expected to conduct stress tests regularly in accordance with their risk profile and their own presumptions. If necessary, they have to provide additional internal capital according the result of the tests.

In the recent stress test exercise, banks were given seven scenarios, including shocks to credit risk, liquidity risk, profitability risk, and interest rate risk. Most of the banks had planned for a capital adequacy ratio of about 9–14 percent in 2009. Under the liquidity, profit, interest rate shocks, the banks would be able to maintain their capital adequacy ratios. However, depending on the severity of the shock to credit risk, some banks would need to raise capital.

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33.   **Updated stress tests in this regard are valuable in gauging banks' capital needs.**
The capital adequacy ratio of the banking sector was 10.5 percent in Q3 2008. The foreign subsidiaries have lower ratios after international standard (which requires lower amount of capital) was introduced, while the domestic banks continued to follow BoS's more conservative guidelines. Slovenian banks are well provisioned. Provisions amounted to €1.3 billion or 2.8 percent of classified claims (€ 46.6 billion) by Q3 2008. That was 175 percent of NPLs. Preliminary results from the recent stress test exercise highlight the impact of NPLs on banks' capital adequacy. The banks appear to be able to resist moderate shocks to the NPL.

Figure 9. Foreign Deposits and Loans to Slovenian Banks and Other Domestic Sectors (2007)

Other Europe (6.8%)
Other (1.2%)
European institutions (8.3%)
Austria (36.2%)
JK (11.1%)
Belgium (3.9%)
Germany (24.3%)
France (4.5%)
Ireland (3.6%)

Source: Bank of Slovenia.

34.   **Tight international linkages imply that Slovenian banks are vulnerable to cross-border spillovers.** Although foreign ownership is low compared to peer countries, there are nine foreign banks operating in Slovenia, which also rely heavily on funding from their parent banks. Although these funding sources are considered stable during normal times, during a crisis in the home country they could easily be withdrawn. Moreover, Figure

9, using international investment position data, shows that Austria and Germany are by far the largest lenders to Slovenian banks[13], and these countries are also widely involved in other eastern European economies[14]. Thus Slovenian banks' funding is vulnerable to volatilities in these countries. Possible deterioration of credit made abroad, especially to the Balkans (mainly Croatia, Montenegro, and Serbia), is another source of vulnerability. Loans abroad expanded rapidly in recent years, reaching close to 9 percent of total loans to the nonbanking sector by end-2008. However, loan expansion in this region has halted since the global financial crisis, and its relatively low share should limit the risk to the whole banking system.

D. Conclusions

35.   Slovenia has a traditional banking sector dominated by large state-controlled banks. It weathered the global financial crisis relatively well so far, but is increasingly affected by the deterioration of the international interbank market. Credit growth decelerated sharply and banks' profit fell. Banks had to partly substitute foreign financing with other sources including ECB funds and government deposits. Looking forward, the global financial and economic crisis has increased the vulnerabilities of Slovenian banks, and the challenges are to secure adequate funding source in the face of international liquidity squeeze, to maintain adequate banking capital as the recession deepens and nonperforming loans increase, and to control the effects of cross-border spillovers.

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[13] The available data group together not only the liabilities of banks but also other domestic sectors (which accounted for 1/5 of the total amount depicted in Figure 9), but it is clear that Austria and Germany are the largest lenders.

[14] See International Monetary Fund (2007).

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