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Bulgaria: Selected Issues

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BULGARIA

Selected Issues

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Approved by the European Department

November 29, 2007

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I. Bulgaria's Investment Boom: Drivers and Payoffs

Core Questions and Findings

- **What are the special features of Bulgaria's investment-led absorption boom?** While accompanied by unsustainable external imbalances as seen in the Baltic countries and Romania, the boom in Bulgaria has been underpinned by large protracted FDI inflows and was counteracted by prudent fiscal and income policies.

- **What were its main drivers?** Bulgaria's investment boom seems to reflect mainly a one-off re-assessment of Bulgaria as a favorable investment location. To a large part, this re-assessment seems to reflect a lowering of perceived future risks regarding Bulgarian investment projects because macroeconomic stability is seen as more assured (given the successful operation of the currency board) and because perceptions of high microeconomic risks, including on property rights, have been assuaged (given EU accession). More recently, an upward shift in perceived future returns on investment projects may also have acted as a driving force.

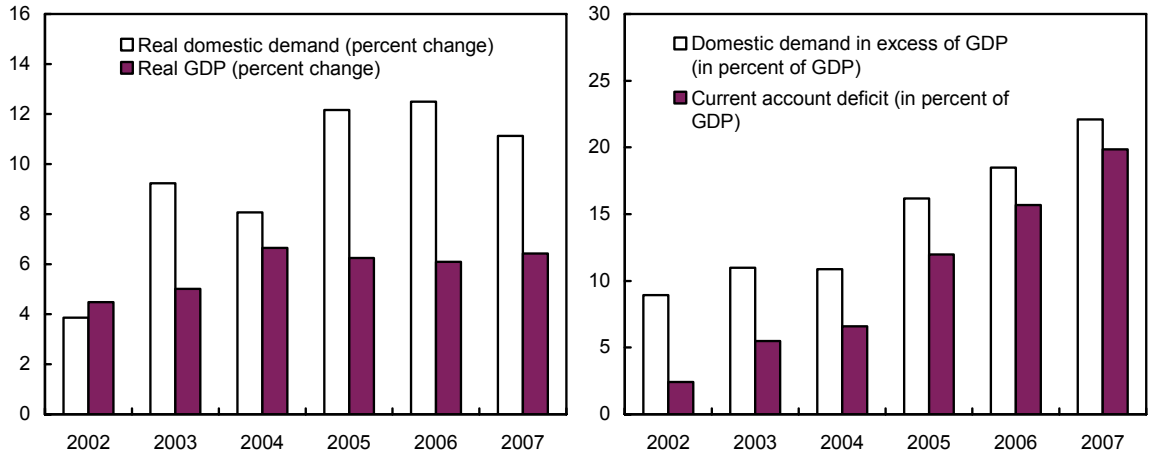
- **Why did GDP growth not respond more strongly to Bulgaria's investment boom?** There are some indications that economic growth is underestimated. For example, the drop in output by the self employed is difficult to explain. Moreover, following massive investment and increased employment, output in the construction and tourism sector increased only modestly. To some extent, growth should respond to the investment boom with a delay. But an acceleration in growth would also require a significant re-allocation of labor, and this re-allocation could be constrained by inflexible labor markets.

- **Why is investment rising rapidly even in sectors with modest growth payoff?** The reasons vary by sector. Investment in the financial sector is driven by major international companies that aim to establish market share, while in other sectors rapid appreciation of asset values is the major cause.

- **What are the main obstacles to a better return on investment?** Thanks to rapid investment growth and the depreciation of the existing capital stock, there has been a significant reallocation of capital across sectors. To fully enjoy the fruits of this reallocation, labor also needs to move across sectors.

1. **Bulgaria has experienced an unprecedented absorption boom since 2002**. Real absorption (domestic demand) growth has outpaced real output (GDP) growth by large margins. By 2007, the gap between domestic spending and GDP amounted to more than 20 percent of GDP. The absorption boom has been financed by large capital inflows, mirrored by a rapidly rising current account deficit (Figure I.1).

Figure I.1. Bulgaria: Domestic Absorption Boom, 2002-07



Sources: WEO; and Fund staff estimates and projections.

2. **Like in many other countries in the region, Bulgaria's absorption boom reflects largely an investment boom** (Table I.1)**.** Between 2002 and 2007, its gross domestic investment as a share of GDP surged by 15 percentage points, mainly due to rising private investment. This sharp increase in investment stands out in the cross-country comparison, not only relative to the neighboring countries but also with fast-growing emerging countries in the other regions. At the same time, the private consumption-GDP ratio has in fact trended downward somewhat—despite the rapid rising retail sales and high household credit growth—while consumer goods imports only picked moderately.[1]

[1] The apparent absence of private consumption smoothing behavior in anticipation of higher future income may have been a result of constrained wages growth during 2002–06.

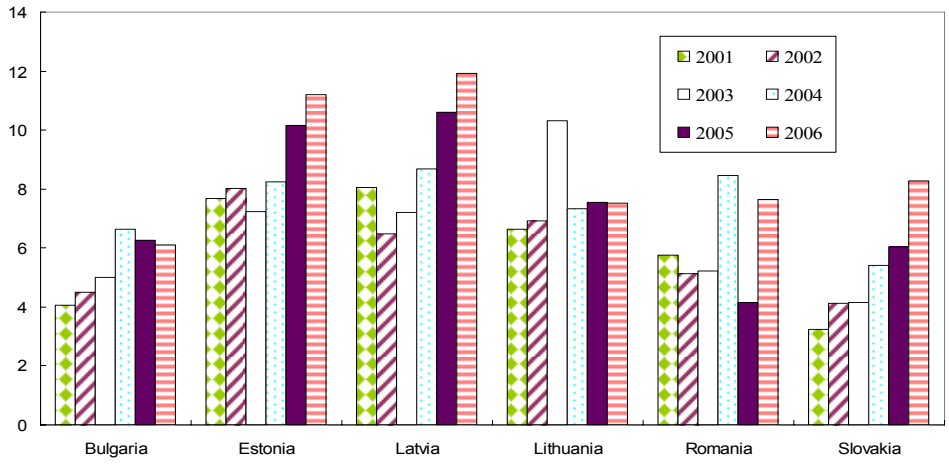
Table I.1. Nature of Absorption Boom, 2002-07
(changes between 2002 and 2007)

	Absorption/GDP	Consumption/GDP			Investment/GDP		
		Total	Private	Public	Total	Private	Public
Bulgaria	**13.2**	**-1.9**	**-0.8**	**-1.1**	**15.0**	**13.6**	**1.5**
Latvia	13.2	-0.1	5.1	-5.2	13.4		
Ukraine	8.5	2.8	2.2	0.5	5.8	5.7	0.1
Romania	6.6	1.9	-0.7	2.6	4.7	4.4	0.3
Lithuania	5.2	0.0	3.0	-3.0	5.3	4.0	1.3
Turkey	5.2	3.7	4.1	-0.4	1.5	2.6	-1.1
Estonia	3.2	-1.9	-0.6	-1.4	5.1	5.3	-0.2
Macedonia	0.0	-4.5	-1.3	-3.2	4.4	4.6	-0.1
Albania	-0.8	-0.7	0.4	-1.1	-0.1	0.7	-0.8
Croatia	-1.3	-6.0	-3.8	-2.2	4.7	5.2	-0.5
Poland	-1.4	-5.5	-4.9	-0.6	4.1		
Slovak	-5.0	-4.8	-1.5	-3.3	-0.2	1.1	-1.3
Czech	-5.0	-3.9	-2.4	-1.5	-1.2	-2.8	1.6
Hungary	-6.3	-2.5	-1.5	-1.0	-3.8		

Source: WEO, Fund staff estimates and projections.

3. **Bulgaria's investment boom did not coincide with an acceleration in economic growth.** Other countries that experienced such rapid investment growth also experienced rapid, or at least accelerating GDP growth. Bulgaria's experience stands out; its growth rate was stable and in fact seemed to decelerate during recent years (Figure I.2). The limited pay-off from the rapidly rising investment-to-GDP ratio could raise broader macroeconomic concerns—not least about Bulgaria's external stability risks—if the investment boom does not pay off in higher future growth (see Chapter II—*An Assessment of External Stability Risks*).

Figure I.2. Selected Countries: GDP Growth, 2001-06 (percent)



Source: WEO.

4. **The first part of the chapter investigates possible driving forces behind the investment boom based on cross-country evidence**. The diagnosis of the drivers behind the investment boom is important as it is key to assessing Bulgaria's economic prospects, vulnerabilities, and policy challenges. The available evidence is less than clear-cut, but

broadly suggests that the investment boom reflects to a large extent a one-off re-assessment of Bulgaria's riskiness as an investment location; more recently, expectations of higher future returns on investment may have emerged as an additional driver.

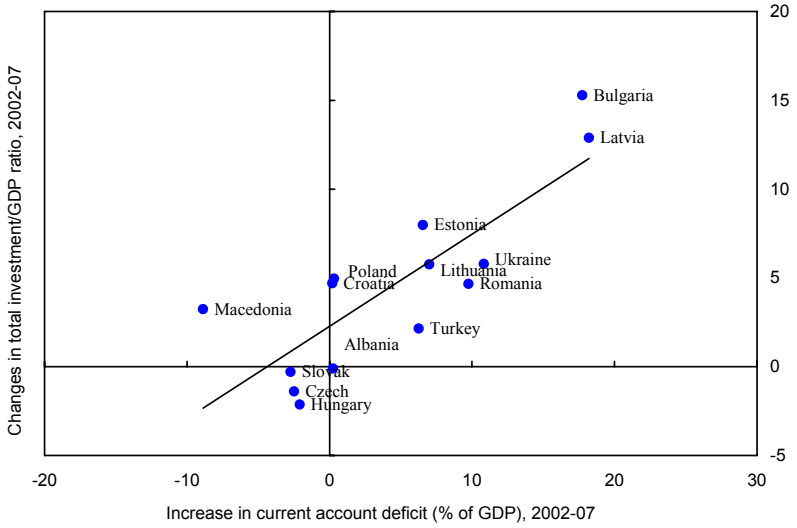
5. **The chapter's second part investigates why Bulgaria's GDP growth rate did not respond more strongly to the investment boom**. This section finds some evidence for each one of three hypotheses; (a) low payoff given the nature of investments, given that investment also increased in sectors with little growth pay off; (b) delayed payoff, as investment boomed in particular in sectors with a slow growth pickup; and (c) measurement problems, as growth is likely to be somewhat higher than currently reported in the national accounts statistics.

A. What Drives the Investment Boom in Bulgaria?[2]

Features of the Investment Boom in Bulgaria

6. **The investment boom in Bulgaria has been accompanied by a rapidly growing current account deficit.** The large increase also stands out in the cross-country comparison. Although mainly reflecting surging imports of investment goods, Bulgaria's current account deficit, at almost 20 percent of GDP in 2007, exceeds sustainable levels (see Chapter II). Among the countries experiencing an investment boom (the Baltic countries, Lithuania, and Romania), only Latvia has seen a similar cumulative increase in current account deficits (Figure I.3).

Figure I.3. Investment Boom and Current Account Deterioation

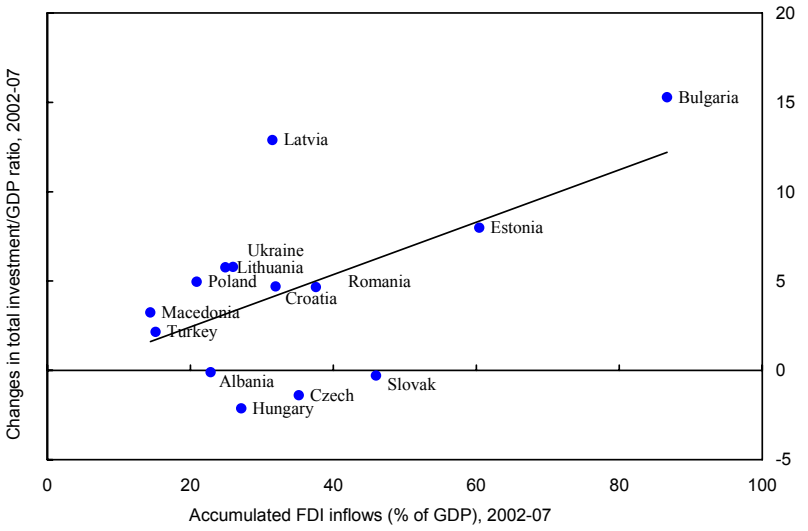


Sources: WEO and Fund staff estimates.

[2] Prepared by Jianping Zhou.

7. **More than in any other booming countries, the investment boom in Bulgaria has been sustained by protracted large FDI inflows.** During 2002–07, the accumulated FDI flows to Bulgaria amounted to nearly 90 percent of 2007 GDP, by far the highest in the region (Figure I.4). Most of the FDI has been absorbed by the non-tradable sectors, including financial, business service, and retail sectors. Since FDI is usually more stable and less reversible than other financial flows such as short-term debt or portfolio flows, the investment boom in Bulgaria should be less sensitive to changes in global liquidity conditions.

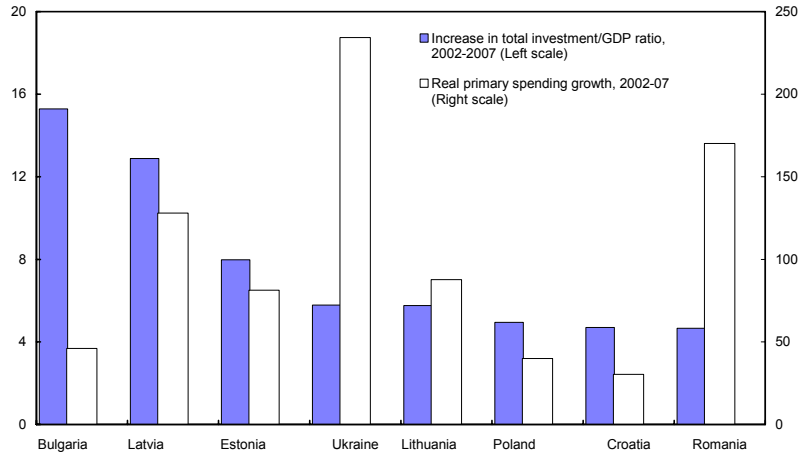
Figure I.4. FDI and Domestic Investment, 2002-07



Sources: WEO and Fund staff estimates.

8. **The government has responded to the investment boom with much restrained fiscal policies**. With the fully open capital accounts and currency board in place, fiscal policy has become one of the limited policy tools to reduce demand pressures. In Bulgaria, real spending has been relatively restrained (Figure I.5). Revenue windfalls from the absorption boom have led to large surpluses, resulting in a strong government balance sheet with rising financial assets more than offsetting public debt and other liabilities. The sharp increases in real spending in most booming countries—for examples, Ukraine and Romania—reflect mainly rising current government expenditures on public wages and services. In Bulgaria, until recently, the public sector wage growth had been modest.

Figure I.5. Bulgaria and Selected Countries: Real Government Spending During Investment Boom
(in percent)



Sources: WEO and Fund staff estimates.

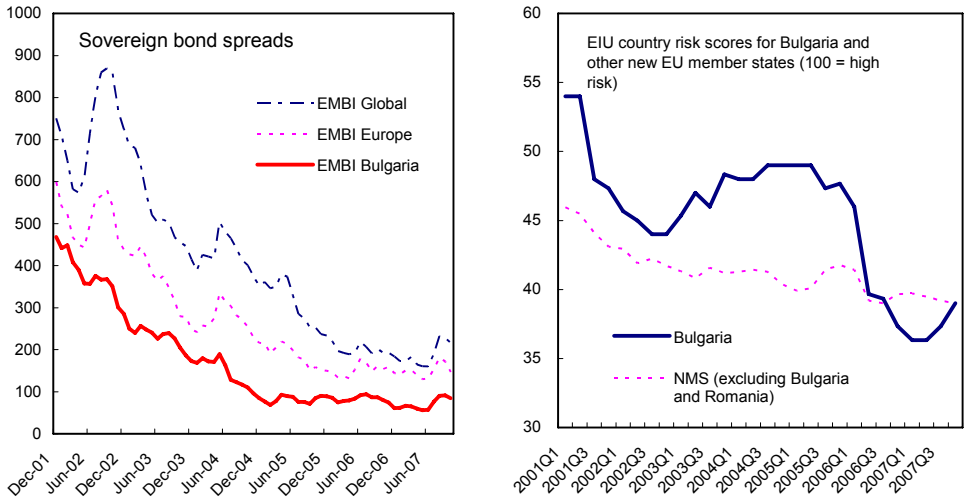
What Drives the Investment Boom in Bulgaria?

9. **Against a background of easy access to financing at low real interest rates, there may be two possible explanations for the exceptionally large increase in private investment in Bulgaria**. First, the investment boom is driven by a one-off re-assessment of Bulgaria's riskiness as an investment location, mainly because of its strong macro stability record (anchored by the currency board) and a marked reduction in microeconomic risks (anchored by EU accession). Second, the investment boom is driven by expectations of higher future returns, as investors expect speedy real convergence—propelled by EU membership and prospects of euro adoption—that would imply high future productivity growth and demand.

10. **These two, not necessarily exclusive, explanations could imply different vulnerability assessments and policy challenges.** The first case would suggest a one-off gradual upward adjustment in Bulgaria's capital stock and asset values. In this case, the large external imbalance could self-correct over the medium term. Under the assumption of a continued favorable international environment and stable risk perceptions, a gradual normalization of the large external imbalance is plausible within the current policy framework. The second case would also suggest an upward adjustment in capital stock because of higher expected future growth, with expansion of non-tradable sectors at the cost of tradable sectors (Zhou and Zhu, 2007). Drastic changes in investors' expectations about future returns, however, could instigate a boom-and-bust cycle. In this case, the rebalancing of the current account and production toward the tradable sector could be difficult and painful (Bems and Schellekens, 2007).

11. **Supported by cross-country evidence, a large decline in Bulgaria's country risk premium has contributed to the investment boom, although it alone cannot explain the exceptionally large investment boom in Bulgaria.** Bulgaria's sovereign bond spread has declined significantly since 2002, largely reflecting diminished macroeconomic risks, thanks to the successful operation of the currency board that has been supported by favorable macroeconomic records. Low spreads, together with low interest rates in advanced countries (amid favorable global liquidity conditions), reduced borrowing costs significantly for domestic investors, thus boosting investment and credit growth to non-financial corporations. However, the reduction in Bulgaria's country risk premium is in line with the average of Emerging Europe, thus it alone cannot explain the exceptional large increase in investment/GDP ratio in Bulgaria (Figure I.6).

Figure I.6. Country Risks: 2002-07



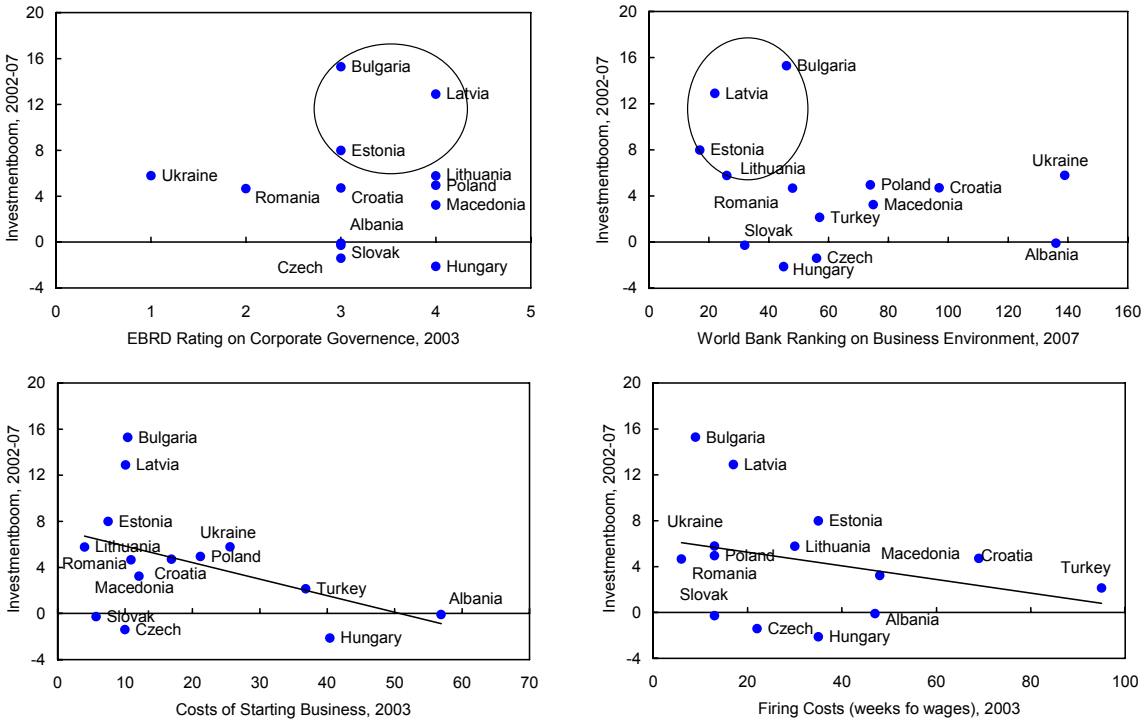
Sources: Bloomberg; Bulgarian authorities; Economist Intelligency Unit.

12. **There is evidence that the anticipated and eventual EU membership contributed to Bulgaria's investment boom, especially for the last two years**. On the one hand, microeconomic risks on investment projects in Bulgaria have been reduced, as the secured EU membership implies higher standards for business conduct and harmonization of regulations, particularly on property rights. Indeed, EIU country risk scores show a sharp decline for Bulgaria since the beginning of 2006 (Figure I.6).

13. **While the reduction in macro-and micro-economic risks has made Bulgaria a more attractive investment location than it was before, these effects have been enhanced by the country's relatively favorable overall investment environment.**[3] Indeed, like other booming countries (Estonia and Latvia), Bulgaria registers top scores in the EBRD's ranking on corporate governance. Similarly, it was ranked higher on business environment than other emerging European countries by the World Bank's Doing Business Survey, especially in terms of relatively low costs for starting business and for firing workers (Figure I.7)

[3] Notwithstanding its favorable rankings, key reform challenges remain. The business climate will be improved by the start-up of the electronic commercial business register and further simplification of licensing and permit system.

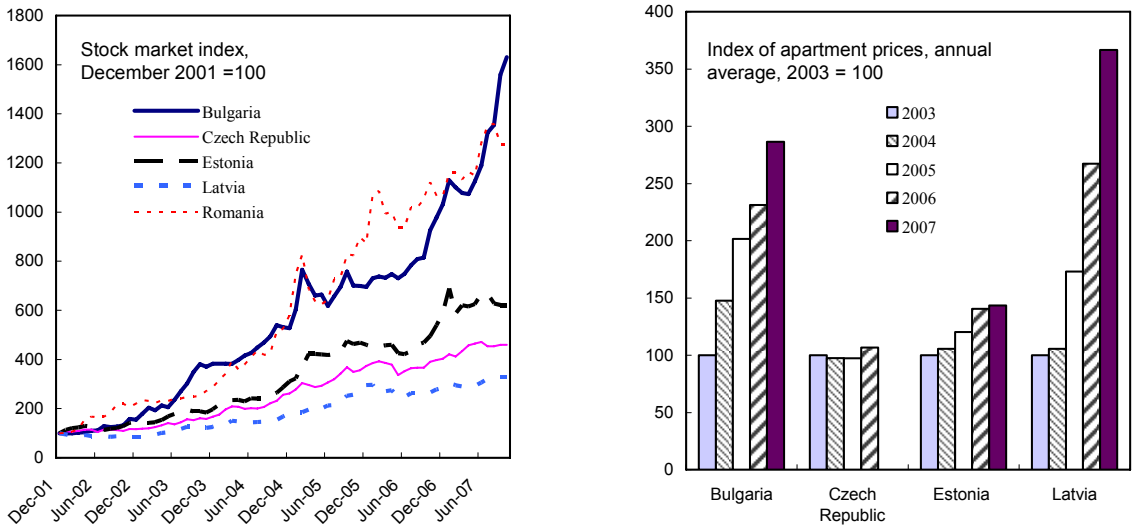
Figure I.7. Investment Environment



Sources: WEO, EBRD, World Bank, and Fund staff estimates. For EBRD ratings:1=very low, 2=low, 3=medium, 4=high; For World Bank ratings, smaller numbers indicate higher rankings. Investment boom 2002-07 is measured by changes in total investment/GDP ratio.

14. **The investment boom has been associated with a one-off re-assessment of asset values**. Prices for real and financial assets were initially very low given the country's low income levels. Diminished risks—largely locked in by the EU membership—and expected price convergence toward higher levels in richer EU countries has increased the attractiveness of Bulgaria's real and financial assets. Indeed, prices of financial and real assets have skyrocketed in recent years: its stock market was among the best performers in the region and its real estate prices have risen rapidly (Figure I.8).

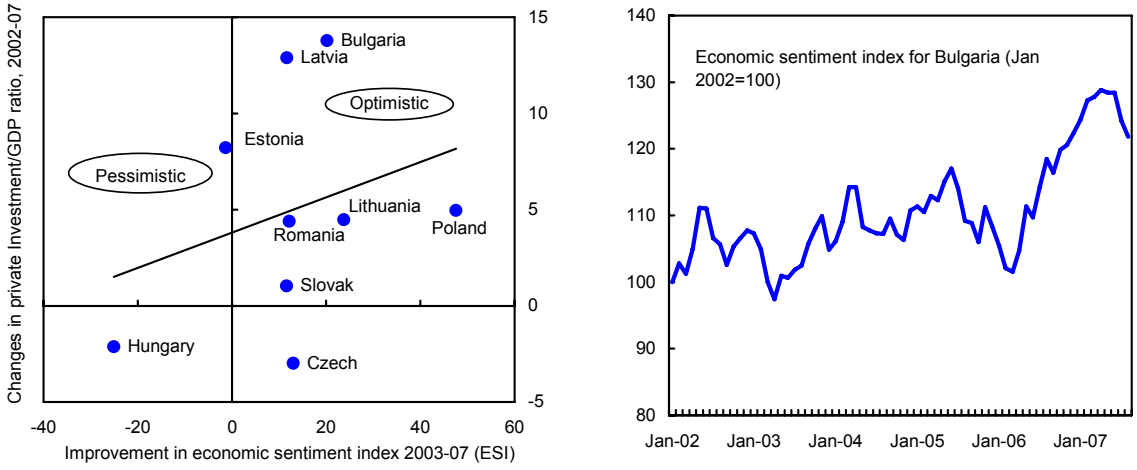
Figure I.8. Rising Asset Prices



Sources: Bloomberg; Bulgarian authorities; Economist Intelligency Unit; Czech National Bank; Moody's; Statistics Estonia; and Latvia Real Estate Broker.

15. **While cross-country evidence suggests that investment booms are usually associated with improvements in business sentiments, in Bulgaria sentiments picked up only when it became fully clear that EU accession is secure** (Figure I.9). The moderate GDP growth would suggest that the overall investment has not been as productive as in other NMS, particularly the Baltic countries. Therefore, it is likely that investment decisions were driven more by expectations than by realization of high returns. Measured by the EU's Economic Sentiment Index, there was no clear evidence of expectations of high future returns during the early years of the boom. Most forecasters, except the official Bulgarian Agency for Economic Analysis and Forecasting, have not expected Bulgaria to reach high GDP growth rates as seen in the Baltic countries. However, there is a marked improvement in economic sentiment since 2006, after the final EU announcement of accepting Bulgaria as a member in 2007. Business surveys conducted since 2005 also indicate that investment decisions have been mainly influenced by expected future demand (43 percent of respondents) and expected future profits (30 percent of respondents).

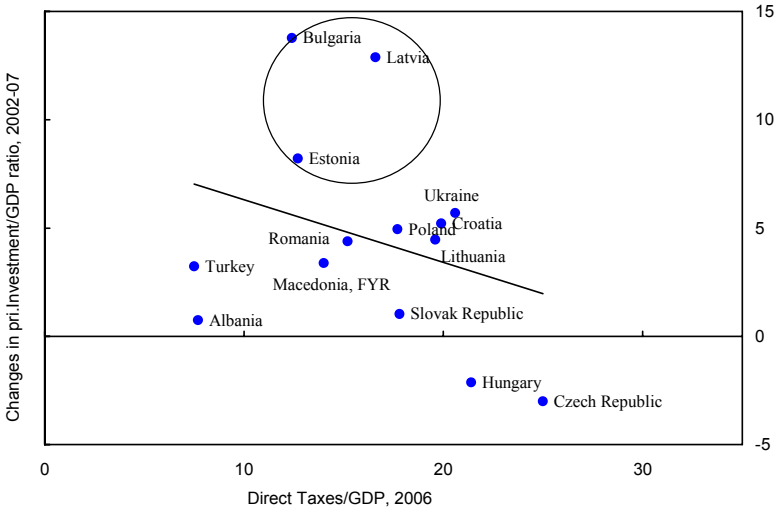
Figure I.9. Private Investment and Expectation



Sources: WEO, EU, and Fund Staff estimates.

16. **Finally, investment boom countries may also have benefited from relatively low levels of direct taxation** (Figure I.10). For example, in Bulgaria, Estonia, and Latvia, the level of direct taxes (personal and corporate income taxes plus social security contributions) as a share of GDP in 2006 was lower than the average for emerging European countries. In Bulgaria, the corporate tax rate was reduced considerably to 10 percent in 2006 and a flat 10 percent personal income tax—the lowest among its neighboring countries—will be introduced in 2008. These tax reforms may have provided additional boost to the investment boom.

Figure I.10. Private Investment and Taxes on Income



Sources: WEO and Fund staff estimates.

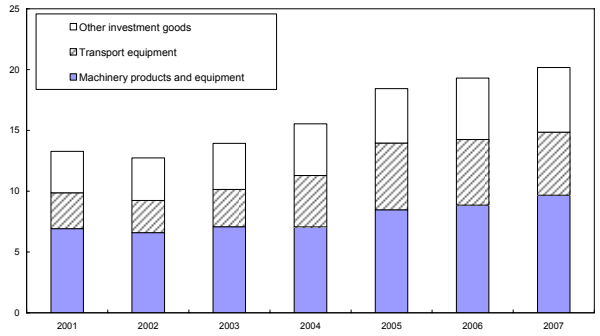
B. Bulgaria's Investment-Growth Nexus[4]

17. **This section looks at both the measurement of investment and GDP, and the reasons why the growth response to the investment boom has been seemingly disappointing.** Measurement of investment is discussed separately as it is distinct from the other issues. A review of developments in the three main components of investment—imports of machinery and equipment, construction, and inventories—all indicate a rapid increase of investment. The discussion of the measurement of economic growth is closely linked with the hypotheses of why growth did not accelerate: (a) growth may be mismeasured; (b) growth will pick up but with a delay; and (c) there will be no acceleration in growth of investment because it is concentrated in sectors and activities that do not contribute to production.

Investment Composition

18. **In a small open economy such as Bulgaria, imports of investment goods are a major part of total investment.** The BNB uses a broad definition of capital goods, including spare parts. Using this classification, imports of capital goods reached 20.2 percent of GDP in during the 12-months to June 2007 up from 12.7 percent in 2002 (Figure I.11). The NSI uses a more narrow classification of capital goods but also records a substantial increase of capital goods imports over time, suggesting that total investment increased.

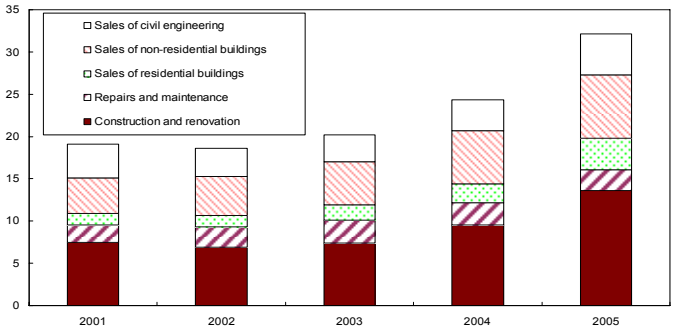
Figure I.11. Bulgaria: Imports of Investment Goods, 2001-07 (In percent of GDP)1/



Sources: BNB and Fund staff calculations.
1/ July 2006-June 2007.

19. **Construction is the main Bulgarian-produced component of investment, and there are credible indications that construction has increased over time** (Figure I.12). Construction company revenue data are consistent with value added data. During 2002–03 value added increased by a modest 2–3 percent per year, but since then growth has picked up to around 10 percent per year.

Figures I.12. Bulgaria: Construction Company Revenue, 2001-05 (percent of GDP)

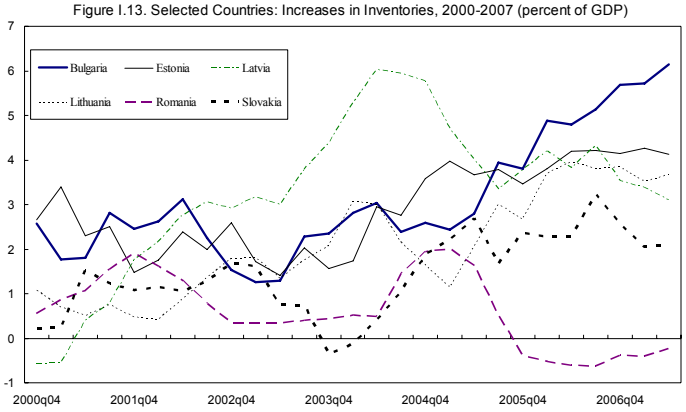


Sources: Bulgarian authorities and Fund staff calculations.

[4] Prepared by Johannes Herderschee.

20. **Accumulation of inventories is the third major component of investment in Bulgaria**. The accumulation of inventories increased steadily from below 2 percent of GDP in 2002 to over 6 percent of GDP in 2007, the highest rate in the region (Figure I.13). The main reason for the increase in inventories was Bulgaria's greater stocks of raw materials and work in progress. This suggests that these stocks are a sign of increased production activities. In contrast, stocks of unsold finished goods and goods for resale, which would be more an issue of concern, dropped as a share of total inventories.

Figure I.13. Selected Countries: Increases in Inventories, 2000-2007 (percent of GDP)



Sources: Eurostat and Fund staff calculations.

The Investment-Growth Disconnect: Three Hypotheses

GDP mis-measurement hypothesis

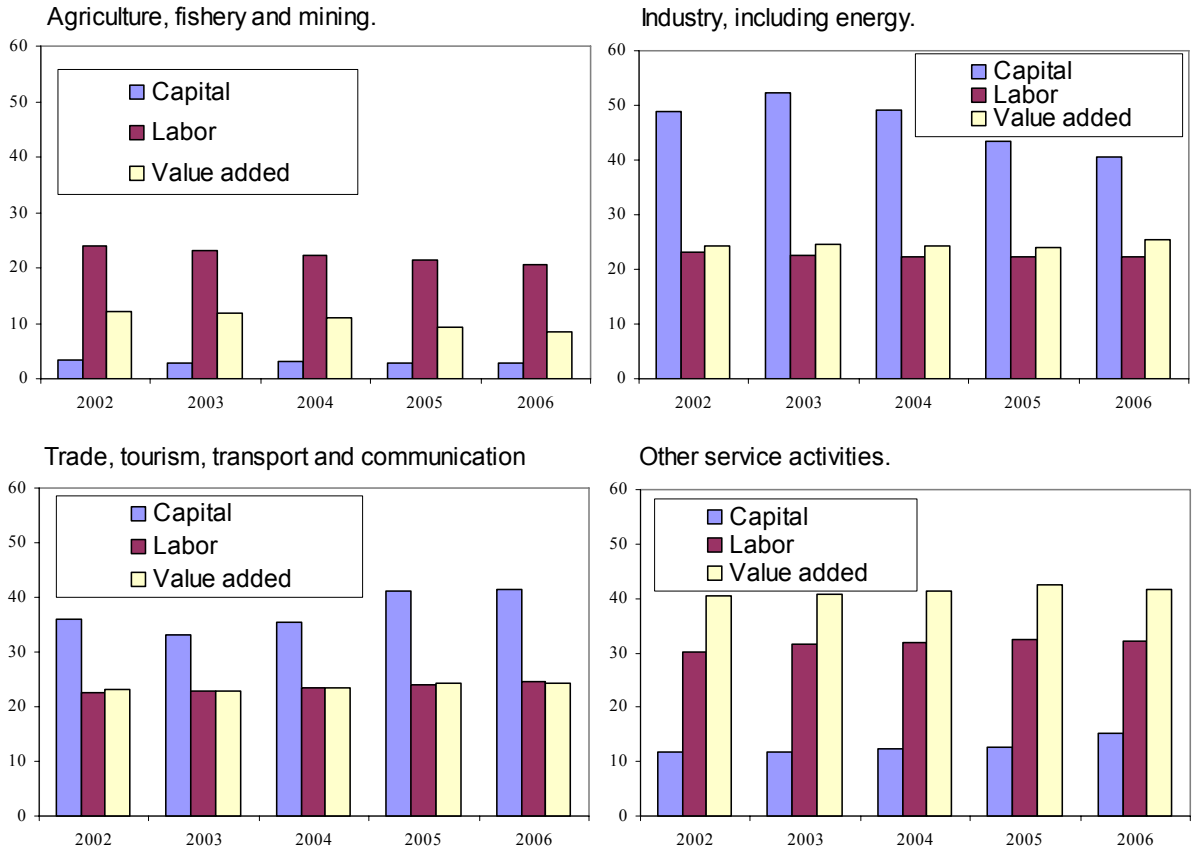
21. **There are three factors that suggest that GDP growth is underestimated**; (a) a jump in imports of capital goods is typically followed by a jump in GDP growth; (b) some sectors in which GDP growth is difficult to measure received a rising share of capital and labor but increased their output only modestly, and (c) value added produced by the self employed declined in 2005. The latter development is difficult to reconcile with anecdotal evidence.

22. **The acceleration in imports of capital goods reported above is typically followed by a jump in GDP growth.** Eurostat uses a classification of capital goods akin to the NSI classification. Using this definition, imports of capital goods reached 8.5 percent of GDP in 2006–07, up almost 3 percentage points from 2003. In the region, only Slovakia showed a faster increase in imports of capital goods. In Slovakia, the boom in imports of machinery and other capital equipment boosted GDP growth by some 3 percentage points during 2004–06.

23. **The rapid growth in gross investment as well as the depreciation of existing capital has allowed for a dramatic reallocation of total capital across sectors**. Consumption (depreciation) of fixed capital accounted for 15 percent of GDP in 2006, up from 11 percent 5 years earlier. As depreciation was particularly high in industry, this sector's share in the total capital stock declined. However, industry's share in total employment remained stable and its contribution to value added increased (Figure I.14). Labor was relocated from the agriculture, fishery and mining sectors to other sectors with higher labor productivity. The declining share of agriculture in total value added is no

surprise. By contrast, it is surprising that output in the services sectors picked up only modestly in spite of a rising share in total capital and labor. Output in some services sectors—notably trade, construction and tourism—is more difficult to measure than output in the agricultural and industrial sectors. The sharp increase in the resource allocation to sectors that increased their output only modestly can be explained by an underestimation of value added in these sectors.

Figure I.14. Bulgaria: Allocation of capital, labor and value added, 2002-06
(Sector's share in total, percent)



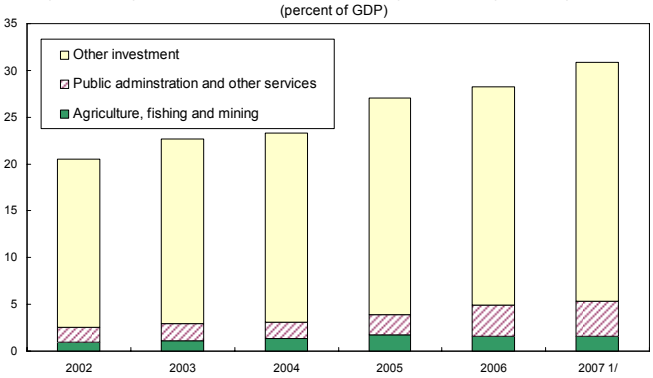
Source: Bulgarian authorities, and Fund staff estimates.

24. **A decline in the value added generated by the self employed is another indication that economic growth may be underestimated**. Data on output by the self employed are only available up to 2005. A drop in output by the self employed in the agricultural sector was to be expected. However, in 2005 output by the self employed also dropped in trade, construction and real estate sectors.

No Growth Hypothesis

25. **Investment in health, education, environmental and food-safety standards is important, but does not contribute to traditionally-measured GDP in the short run**. Investment has increased to meet EU phyto-sanitary and environmental standards. This was expected and confirmed during interviews with market participants in Bulgaria. Hence investment in agriculture, fisheries and mining increased as a share of total investment, in spite of these sectors declining share in GDP (Figure I.15). Investment in health and education services (which classified under public administration and other services) increased rapidly from a low base. However, investments in these sectors remain much lower than in comparable countries, and this growth in investment appears to represent a catch-up effect.

Figure I.15. Bulgaria: investment in public administration, agriculture, fishing and mining, 2002-07
(percent of GDP)

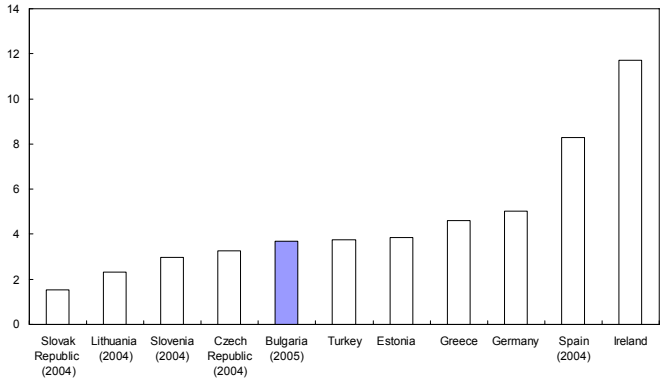


Source: National Statistics Institute.

1/ July 2006 - June 2007.

26. **There is no evidence of excessive investment in residential real estate**. At 3.7 percent of GDP, investment in residential real estate in Bulgaria is slightly higher than in other transition economies. However, investments in residential real estate are by far not as exuberant as in some fast-growing developed countries, such as Ireland and Spain where such investments are well above 8 percent of GDP (Figure I.16).

Figure I.16. Selected Countries: Residential Investment, 2006 (Percent of GDP)



Sources: AMECO Database; NSI; and staff calculations.

Delayed Growth Hypothesis

27. **There are indications that growth will pick up over time**. The main reasons are: (a) the rise in raw material and work in progress inventories; (b) the shift in the allocation of capital and labor to the trade, transport, communications and construction sectors; and (c) the increasing importance of financial intermediation.

- Most of the recent rise in inventories consists of raw materials and are likely to contribute to future growth.

- There appears to be some oversupply in some of the nontradables sectors, in particular in the office and retail segments. Domestic demand is growing robustly and returns on investments in nontraded utilities and other services are likely to increase over time, hence boosting their contribution to GDP growth.

- Finally, there is evidence that the benefits from the rapidly increasing financial services have only recently begun to be realized. Firms with high total factor productivity levels tend to finance a larger share of their assets through bank credit and other financial markets. This is consistent with the theory that banks select and monitor credit project, thus directing capital to the most efficient investments.

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II. AN ASSESSMENT OF BULGARIA'S EXTERNAL STABILITY RISKS[5]

Core Questions and Findings

- **Is the present level of Bulgaria's current account deficit sustainable?** This is highly unlikely. Maintaining the current account deficit at about 20 percent of GDP—the projected level for 2007—would eventually drive the country's external financial liabilities and future external repayment obligations to unsustainable levels. Estimates of Bulgaria's equilibrium current account deficit as a share of GDP center around 8 percent, with a range of 5–10 percent reflecting different estimation methodologies and whether or not future EU capital grants are taken into account.

- **Is the present level of the real effective exchange rate significantly overvalued?** A range of assessment methodologies, including estimates of the equilibrium real exchange rate, indicate no clear evidence of overvaluation. Moreover, export competitiveness, despite some recent weakening, seems to remain robust.

- **Does the large present current account deficit signal near-term external stability risks?** Given the assessment of the present exchange rate level as broadly competitive, this is unlikely. Moreover, staff's analysis points to a one-off private investment boom as the main driver of the large external imbalance. Once this boom tapers off, the current account deficit is projected to approach equilibrium levels under present policy settings.

- **What are the main downside risks to the staff's baseline scenario over the medium term?** Key risks are that present prudent policy settings are not maintained or that investors' expectations about future risks and returns on Bulgarian investment projects undergo an abrupt change for the worse. Additional risks arise from a more prolonged investment boom or a fast pick-up in consumer goods imports following EU accession.

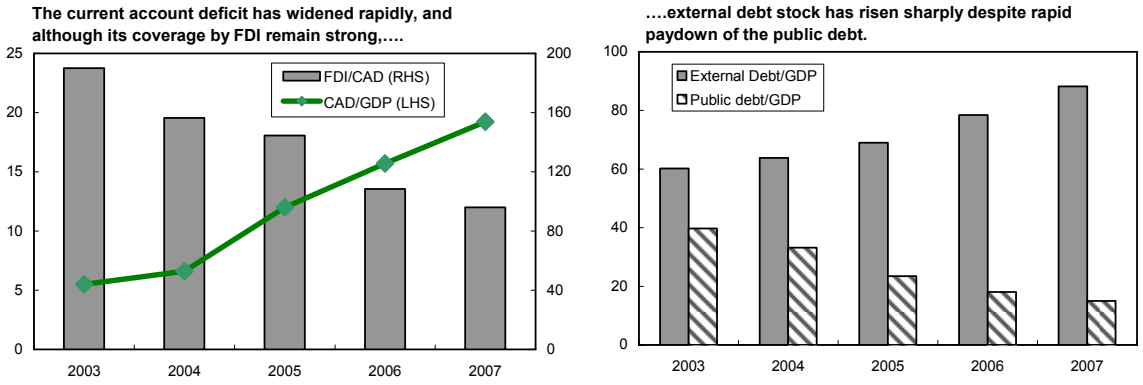
- **Does the structure of Bulgaria's external balance sheet signal near-term external stability risks?** Only to a moderate degree. With less than a third of external debt at short-term maturities, and these more than fully covered by international reserves, rollover risks remain low. Also, domestic foreign exchange liabilities, although rising, remain relatively modest at some 30 percent of GDP, and banks' foreign-exchange exposure to the booming real estate sector remains limited.

[5] Prepared by Jesmin Rahman.

A. Background

28. **Bulgaria's rapidly widening external imbalance is raising concerns about stability risks.** The current account deficit more than tripled during the last three and a half years from 5 percent of GDP in 2003 to a projected 20 percent of GDP in 2007. Although the rising deficit has mostly been financed by foreign direct investment (FDI) inflows, the external debt stock has also surged to over 80 percent of GDP, notwithstanding rapid pay down of external public debt (Figure II.1). The large current account deficit and mounting external liabilities have raised concerns about Bulgaria's external vulnerabilities, not least in light of the relative price adjustment constraints imposed by the currency board arrangements. Responding to the requirements of the 2007 Surveillance Decision, this chapter evaluates whether Bulgaria's balance of payments position—as reflected in assessments of the current account balance, the real exchange rate, and the structure of the external balance sheet—are consistent with maintaining external stability (see IMF 2007a).

Figure II.1. Bulgaria: Current Account Deficit, FDI and External Debt, 2003-07



Source: Bulgarian National Bank (BNB).
Data for 2007 reflects rolling 12-month developments until August.

B. An Assessment of the Equilibrium Current Account Balance

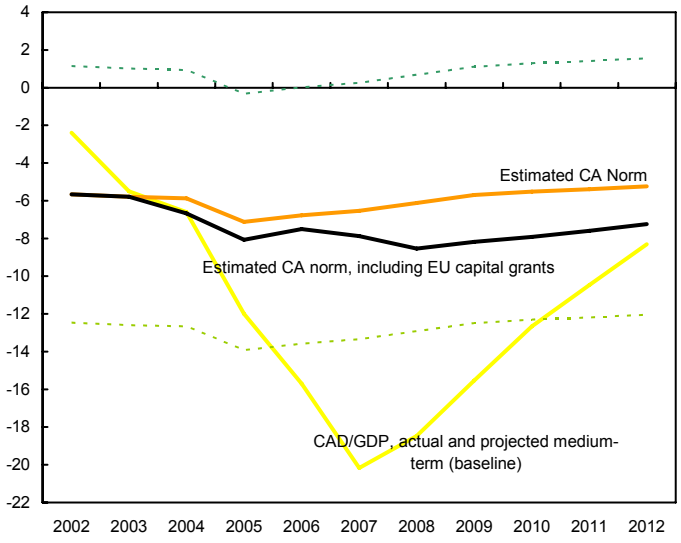
29. **This section estimates Bulgaria's equilibrium current account (CA) balance using various approaches.** The projected level of Bulgaria's CA deficit in 2007—some 20 percent of GDP—is much higher than what would seem to be warranted by savings-investment fundamentals or external sustainability considerations. But estimates of Bulgaria's sustainable current account balance range widely and are subject to uncertainties.

Macroeconomic Balance Approach

30. **The macroeconomic balance approach estimates an equilibrium relationship between CA balances and a set of fundamentals that determine a country's savings and investment positions using panel econometric techniques.** The equilibrium CA balance (CA norm) for any individual country is then computed from this relationship as a function of the levels of fundamentals projected to prevail in the medium term. The gap between the estimated CA norm and the underlying CA balance, i.e. the current account balance stripped of temporary factors and adjustment lags, then gives a measure of disequilibrium in the CA. In Bulgaria's particular situation, staff's analysis shows that the ongoing FDI-driven investment boom, which has been the main force behind the expanding CA deficit (see section D of this chapter), mostly reflects a temporary phenomenon driven by a one-off reassessment of the country as an investment location (see Chapter I—Bulgaria's Investment Boom: Drivers and Pay-offs). As such, the relevant underlying CA is deemed to be the medium-term CA balance which is reached with unchanged policies as FDI slows down to more sustainable levels.

31. **The macroeconomic balance approach suggests a CA deficit norm of about 5 percent of GDP** (Figure II.2). Using a panel of 38 industrial and European emerging market economies for the period 1992–2006, we estimate the CA norm as a function of fiscal balance, demographic variables, FDI, reserves assets, and energy balance. Based on these coefficients, Bulgaria's CA deficit norm is calculated at little over 5 percent of GDP (Appendix 1). This estimate is similar to the one obtained from the CGER coefficients, which were estimated

Figure II.2. Bulgaria: Estimated Current Account Norm and the Projected Adjustment Path under the Medium-Term Scenario



Sources: IFS, WDI, BNB, staff estimates.

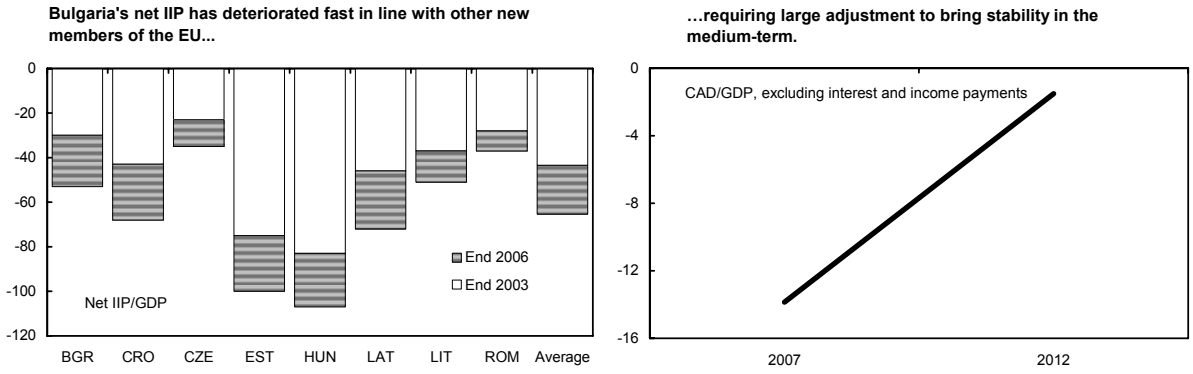
using a sample of 54 industrial and emerging market economies for the period 1973–2004.[6]

32. **While these estimates provide useful benchmarks, caution is warranted in their application.** For an economy such as Bulgaria, which is undergoing major structural changes and income catch-up, history may be of limited relevance. In addition, for EU members like Bulgaria, it can be argued that the receipt of annual capital grants in the range of 2–3 percent of GDP allows for a higher current account deficit over and above the estimated norm without posing sustainability concerns. This would imply that the estimated CA norm under the macrobalance approach could be as high as 7–8 percent of GDP.

External Sustainability Approach

33. From an external sustainability perspective, one would need to look at the implications of a rapidly deteriorating net International Investment Position (IIP). Like other new EU member countries, Bulgaria has experienced a sharp deterioration in its net IIP during the last few years as a result of large FDI inflows and borrowing by the private sector (Figure II.3). The projected income and interest payments associated with these inflows will need to be taken into account when deciding on the appropriate level of net IIP.

Figure II.3. Bulgaria: Net International Investment Position (IIP)



Sources: IFS and BNB.

[6] The latter also produces a CA norm of -5 percent. The estimation, however, does not include Bulgaria in the regression, but includes the following countries from central and eastern Europe: Croatia, Czech Republic, Hungary, Poland, Slovak Republic and Slovenia. The methodology is described in IMF (2006b).

34. The benchmark level of net IIP is an important element in the assessment of the CA norm, but this choice involves a difficult trade-off. While a lower level of net IIP clearly carries less external vulnerabilities and repayment obligations, a higher level may be necessary given a country's development needs. In staff's medium-term baseline scenario (Table II.1), despite a soft-landing, the financing needs remain sizable enough to cause the net IIP to deteriorate to -80 percent of GDP by 2012 from -65 percent in 2007. Staff considers this to be a viable medium-term outlook provided current policy prudence continues. While this level of net IIP is higher than the present average for non-industrial countries (-51 percent), the following two factors would justify a higher net negative IIP for Bulgaria: (i) the initial large needs for capital upgrading unique to a transition economy, particularly in the services sector, which has been the main force behind the rapid decline in the net IIP during 1998–2006; and (ii) EU accession, which has favorably reassessed the desirability of Bulgarian assets to foreigners. To stabilize the net IIP at this benchmark of-80 percent of GDP, the CA deficit norm would have to be at 8 percent of GDP or, including EU capital grants, at 10 percent of GDP.

35. **The above estimates indicate a wide range for Bulgaria's CA deficit norm centering around 8 percent of GDP.** Without adjusting for EU capital grants, the deficit norm ranges between 5–8 percent of GDP. However, taking into account the authorities' projected receipts of annual EU capital grants of 2 percent of GDP, the deficit norm CA range can be adjusted upward to be between 7–10 percent of GDP.

Medium-Term (underlying) CA Balance

36. **While the CA norm varies considerably, it is clear that a substantial reduction in the CA deficit is called for to ensure sustainability.** Such a reduction is possible under the currency board regime (Figure II.2) provided (i) the investment and credit boom start to slow down over the medium term; (ii) strong fiscal prudence continues to neutralize revenue windfalls from the domestic absorption boom and pursues public sector wage growth broadly in line with the productivity growth; and (iii) strong buffers against external liabilities in the form of international reserves are maintained. A slowdown in the investment boom in the near future is anticipated given that all major privatizations have been completed, returns on investment have significantly come down in recent years, excess capacity exists in the tourism sector, and pressure on the labor force is visible in certain sectors of the economy.

37. **Under this baseline scenario, the required ambitious adjustment in the CA balance is being driven by the trade and services sectors.** More specifically, the following are the key drivers of adjustment (Table II.1): (i) a slowing down in the growth rate of imports reflecting a slowdown in the pace of FDI inflows from their current very high levels (ii) a modest pick-up in exports volume growth benefiting from added refining capacity in the copper sector and a payoff from the large-scale FDI that has taken place during 2002–06

(euro 13.7 billion), almost half of which are in manufacturing and export-enhancing services sectors, and (iii) a strong pick-up in services exports, led by the tourism sector. However, one cannot rule out a more prolonged investment boom, in which case, continued large FDI inflows and credit boom could slow down the envisaged reversal in the CA deficit, saddling the economy with a much larger stock of external liabilities (Box 1).

38. **There are substantial downside risks to this baseline scenario arising from the export side as well.** If exports continue to rely heavily on sectors that are highly import dependent, it will hinder the needed fast turnaround in the CA deficit. The share of exports in labor- and resource-intensive manufacturing sectors remain high in Bulgaria at 81 percent compared with the average for other new EU members at 56 percent. One of the reasons behind this is that only a modest part of FDI, 10 percent of the total stock, has gone into non-resource intensive manufacturing sub-sectors. Investors seem to view cheap energy prices (particularly, electricity) as a key attraction for locating in Bulgaria while the shortage of workers with mid-level skills hinders investment in higher value-added sectors. The low share of FDI in manufacturing in general and even lower share in higher value-added sectors somewhat undermine the economy's ability to bring in a quick turn-around in the CA deficit.

39. **Additional downside risks come from a possible pick-up in consumption-driven imports in the aftermath of EU accession and changes in sentiment among investors.** Imports growth in the first eight months of 2007 show an increase in consumer goods of 33 percent (y-o-y), compared with a growth rate of 22 percent experienced during the same period in 2004–06. Other risks to the current account recovery arise from a possible loss of investor confidence in the economy's growth potential that could trigger a faster repatriation of profits, or from a more prolonged turbulence in the international financial market that could increase investors' risk aversion and tighten credit conditions making debt servicing more expensive.

Box 1: A More Prolonged Investment Boom—Implications for the CA Adjustment

Assuming FDI inflows of euro 4 billion a year experienced during 2005–06 continue until 2011, the adjustment in the CA balance would take place at a much slower pace. It would take about 10 years for the overall deficit to reach within the sustainable range while net IIP deteriorate to -110 percent of GDP.

The basic assumptions are similar to those in the baseline scenario, (i) the current policy mix continues; (ii) real exchange rate appreciates in line with productivity growth of the economy as wage growth remains moderate; (iii) imports growth is mostly driven by raw materials and investment goods; and (iv) exports growth remain robust reflecting payoff from foreign investment and continued structural reforms. FDI inflows are expected to taper off relatively quickly after 2011 with the stock as a share of GDP peaking at 82 percent in 2011, then declining to 60 percent by 2018. As a bottom line, reserves accumulation is expected to ensure a coverage of 4 months of imports.

Box Table 1: Key assumptions underlying the scenario with a more prolonged investment boom

Key assumptions	2008-2018
Volume of Exports Growth	11.3
Volume of Imports Growth	10.3
Cumulative real appreciation	23.4
Real GDP growth	5.8
GDP deflator growth	3.9

Box Figure 1: Bulgaria, CAD and net IIP with a more prolonged investment boom

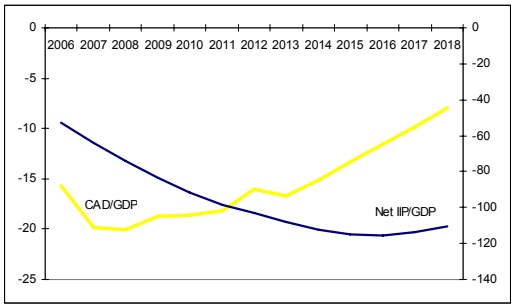


Table II.1: Key Ratios and Assumptions Underlying the Baseline Medium-Term Current Account Projections

Key Ratios (in percent of GDP)	2007	2012	*Adjustment*
Current Account Deficit	**-20.2**	**-8.3**	**11.8**
Merchandise Trade balance	**-26.2**	**-17.2**	**9.0**
Exports	45.0	46.6	1.7
Imports	71.1	63.8	-7.3
Non-factor Services balance	**4.4**	**8.6**	**4.2**
Receipts	16.1	18.6	2.5
Payments	11.7	10.0	-1.8
Income Balance	**-0.7**	**-1.7**	**-1.1**
Receipts	5.7	6.3	0.7
Employees compensation	4.3	4.5	0.2
Payments	6.3	8.0	1.7
Interest Payments	2.1	4.0	1.9
Income payments	4.3	4.0	-0.2
Current transfers	**2.3**	**2.0**	**-0.3**
Private transfers receipts	2.5	2.0	-0.5
EU current transfers receipts	1.5	1.4	-0.1
Transfer payments	1.7	1.5	-0.3
Capital transfers	1.3	2.0	0.7
Stock of FDI	70.1	69.1	-1.0
Stock of External Debt	87.6	93.3	5.7
Net IIP	-65	-80	-15
Gross FDI inflows/CAD	77.4	60.7	-16.7
Stock of Gross Reserves, billions of Euro	11.7	20.1	8.4
Key assumptions (2008-12):			
Exports volume growth		13.2	
Imports volume growth		10.6	
Growth in tourism receipts		15.1	
Rate of return on FDI equity investment		10.4	
Rate of reinvestment of FDI-related earnings		30.0	
Interest rate on FDI-related debt		2.2	
Implicit interest rate on other debt		4.7	
Average growth in workers' remittances		6.8	
Average growth in employees' income		12.6	
Bulgaria's real GDP growth		6.5	
Foreign demand for imports growth		4.3	
Export volume elasticity with respect to income		1.4	
Export volume elasticity with respect to REER		-0.5	
Import volume elasticity with respect to income		1.4	
Import volume elasticity with respect to REER		-0.3	
Import volume elasticity with respect to FDI inflows (only applied to investment goods and parts of raw materials imports)		0.2	
Cumulative real appreciation of leva (GDP deflator based)		13.8	

C. An Assessment of the Real Effective Exchange Rate

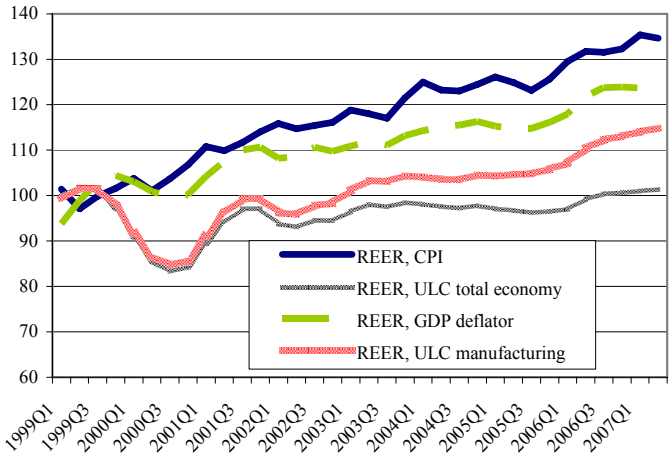
40. **A large CA deficit is much less sustainable if accompanied by real appreciation that reflects a misalignment**. As such, the 2007 surveillance decision also calls for an assessment of the level of the real exchange rate in addition to that of CA developments. This assessment is particularly relevant for Bulgaria given the fixed exchange rate regime with no change in the rate since July 1997.

Real Exchange Rate Developments

41. **Based on a number of deflators, Bulgaria's real effective exchange rate (REER) appreciation seems to be in line with that experienced by other new members of the EU** (Figure II.4).

Between 2000Q1–2007Q3, Bulgaria's CPI-based REER appreciated by 37 percent compared with 27 percent experienced by other new members (excluding Bulgaria). However, the unit labor cost-based REERs have appreciated by much less at 5 percent (economy-wide) and 18 percent (manufacturing), which compare favorably against the average for EU new members at 32 percent and 29 percent, respectively.

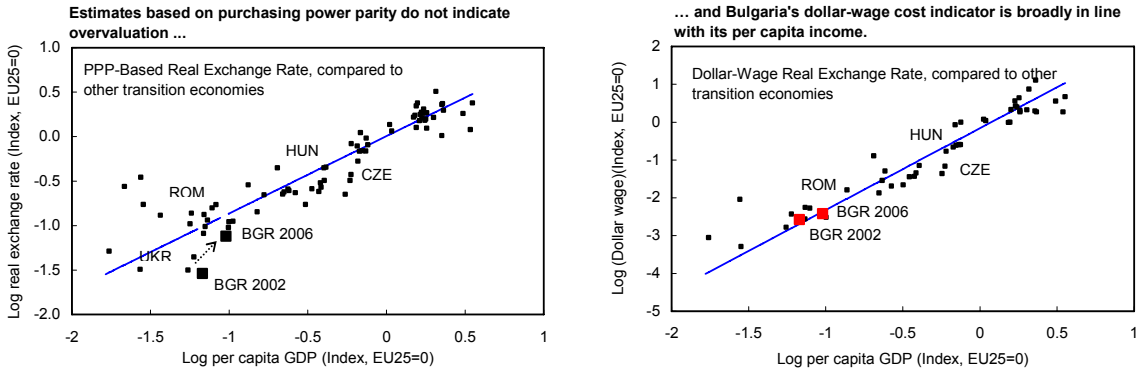
Figure II.4. Bulgaria: Real Effective Exchange Rates, 1990=100



Source: Eurostat

42. **Purchasing-power-parity and dollar wage-cost comparisons in industry across countries yield no strong evidence of overvaluation**. Controlling for per-capita income, Bulgaria's exchange rate path during 2004–06 as captured by the PPP-based equilibrium exchange rate measure suggests that the leva is still somewhat undervalued. Similarly, using dollar wages as a proxy for real exchange rate also shows no signs of misalignment (Figure II.5).

Figure II.5. Bulgaria: PPP-based Equilibrium Real Exchange Rates



Sources: IFS; and Fund staff estimates.

Equilibrium Exchange Rate Approach

43. **Given that the PPP-based equilibrium assessment have well-known drawbacks, we also estimate Bulgaria's equilibrium real effective exchange rate (EREER).** Earlier estimates of Bulgaria's EREER show minor, if any, misalignment (See Égert 2005, Chovanov and Sorsa 2004). We estimate Bulgaria's EREER for the period 1996–2006 using a model developed in Alberola and others (1999) and used in Burgess and others (2004) for the Baltics. This model estimates EREER as a function of relative productivity and the net foreign asset (NFA) position capturing internal and external equilibrium, respectively. Internal equilibrium implies clearance in the non-tradable goods market. Assuming that the Balassa-Samuelson hypothesis holds, if Bulgaria's relative productivity in the tradable sector is higher compared to trading partners' relative productivity in the tradable sector, one would expect the EREER to appreciate over time. External equilibrium is reflected in the clearance of the tradable goods market where any CA deficit is financed by a sustainable level of capital inflows characterized by the achievement of a desired NFA position. If the stock of NFA drops below this desired level, one would expect the EREER to depreciate ensuring an improvement in the trade balance to compensate for the lower foreign income.

44. **Our estimation shows that the actual real exchange rate has appreciated largely in line with the estimated EREER.** A vector error correction estimate produces the following long-run relationship between the variables:

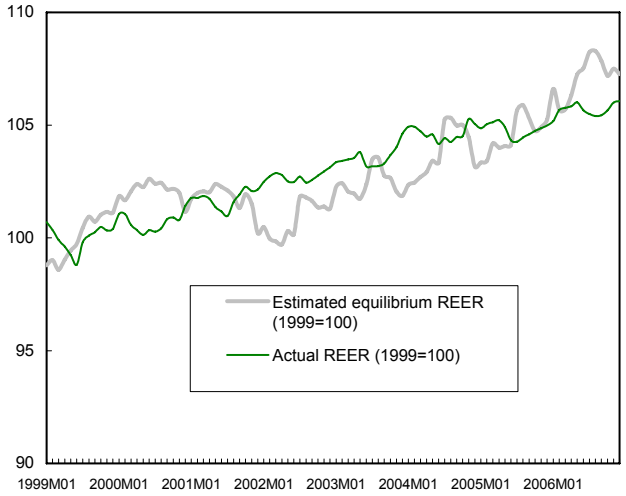
EREER = 1.01* Relative Productivity – 0.06* NFA

As expected, the response of the equilibrium exchange rate to relative productivity is positive. A one percent increase in the relative productivity increases EREER by 1.01 percent. The NFA, however, enters the relationship with a negative sign contrary to the prediction of the model. This could be because of the relatively short time span of the data. Typically, studies that find a positive relationship between the NFA and real exchange rate

include a much longer time series than the 11 years included in our estimation. However, this could also indicate that in countries like Bulgaria, where there has been an increased confidence in the growth potential in light of the EU accession as well as an upward revision in foreigner's desired holdings of Bulgarian assets, the decline in the NFA position may actually reflect an equilibrium movement allowing for the coexistence of real appreciation and a declining NFA. The estimation shows that actual REER has mostly been in the neighborhood of its equilibrium value with a tendency of the deviation between REER and EREER to decline in recent years (Figure II.6).

45. **Based on the above analysis, there seems to be no strong indication that the real exchange rate is overvalued** (Figure II.6). Actual real appreciation has remained contained in the range of 1–5 percent per year since 2000. Estimated equilibrium real exchange rate and the PPP-based comparisons indicate the exchange rate to be fairly valued.

Figure II.6. Bulgaria: Actual and Estimated Equilibrium Real Exchange Rates



Sources: IFS, BNB, staff estimates.

D. Explaining the Disconnect Between CA Balance and Real Exchange Rate

Current account developments in recent years seem to be largely independent of real exchange rate developments, contrary to the assumptions made under the macrobalance approach. Assuming an elasticity of -0.39 for the CA balance with respect to the real exchange rate, the implied CPI-based real appreciation associated with a widening of 10 percent in the CA deficit (26 percent) would have been much higher than what we have actually observed during 2004–06 (9 percent).[7] What explains this disconnect between the

[7] The elasticity is calculated based on an import elasticity of 0.92, export elasticity of -0.71, and imports and exports of goods and non-factor services at 83 and 64 percent of GDP, respectively.

CA balance and real exchange rate?

Recent large CA Deficits—A Result of Capital Account Driven Private Investment boom

46. **The widening of the CA deficit during 2004–06 has mostly been driven by increased imports, which in turn have surged on the back of rising investment goods, fuel and raw materials** (Table II.2). In comparison, consumer goods imports, although increasing, played a modest role. The sustained rise in imports has coincided with massive levels of FDI.

Table II.2: Disaggregation of the Current Account Deficit, 2003–06

(As a share of GDP)	**2003**	**2004**	**2005**	**2006**	***Difference 2003–06***
Current Account Balance	-5.5	-6.6	-12.0	-15.7	-10.2
Trade balance	-13.7	-15.1	-20.2	-22.2	-8.5
Exports (fob)	37.8	40.8	44.1	47.7	9.9
Imports (fob)	51.5	55.9	64.4	70.0	18.5
Imports (cif)	54.4	58.5	67.0	73.6	19.2
Investment goods	14.0	15.8	18.8	19.3	5.3
Raw materials	21.8	23.5	24.6	26.9	5.1
Consumer goods	8.4	9.7	10.5	10.9	2.5
Fuel and products	9.6	9.9	13.8	16.1	6.5
Services balance	3.1	3.3	3.7	3.9	0.8
Income balance	1.6	1.2	0.7	0.0	-1.6
Transfers	3.5	3.7	3.7	2.6	-0.9
Memorandum items					*Average, 2004-06*
Exports growth, volume	11.5	12.3	10.5	11.3	10.2
Exports growth, value	10	19.7	18.6	26.6	18.7
Imports growth, volume	18.3	13.8	15.3	15	14.7
Imports growth, value	14.5	20.3	26.9	25.2	24.1
Greenfield FDI inflows/GDP	8.7	9.1	14.2	16.4	13.2
Credit growth to the private sector	48.3	48.6	32.4	24.6	35.3
Annual REER appreciation (in percent)	6.9	1.9	-0.2	6	2.6

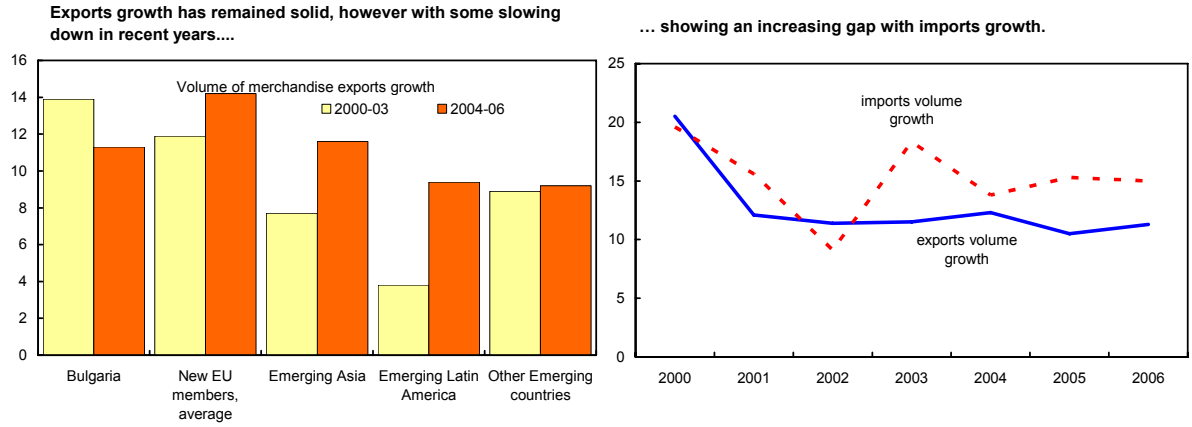
Sources: BNB and IMF INS.

Inflows from greenfield investment, which are often considered to have a higher impact on imports relative to privatization inflows, jumped to USD 3.7 billion per year during 2004–06 from an annual average of 0.9 billion during the previous five years. Continued high credit growth also contributed. To the extent the deficit is being driven by imports of investment

goods and raw materials, one would not necessarily observe a large contribution from the real exchange rate appreciation to the widening of the CA deficit.

Despite Some Weakening, Exports Grew Strongly and Remain Competitive

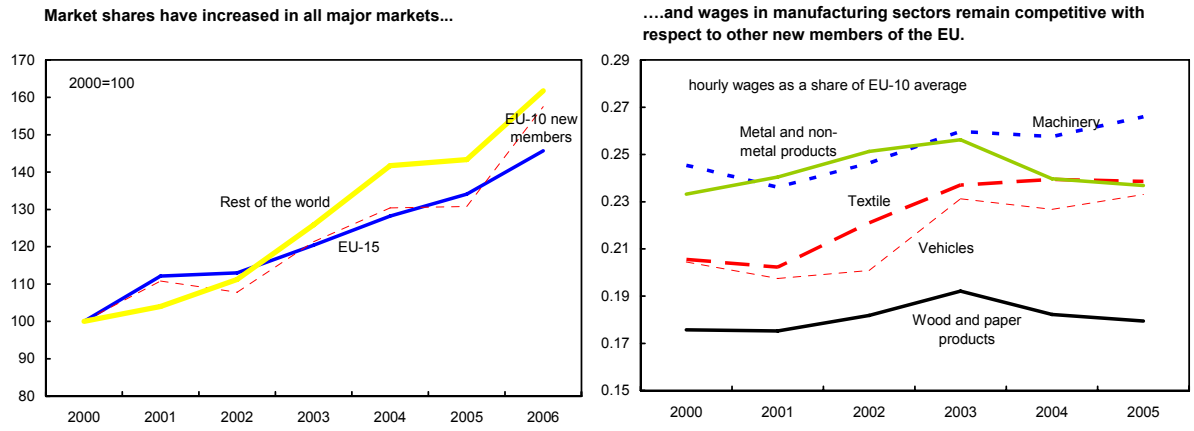
Figure II.7. Bulgaria: Volume of Exports Growth, 200-06



Sources: WEO and BNB.

47. **Exports growth has remained solid albeit with a slight weakening vis a vis the earlier period and greater dependence on import-intensive sectors.** Exports volume growth remained strong at 11 percent during 2004–06, above or at par with exports growth experienced by various emerging market country groups (Figure II.7). However, this strong overall growth masks two underlying trends. First, during 2004–06, exports growth depended much more on sectors that have high import content (iron, copper and petroleum products) compared to during 2001–03 when labor-intensive goods played a stronger role (Table II.3). This provides an additional explanation for the surge in imports besides the impetus provided by the FDI. In fact, metal ores and fuel imports contributed, on average, to 35 percent of total imports increase during 2004–06. Second, while this level of export growth is strong, it does show a slight slowdown relative to the growth experienced during 2001–03 (Figure II.7). What is also curious is that exports growth strengthened during the latter period in all emerging market country groups. This relative slowdown, with respect to both the earlier period and other emerging market countries, poses some concerns for competitiveness despite overall increase in market shares and low wages in manufacturing (Figure II.8).

Figure II.8. Bulgaria: Export Competitiveness



Sources: Direction of Trade Statistics and ILO.

Table II.3: Sectoral Contribution to Exports Growth

(In percent of total increase in exports)	2000	2001	2002	2003	2004	2005	2006
Consumer goods	21	76	62	51	14	7	9
Clothing and footwear	16	61	34	33	7	-1	3
Furniture	1	7	18	6	3	2	2
Raw materials and fuels	77	2	8	31	74	67	80
Iron and copper	29	-18	-2	35	36	10	35
Petroleum Products	21	-18	-43	5	18	24	24
Investment goods	2	21	30	18	12	26	11
Machinery and vehicles	2	12	15	10	3	16	5
Memorandum items:							
Share of iron, copper and fuel in total imports	42	-10	-37	12	27	37	41
Total exports growth (in millions of Euro)	1519	461	349	605	1317	1481	2546

Sources: BNB and staff calculation

48. **To look into export competitiveness more thoroughly, we use Constant Market Share Analysis (CMSA), which, despite notable weaknesses, allows us to gain some useful insights into the anatomy of a country's exports growth**. Specifically, it allows us to analyze if Bulgaria's exports growth was due to gains in competitiveness, or driven by increased demand in particular export markets or for particular commodities (see Appendix 2 for methodology). We compare Bulgaria's export performance during 2001–03 and 2004–05 with that of all low- and middle-income countries (LMC) based on product disaggregation at

SITC 1-digit level and market disaggregation into four broad groups: EU-15, non-EU high-income countries, low- and middle income countries in Europe and all other low- and middle income countries.

49. **The CMSA shows that Bulgaria has experienced some decline in competitiveness in recent years albeit coming on the back of large gains during 2001–03**. Bulgaria's exports grew considerably more rapidly than those of other LMC during 2001–03, and based on CMSA, this higher export growth was mostly due to gains in competitiveness (Table II.4). As shown by the market growth effect, if Bulgaria's exports were to grow at the overall growth rate of other LMC, it would have only grown by 52 percent of actual exports growth experienced during 2001–03. This "overperformance" relative to other LMC during 2001–03 is mostly explained by gains in competitiveness, and partly also by higher orientation toward faster-growing markets. For example, 27 percent of Bulgaria's exports in 2000 went to LMC of Europe, the market group in our analysis absorbing imports at the fastest rate, compared to 7 percent of LMC's exports going to this market. Bulgaria's export "overperformance" relative to LMC sharply declines during 2004–05 from 48 percent during 2001–03 to only 8 percent with a corresponding decline in the contribution of competitiveness to overall export growth. However, overall Bulgaria remains positively competitive compared to other low- and middle-income countries.

Table II.4: Constant Market Share Analysis of Bulgaria's Export Growth

(In percent of total increase in exports)	**2001-2005**	**2001-2003**	**2004-2005**
Market Growth Effect	67	52	92
(implied "overperformance")	(33)	(48)	(8)
Commodity Composition Effect	0	-1	-2
Market Distribution Effect	12	13	4
Competitiveness Effect	21	35	6

Source: UN Comtrade Database and staff calculation.

E. An Assessment of the External Balance Sheet

50. **Despite a large external debt stock, the composition of the debt and strong buffers would suggest modest near-term stability risks.** More specifically, the following factors would mitigate near-term risks that could arise from the structure of a country's external balance sheet: (i) FDI constitutes more than half of the stock of total foreign liabilities; (ii) 70 percent of the external debt stock are in long-term liabilities, half of which are owed to mother companies in the form of inter-company debt; (iii) the prudent macroeconomic policies pursued since the 1996/97 crisis have resulted in large stock of foreign exchange reserves which more than fully cover all short-term liabilities (remaining

maturity) as well as more than half of M3; and (iv) domestic foreign-exchange denominated liabilities remain relatively low at 30 percent of GDP, with limited exposure to the housing sector.

51. **However, there are reasons to worry.** An external debt stock that is above 80 percent of GDP would be considered risky and high by all conventional benchmarks. For example, recent estimates show that, the conditional probability of a debt crisis rises from 2-5 percent to 15-20 percent when debt reaches above 40 percent of GDP. [8] Although this probability is somewhat dampened by the high share of exports in Bulgarian economy, large debt continues to pose risks to the outlook. Similarly, while the risks of a sudden stop remains low in light of Bulgaria's relatively low level of foreign-exchange denominated domestic liabilities, should such a stop occur, the growth impact would be significant, a reduction of 8½ percentage points of GDP in the first year after the shock (See Sorsa and others, 2007).

52. **Developments in recent years have also increased potential currency and roll-over risks**. The share of domestic lending in foreign currency has increased rapidly for both corporate and household sectors, which are at 66 percent and 20 percent, respectively as a share of outstanding loans in these sectors. The exposure is high for the corporate sector where only a quarter of the foreign-currency lending has been channeled into the tradable sector creating concerns for potential currency risks. The roll-over risks have also increased in recent years as the stock of short-term debt (remaining maturity) has increased from less than 9 percent of GDP in 2003 to 24 percent with the composition less in favor of trade credits whose share in the short-term debt has declined from 43 percent to 23 percent.

F. Structural Reforms and External Stability Risks

53. **In the absence of any monetary policy and likely political economy constraints for further fiscal tightening, progress on the structural front will be crucial.** This would be required not only to increase the economy's ability to absorb shocks but also to maintain investor confidence, and ensure a productivity-driven growth. Despite low wages compared to other new member states, and a low labor force participation rate, it is disappointing that only a modest share of FDI has gone into manufacturing. Similarly, the structure of exports remains concentrated in relatively low-valued added products undermining the economy's ability to shake off the imports drag. A simple correlation between share of manufacturing FDI and various structural reforms across a group of new members of the EU shows strong

[8] Debt crisis is defined as a sharp correction of the debt-to-GDP ratio beyond some de minimis threshold. Over the period 1979-2001, 53 such episodes have been identified. Crisis debt threshold increases to 65% of GDP with exports to GDP ratio greater than 40%. In this case, the conditional probability of a debt crisis is also significantly lower at around 6% although that of a debt correction is high at 20%. See IMF (2002).

relationships with labor productivity, domestic market size, the ability to provide quality infrastructure and the ease of employing workers (Table II.5). While one must interpret such correlations with high skepticism, given Bulgaria's small domestic market, it will be important to identify key reforms that are likely to attract FDI into higher value-added manufacturing sectors.

Table II.5: Manufacturing FDI, Possible Determinants

	Manufacturing FDI/Total	GDP, in billion USD	Labor productivity (PPP GDP per person employed relative to EU-25)	Employing workers, Doing Business Indicators 2006 1/	Enterprise reform, EBRD Transition Index 2/	Infrastructure, EBRD transition country Index 2/
Slovenia	46.4	37.4	0.8	26	0.89	0.94
Hungary	44.2	112.9	0.73	15	1.10	1.15
Czech Republic	40.1	142.5	0.68	5	0.98	1.03
Slovakia	40.1	55.1	0.8	11	1.10	0.94
Poland	37.9	340.9	0.6	6	1.10	1.03
Lithuania	33.1	29.8	0.56	22	0.89	0.94
Bulgaria	20.5	31.5	0.33	17	0.80	0.94
Estonia	13.6	16.4	0.61	28	1.10	1.03
Latvia	12.5	20.1	0.5	23	0.89	0.94
Correlation with manufacturing FDI stock		***0.41***	***0.73***	***-0.47***	***0.27***	***0.50***

1/ Shows ranking among Europe and Central Asian countries, higher score indicates less reform.

2/ Scores as a ratio of EU-10 average, higher score indicates more reform.

Data sources: The Vienna Institute for International Economic Studies FDI database, WEO, Eurostat, EBRD, World Bank.

Appendix I: Estimation of the Current Account (CA) Norm Using Macroeconomic Balance Approach

The following explanatory variables were used to estimate the CA norm.
Fiscal balance. A higher government budget balance, in the absence of full Ricardian equivalence, would raise national savings and increase CA balance. This variable is measured by general government balance as a share of GDP. Data source: WEO

Demographics. A higher share of the economically inactive or dependent population reduces national saving and decreases the CA balance. This variable was proxied by two measures: old age dependency ratio, and population growth. Data source: WEO and ILO EPAP database.

Foreign direct investment. Higher FDI inflows should allow a lower CA balance, by directly boosting imports and enhancing future export capacity. This variable is measured as total FDI inflows as a share of GDP. Data source: WEO.

Relative income levels. Economies with lower per capita income would have higher investment needs that should be reflected in a lower CA balance. Data source: WEO.

Energy balance. Sustained increases in energy price represents an exogenous terms of trade shock that would lower the medium-term CA balance for a net energy importer. Data source: WEO.

Foreign-exchange reserve coverage. Higher reserves, by providing a cushion against possible shocks, should allow a lower CA balance. However, higher reserves could also imply larger interest receipts, pointing to a higher CA balance. This variable is measured by stock of foreign reserves in terms of months of imports. Data source: WEO.

The estimation included yearly data for the following 38 countries for 1992–2006: Austria, Australia, Bulgaria, Belgium, Canada, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, Korea, Latvia, Lithuania, Netherlands, New Zealand, Poland, Portugal, Romania, Russia, Singapore, Slovakia, Spain, Slovenia, Turkey, United Kingdom, United States, Norway, Sweden, Germany, and Switzerland.

Table A1.1. Current Account Norm: Estimated coefficients

Variable	Fixed effects estimation 1/
Fiscal balance	0.26 **
FDI	-0.07 **
Relative GDP	-0.11
Dependency	0.34 **
Pop. Growth	-0.01 **
Energy Balance	0.28 *
Reserve Coverage	0.002 **
Constant	-0.21
Adjusted R-squared	0.73

1/ * and ** indicate significance at 1 and 5 levels.

Appendix II. Constant Market Share Analysis

According to the Constant Market Share Analysis (CMSA), the expansion of a country's exports derived from the overall growth of its competitors is considered the *market growth effect*. If a country's exports grow faster than those of its competitors, the CMSA decomposes this "over performance" into three effects:

(i) growth due to exports being concentrated in faster growing products, called the *commodity composition effect*,
(ii) growth due to exports being concentrated in faster growing markets, called the *market distribution effect*, and
(iii) growth due to other factors, collectively labeled as *competitiveness gains*.[9]

Using this CMSA decomposition, the actual increase in Bulgarian exports between 2001 and 2005, Δx, can be decomposed as:

$$\Delta x = \sum_i r\, x_i \ldots\ldots\ldots \quad \text{market growth effect}$$

$$+ \sum_i r_i\, x_i - \sum_i r\, x_i \qquad \ldots\ldots\ldots \text{(i)} \quad \text{commodity composition effect}$$

$$+ \sum_i \sum_j r_{ij}\, x_{ij} - \sum_i r_i\, x_i \ldots\ldots\ldots \text{(ii)} \quad \text{market distribution effect}$$

$$+ \Delta x - \sum_i \sum_j r_{ij}\, x_{ij} \qquad \ldots\ldots\ldots \text{(iii)} \quad \text{"competitiveness effect"}$$

where,

r = percent change in the overall exports of competitor countries,
r_i = percent change in competitors' exports of SITC product i,
r_{ij} = percent change in competitors' exports of SITC product i to market j,
x_i = Bulgarian exports of product i at the beginning of the period, and
x_{ij} = Bulgarian exports of product i to market j at the beginning of the period.
$j_{1\text{-}4}$ = EU-15, non-EU high income countries, European LMC, all other LMC

[9] The competitiveness measure may reflect one or more of the following price and non-price factors: (i) differential rate of increase in export prices of the same product; (ii) changes in exchange rates which are passed through and not absorbed in the markup; (iii) changes in export taxation or subsidization; (iv) differential rate of productivity growth in different countries; (v) differential rates of quality improvement; (vi) differential rate of improvement in the efficiency with which exports are marketed; and (vii) differential changes in the extent to which export orders can be met promptly.

Table A2.1. Constant Market Share Analysis with Respect to Other Low- and Middle-Income Countries of the World (LMC)

	2001-05				2001-03				2004-05				
	$\sum r X_i$	$\sum r_i x_i$	$\sum\sum r_{ij} x_{ij}$	Δx		$\sum r X_i$	$\sum r_i x_i$	$\sum\sum r_{ij} x_{ij}$	Δx		$\sum r X_i$	$\sum r_i x_i$	$\sum\sum r_{ij} x_{ij}$	Δx
	[1]	[2]	[3]	[4]		[1]	[2]	[3]	[4]		[1]	[2]	[3]	[4]
SITC 0	276486	178390	264884	508549	SITC 0	85470	84840	127250	213189	SITC 0	256140	125656	153251	295360
SITC 1	147679	91648	139137	69220	SITC 1	45652	36525	51979	3500	SITC 1	80534	45590	67367	65720
SITC 2	271238	242270	229086	464476	SITC 2	83847	61030	60220	163143	SITC 2	227823	234932	224876	301334
SITC 3	538792	462506	678937	654868	SITC 3	166556	81812	43500	-125328	SITC 3	223405	258487	316543	780196
SITC 4	10927	13050	19299	24087	SITC 4	3378	8327	10683	2238	SITC 4	6968	3268	6156	21848
SITC 5	464598	579856	660705	403607	SITC 5	143620	174493	213524	82787	SITC 5	289959	349070	367362	320820
SITC 6	1178843	1333304	1362019	1858126	SITC 6	364414	394191	419151	611336	SITC 6	940335	1064450	1057287	1246790
SITC 7	442041	523635	845256	1207365	SITC 7	136648	180071	315422	521295	SITC 7	501525	526068	616069	686071
SITC 8	987213	785179	905441	1580157	SITC 8	305175	349333	465567	1126320	SITC 8	1100739	680931	633513	453836
SITC 9	292888	423517	356785	132777	SITC 9	90540	40377	67200	119906	SITC 9	217322	471033	486754	12871
Total	4610705	4633355	5461549	6903231	Total	1425299	1410999	1774496	2718386	Total	3844750	3759484	3929178	4184846
Market Growth Effect= [1]/[4]				67	Market Growth Effect= [1]/[4]				52	Market Growth Effect= [1]/[4]				92
Commodity Composition Effect = ([2]-[1])/[4]				0	Commodity Composition Effect = ([2]-[1])/[4]				-1	Commodity Composition Effect = ([2]-[1])/[4]				-2
Market Distribution Effect = ([3] - [2])/[4]				12	Market Distribution Effect = ([3] - [2])/[4]				13	Market Distribution Effect = ([3] - [2])/[4]				4
Competitiveness Effect = ([4]-[3])/[4]				21	Competitiveness Effect = ([4]-[3])/[4]				35	Competitiveness Effect = ([4]-[3])/[4]				6

Appendix III: Estimation of the Equilibrium Real Effective Exchange Rate

Based on Alberola and others (1999), Bulgaria's EREER (q_t) is determined by the relative sectoral productivity between Bulgaria and its trading partners (pnt_t_t) and the stock of Bulgaria's net foreign assets (nfa_t):

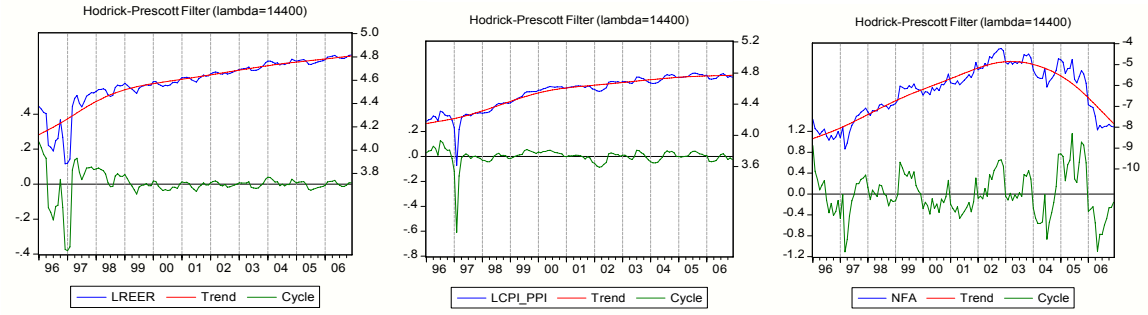
$$\mathbf{q_t = \beta_0 + \beta_1 pnt\_t_t + \beta_2 nfa_t + u_t}$$
$$(+) \qquad (+)$$

where

- $\mathbf{q_t}$ is the log of the CPI-based multilateral real effective exchange rate calculated by the IMF INS system,
- $\mathbf{pnt\_t_t}$ is the log of Bulgaria's ratio of CPI non-tradables and CPI tradables relative to the ratio of CPI and PPI of all trading partners, and
- $\mathbf{nfa_t}$ are total foreign assets minus total foreign liabilities in billions of US dollar.[10]

Trend and permanent components in the variables. While the REER trends upward since the trough in 1997, the trend components in the explanatory variables do not necessarily imply an appreciating EREER for the entire period based on the expected relationship (Appendix 3 Figure 1). The relative productivity variable does show an increasing trend during 1996-2006, however with a considerable slowing down after 2000. While there was a cumulative 55 percent increase in the value of this variable between 1996 and 2000, it only increased by 14 percent since then. The NFA variable shows an improvement until end-2003 and a rapid deterioration since then (Appendix 3 Figure 1). Large capital inflows into Bulgaria in recent years have gone hand in hand with a widening CAD and increased indebtedness by the private sector, reflecting a decline in the NFA position. Taken these developments in the fundamental variables, one could expect a sustained appreciation in the equilibrium rate in the first half and after that a more stable rate or some decline assuming the variables demonstrate expected sign of relationship with the REER.

Figure A3.1: REER and Fundamentals, trend and cyclical components



Data properties and estimation results. All three data series show non-stationarity. We find existence of unit root at the 5 percent critical level using the Augmented Dicky Fuller tests (Table 1). However,

[10] See Data Appendix for the construction of and data sources for these variables.

Johansen cointegration tests show the existence of one cointegrating relationship between the three variables at the 5 percent critical value indicating a long-run time-varying equilibrium relationship.

Table A3.1: Results of Stationarity Tests and Johansen Co-integration Test 1/

Augmented Dicky-Fuller Tests	
Variables	*t-statistic*
q_t	-2.08
pnt_t_t	-2.06
nfa_t	-1.38

Cointegration equation normalized for q_t		
Variables	*coefficient*	*t-statistic*
pnt_t_t	1.01	7.67**
nfa_t	-0.06	-2.80**
C	-0.36	

Error Correction		
Variables	*coefficient*	*t-statistic*
q_t	-0.07	-1.71*
pnt_t_t	0.17	4.44**
nfa_t	-0.49	-1.69*

1/ * and ** denote significance at 10 percent and 5 percent levels, respectively.

The long-run coefficients are presented in Table 1. Estimation results show that a 1 percent increase in relative productivity causes a 1 percent appreciation in the EREER. The relationship to NFA, contrary to the prediction of macrobalance models, is negative. In summary, the REER has been below the EREER until 2001, after which it remains mostly above the EREER although not dispersing far from its equilibrium value and more recently being below its equilibrium value again. The speed of adjustment by the real exchange rate variable as given by the coefficient of the cointegration equation in the error correction model is negative (-0.07) and significant showing a relatively fast pace of adjustment with half of the movement away from the equilibrium corrected within the first eight months.

Data sources.

- q_t : IMF effective exchange rate facility.
- pnt_t_t **:** For Bulgaria, prices of tradable goods are proxied by the average of food and non-food prices with the following respective weights: 65 percent and 35 percent, since the PPI series is available only since 2000. Prices of non-tradable goods are proxied by the services' sector prices excluding administered prices. Data source is Bulgarian National Bank. For trading partners, tradable sector prices are proxied by either monthly PPI or WPI depending on the data availability. Prices of nontradable goods are proxied by monthly CPI series. For EU-25 and Romania, the data source is Eurostat. For others, the IMF IFS database. The following countries were included as partners: EU-25, Romania, Turkey, Macedonia, Albania, Russia, the US, Canada and Brazil. These countries amount to about 75 percent of Bulgaria's exports and imports.
- nfa_t :Bulgarian National Bank.

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III. Assessing the Fiscal Stance during Absorption Booms[11]

Core Questions and Findings

- **What do conventional estimates of the structural fiscal balance for Bulgaria suggest regarding the authorities' fiscal stance over recent years?** The estimates by both Fund staff and the European Commission suggest that Bulgaria's fiscal stance turned progressively tighter since 2003.
- **Why are conventional estimates of the structural fiscal balance prone to overestimating the tightness of the fiscal stance during absorption booms?** During absorption booms, domestic demand (absorption) grows much faster than domestic production (GDP), resulting in temporary revenue windfalls. Because conventional estimates of the structural fiscal balance are only adjusted for the automatic effects of output gap changes on the budget, the automatic budgetary effects of absorption booms, particularly on indirect tax collections, are likely to be underestimated.
- **What do modified estimates of the structural fiscal balance suggest regarding Bulgaria's fiscal stance over recent years?** Taking into account the automatic effects of the absorption boom on tax collections suggests that Bulgaria's fiscal stance was broadly unchanged over recent years.
- **What are the implications of these findings for setting annual fiscal deficit targets during absorption booms?** During absorption booms, fiscal policy can easily slip into a procyclical mode as conventional gauges of the structural fiscal position may be interpreted as suggesting excessive fiscal austerity.
- **What are the implications of these findings for intra-year budget revisions?** The temptation to shift toward procyclical fiscal policies will be particularly pronounced during the budget year as the magnitude and persistence of absorption booms has generally surprised forecasters. Thus, intra-year budget revisions that cut taxes or raise spending are likely to prove procyclical as they will obstruct the operation of the automatic fiscal stabilizers.

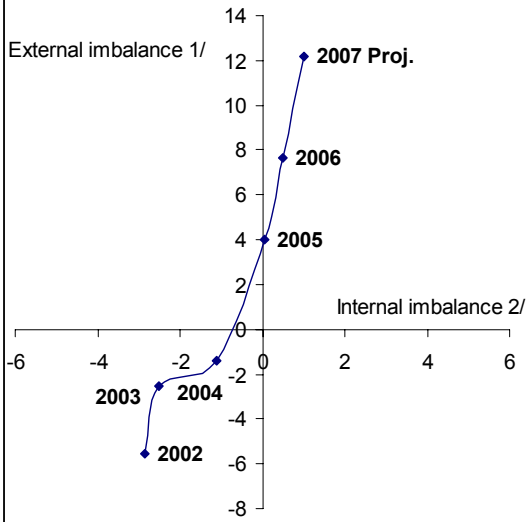
[11] Prepared by Albert Jaeger and Alexander Klemm.

A. Background

54. **Even under relatively settled macroeconomic circumstances, pinning down the underlying stance of fiscal policy can be a taxing exercise.** Measuring the fiscal stance requires to keep track of those temporary changes in the observed fiscal balance that reflect the automatic effects of macroeconomic disequilibria on budget revenues and expenditures. Blanchard (1990, p.12) suggested measuring the fiscal stance by adjusting the observed fiscal balance for the automatic budget effects of changes in unemployment, real interest rates, and inflation. By now, however, established practice is to adjust the observed fiscal balance for the automatic responses of revenues and expenditures to deviations of actual from potential output, i.e. the output gap. Thus, an estimate of the hypothetical fiscal balance that would obtain if the output gap is zero—the structural fiscal balance—is used to keep track of a country's fiscal stance (World Economic Outlook, October 1993). Not surprisingly, with measures of output gaps often uncertain and subject to later revisions, estimates of structural balances are routinely footnoted as being "subject to considerable margins of uncertainty."

55. **Gauging the fiscal stance in Bulgaria's converging-economy setting—characterized by booming absorption and a large external imbalance—raises additional challenges.** First, disentangling the transitory output cycle from trend is even more difficult than usual as output series in converging economies seem to be dominated by permanent shocks. Second, and more importantly, given Bulgaria's large external imbalance, which by definition implies a large excess of domestic spending (absorption) over production (GDP), the output gap may not be a good proxy for summarizing the automatic effects of changes in the economy on the budget. In particular, the output gap is unlikely to capture well the effects of a capital-account driven absorption boom on indirect tax collections.[12]

Figure III.1. Bulgaria: Internal and External Balance, 2002-07 (In percent of GDP)



Source: Fund staff estimates.
1/ Actual current-account deficit minus estimated equilibrium current-account deficit (see Box 2).
2/ Percent deviation of actual from potential GDP (output gap).

[12] Boom-bust cycles in asset prices raise similar issues as the output gap may not capture well all the automatic effects of asset price swings on the fiscal position; see Jaeger and Schuknecht (2007) for cross-country evidence.

56. **This chapter suggests a modified approach to evaluating Bulgaria's fiscal stance.** The main idea is to calculate the automatic effects on indirect tax collections using estimates of the size of the external imbalance (i.e. the unsustainable excess/shortfall of actual spending over potential output), while calculating the automatic effects on other revenue collections using estimates of the output gap (i.e. the unsustainable excess/shortfall of actual output over potential output). The next section discusses structural fiscal balance estimates based on the conventional approach that takes only into account the economy's output gap, and discusses problems with this approach in an economy undergoing an absorption boom. Section C outlines the modified approach. A final section D briefly discusses the challenge of setting the fiscal stance in an absorption boom setting.

B. Measuring Bulgaria's Fiscal Stance: The Conventional Approach

57. **The conventional approach to estimating the structural balance requires two ingredients: an estimate of the output gap and an estimate of the automatic responsiveness of the budget to the output gap.** To isolate the fiscal stance, the automatic effects of the output gap (YGAP) on the fiscal balance (B) can be stripped out using the relationship:[13]

$$(1) \qquad (BS/YP)_t = (B/Y)_t - \alpha YGAP_t,$$

where B and BS are the levels of the actual and structural fiscal balances, respectively. The fiscal response coefficient α measures the automatic effect of a 1 percentage point change in the output gap on the actual fiscal balance as a percent of GDP.[14] The output gap is defined as:

$$(2) \qquad YGAP_t = (Y_t - YP_t)/YP_t,$$

i.e. the deviation between actual output (Y) and potential output (YP).

58. **For Bulgaria, conventional estimates of the structural fiscal balance tend to follow closely developments in the actual fiscal balance, indicating a sharp tightening of the fiscal stance over recent years.** Reflecting Bulgaria's relatively steady GDP growth rate over recent years, measured output gaps tend to be relatively small (Table III.1). Staff gauges the output gap in 2006 to amount to about ½ percent of potential GDP, while the European

[13] Lagged effects of the output gap on the budget seem not to be of empirical significance in Bulgaria's case.

[14] The fiscal response coefficient is usually assumed to be constant over time, but it could also be modeled as a time-varying parameter that changes over the cycle; see Jaeger (1990) for an empirical illustration.

Commission's (EC) estimates the output gap at about 1 percent. Staff estimates the automatic response of the budget to the output gap at about 0.40, close to the level of the revenue-GDP ratio, and the EC uses a similar estimate.[15] As a consequence, estimates of the structural balance tend to closely follow the improvements in the actual balance over recent years, implying that Bulgaria's fiscal stance underwent a progressive and sharp discretionary tightening over the last few years.

Table III.1. Bulgaria: Measures of Conventional Structural Fiscal Balance, 2003–07
(In percent of GDP)

	2003	2004	2005	2006	2007 Proj.
Revenue	37.7	38.4	39.8	39.0	40.5
Expenditure	37.9	36.7	37.5	35.5	37.0
Fiscal balance	-0.2	1.7	2.3	3.5	3.5
Conventional structural fiscal balance, Fund staff 1/	0.8	2.2	2.3	3.3	3.1
Memorandum items:					
Conventional structural fiscal balance, EC 2/	0.1	1.8	1.4	2.7	2.7
Output gap, Fund staff	-2.5	-1.1	0.1	0.5	1.0
Output gap, EC 2/	-0.1	1.0	1.2	1.1	0.7
Output gap, Bulgarian authorities 3/	-1.7	-1.0	-0.3	0.7	0.6

Sources: Ministry of Finance; EC; and Fund staff estimates and projections.

1/ Actual fiscal balance adjusted for the automatic effects of internal imbalance (output gap), assuming a fiscal response coefficient of 0.40.

2/ European Commission's Autumn Economic Forecasts, *European Economy* No. 7, 2007.

3/ Agency for Economic Analysis and Forecasting, Ministry of Finance.

59. **However, the conclusion of progressive discretionary fiscal tightening during 2003–06 based on conventional structural fiscal balances is difficult to reconcile with recent fiscal policy actions.** First, on average, overall general government spending broadly followed nominal potential GDP growth over recent years, indicating little overall discretionary tightening on the spending side (Figure III.1). Second, on the revenue side, direct taxes (as a percent of GDP) have fallen sharply, reflecting a series of discretionary tax cuts (mainly social contributions and corporate taxes). And third, also on the revenue side, indirect taxes (as percent of GDP) have increased sharply, particularly VAT collections, notwithstanding a relatively stable overall structure of indirect taxation. While there have been recent increases of excises to align tax rates with EU levels, discretionary revenue gains from these changes have in part been offset by losses from customs collections owing to EU accession. Finally, the significant decline in nontax revenues (as a percent of GDP) during 2003–06 has been largely offset by increased EU grants during the same time period.

[15] These response estimates assume that only the revenue side of the budget exhibits automatic responsiveness to cyclical swings in the economy.

Thus, a first pass at discretionary fiscal actions over recent years would, if anything, suggest that the fiscal stance was loosened, rather than tightened.

60. **Moreover, regression evidence suggests that rising tax collections in recent years were closely tied to the emergence of a large external imbalance.** In principle, rising tax collections in recent years could also reflect improvements in tax administration. While it is difficult to definitively reject this alternative hypothesis, regression evidence strongly suggests that the recent rise in the tax-GDP ratio is closely related to the absorption boom, i.e. the sharp acceleration of the economy's domestic demand growth relative to GDP growth (Table III.2). In particular, the ratio of indirect taxes to GDP responds strongly and statistically significantly to the percentage deviation of absorption from GDP. The estimates suggest that a 1 percentage increase in absorption relative to GDP raises the revenue-GDP ratio by about 0.3 percentage points, and this revenue-boosting effect is solely due to increases in indirect taxes.

Table III.2. Bulgaria: Regression of Revenues on Internal and External Imbalances 1/

	(1)	(2)	(3)	(4)	(5)
Dependent variable	Total rev. / GDP	Tax rev. / GDP	Direct taxes / GDP	Indirect taxes / GDP	Nontax rev. / GDP
Absorption gap	0.31	0.19	-0.11	0.29	0.12
	(0.08) **	(0.04) **	(0.03) **	(0.03) **	(0.06)
Output gap	-0.01	0.08	0.09	-0.01	-0.09
	(0.11)	(0.06)	(0.03) *	(0.04)	(0.07)
Constant	34.86	28.06	16.40	11.66	6.79
	(0.82) **	(0.39) **	(0.28) **	(0.27) **	(0.52) **
Observations	12	12	12	12	12
R-squared	0.64	0.65	0.68	0.84	0.40

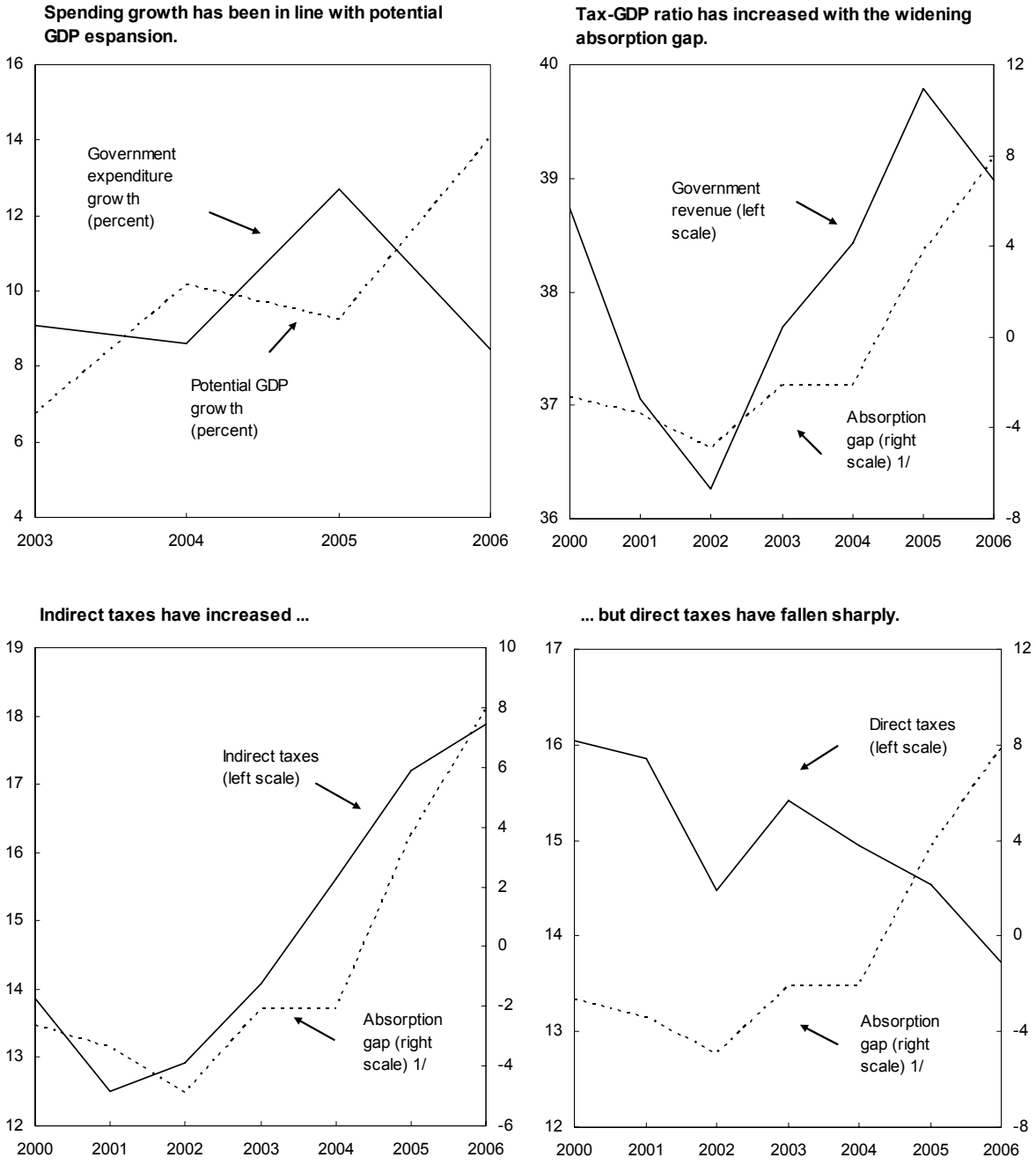
Robust standard errors in parentheses.

* significant at 5%; ** significant at 1%.

1/ OLS regression of different revenue items (in columns 1 to 5) on absorption gap, output gap, and a constant.

61. **However, these regression estimates should not be interpreted as reflecting the automatic response of tax collections to internal and external imbalances.** In these regressions, automatic budget responses get mixed up with the effects of discretionary tax policy changes, and thus regression coefficients on measures of the output or absorption gaps will not only represent the effects of macroeconomic changes on revenues, but also the effects of tax policy. In Bulgaria's specific case, the direct tax system underwent repeated discretionary changes, but the indirect tax system less so. Thus, the results in column (4) in Table III.2 may be less likely to be biased but should still be treated as illustrative.

Figure III.2. Bulgaria: Fiscal Policy Developments, 2000-06
(In percent of GDP; unless otherwise indicated)



Sources: Ministry of Finance; and Fund staff estimates and projections.
1/ Percentage deviation between actual absorption and the level of absorption consistent with external balance.

C. Measuring Bulgaria's Fiscal Stance: A Modified Approach

62. **An alternative approach to estimating the fiscal stance would be to strip out from the actual balance the automatic effects of both internal and external imbalances.** The discussion in the previous section suggests that it might be worthwhile to consider in an absorption boom setting a more general version of the structural balance equation (1):

(3) $(BS/YP)_t = (B/Y)_t - \beta YGAP_t - \gamma AGAP_t$,

where the absorption gap AGAP denotes an estimate of the economy's external imbalance, defined as:

(4) $AGAP_t = [(A_t - AP_t)/YP_t]$,

where A is the actual level of absorption, AP denotes an estimate of the sustainable level of absorption, and the gap estimate is normalized by potential GDP. The parameters β and γ in equation (3) measure the automatic responses of the budget with respect to the output and absorption gaps, respectively.

63. **Implementing this modified approach raises two difficult empirical questions**. First, in addition to an output gap estimate, equation (3) requires an estimate of the absorption gap (4), i.e. the unsustainable excess or shortfall of absorption. And second, what are reasonable estimates for the response coefficients β and γ?

64. **Absorption gap estimates can be derived from staff's analysis of external stability risks.** In particular, the central estimate of the equilibrium current account deficit can be used to approximate the absorption gap by using the national accounts identity:

(5) $Y_t - A_t = TB_t = CA_t - IT_t$

where TB is the trade balance for goods and non-factor services, CA is the current account balance, and IT denotes the balance of incomes and transfers from abroad. Given an estimate of the equilibrium level of the current account (CAP) from the external stability risk analysis in Chapter II, equation (5) can be used to derive a rough estimate of the sustainable level of absorption:

(6) $AP_t = YP_t - CAP_t + IT_t$.

65. **Calibration of the two automatic response coefficients in equation (3) is difficult because output and absorption gaps tend to be correlated.** A simple approach would be to set β in equation (3) equal to α in equation (1), and use an estimated response coefficient from the above regressions to calibrate γ, for example by setting $\gamma = 0.30$:

(4)' $(BS/YP)_t = (B/Y)_t - 0.40YGAP_t - 0.30AGAP_t$.

However, this simple approach ignores that internal and external disequilibria tend to be positively correlated, introducing likely "double counting" in the calculation of automatic effects, and thus overstating the size of automatic fiscal stabilizers.[16] As an alternative to this simple approach, the modified structural balance estimates reported below assume that all revenues except indirect taxes respond automatically only to the output gap, with a response coefficient of 0.20 (since about half of revenue consist of direct and non-tax revenue), while indirect taxes (also about half of revenue) respond automatically only to the absorption gap:

(4)'' $(BS/YP)_t = (B/Y)_t - 0.20YGAP_t - 0.20AGAP_t$.

In the extreme case of output and absorption gaps moving one-to-one (YGAP = AGAP), this approach would be equivalent to the conventional approach (with $\alpha = 0.40$). In another extreme case where the two gaps are uncorrelated and only the output gap moves, equation (4)'' would underestimate the actual size of the automatic budgetary effects, but this error would be small as long as the output gap remains moderate.

66. **Estimates based on this modified approach indicate that Bulgaria's fiscal stance has been broadly neutral over recent years.** While the modified approach also indicates a sharp tightening of the fiscal stance in 2004, it suggests some relaxation of the fiscal stance during 2005-06 as the absorption boom gathered pace (Table III.3). At this point, these results should be viewed as being of a preliminary nature, and application of the modified approach to other absorption boom countries might provide a helpful robustness check for the modified approach.

Table III.3. Bulgaria: Measure of Modified Structural Fiscal Balance, 2003–07
(In percent of GDP)

	2003	2004	2005	2006	2007 Proj.
Fiscal balance	-0.2	1.7	2.3	3.5	3.5
Modified structural fiscal balance 1/	0.7	2.4	1.5	1.8	0.7
Memorandum items:					
Conventional structural fiscal balance	0.8	2.2	2.3	3.3	3.1
Absorption gap 2/	-2.1	-2.1	3.7	7.9	12.8

Sources: Ministry of Finance; and Fund staff estimates and projections.

1/ Actual fiscal balance adjusted for the automatic effects of both internal imbalance (output gap) and external imbalance (absorption gap) on fiscal position, assuming both fiscal response coefficients equal to 0.2.

2/ Percentage deviation between actual absorption and the level of absorption consistent with external balance.

[16] In an illustrative example, Bayoumi and Faruqee (1998, p. 33) assume that a 1 percentage point increase in the output gap increases the current account deficit (as a percent of GDP) by 0.4 percentage points.

D. Implications for Setting the Fiscal Stance During Absorption Booms

67. **These illustrative calculations suggest that Bulgaria's large and growing fiscal surpluses are unlikely to reflect excessive fiscal austerity.** Many stakeholders in Bulgaria have come to the conclusion that a fiscal policy of running increasingly large fiscal surpluses is unwarranted, particularly given growing dissatisfaction with the quality of public services. Thus, there are growing public pressures to relax the fiscal stance. However, the estimates of the modified structural fiscal balance in Table III.3 suggest that the growing fiscal surpluses are largely the automatic consequence of Bulgaria's unsustainable absorption boom, and would recede automatically as the economy regains its external balance over the medium term.

68. **These illustrative calculations also suggest that absorption booms provide a particularly challenging setting for monitoring the underlying fiscal stance.** Because the output gap may not capture well all automatic budgetary effects, conventional estimates of the structural fiscal balance could indicate a tightening of the fiscal stance, while in fact the fiscal stance may have become looser. Thus, an absorption boom setting could be prone to foster procyclical fiscal policies as the measured "structural fiscal position" based on the output gap may indicate a progressively tighter fiscal stance.

Table III.4. Selected Countries: Cumulative Forecast Errors, 2004-2006[1/]

(Cumulative growth, in percent)

	Real GDP growth			Real domestic demand growth			Current account-GDP ratio		
	Proj.	Actual	Error	Proj.	Actual	Error	Proj.	Actual	Error
Bulgaria	16.2	18.9	2.7	18.7	32.8	14.1	-21.2	-34.3	-13.1
Estonia	16.5	29.6	13.1	16.1	32.2	16.1	-28.6	-37.8	-9.2
Latvia	18.8	31.2	12.4	19.8	38.8	18.9	-24.4	-46.6	-22.2
Lithuania	19.7	22.4	2.7	19.6	29.3	9.7	-20.7	-25.7	-5.0
Romania	15.0	20.3	5.3	15.6	34.8	19.2	-17.9	-27.3	-9.4
Average	17.2	24.5	7.2	18.0	33.6	15.6	-22.6	-34.3	-11.8

Sources: WEO; and Fund staff calculations.

1/ Projections in the September WEO for the next year.

69. **Absorption boom settings can also be challenging for fiscal policy makers because of likely large forecast errors in projecting external imbalances.** Cumulative one-year-ahead WEO forecast errors for real GDP growth, real domestic demand growth, and the current account deficit (percent of GDP) during 2004–-06 for selected EU absorption boom economies suggest that both the pace and persistence of the widening of external imbalances came largely as a surprise (Table III.4). At the same time, and excepting Estonia and Latvia, cumulative real GDP forecasts errors were relatively moderate compared with cumulative forecast errors for real absorption growth. In such a setting, the standard advice to allow automatic fiscal stabilizers to operate—both ex ante and during the budget year—

would seem particularly germane as attempting to achieve nominal balance targets through budget revisions will result in a procyclical fiscal policy stance.

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IV. BULGARIA'S CREDIT BOOM: AFTER CREDIT LIMITS

Core Questions and Findings

- **Were the administrative limits on bank credit that were in place during 2005–06 effective in slowing credit growth?** No. While the limits slowed bank credit growth, overall credit continued to boom as nonbank institutions and cross-border lending compensated for slower bank credit growth.
- **Why did the credit limits not work as intended?** In the context of a market-based financial sector coupled with an open capital account, administrative credit limits seem to quickly loose their constraining effects.
- **Did the credit limits help diversify risk by stimulating nonbank financial intermediation?** Perhaps to some extent. But most of the growth in nonbank financial intermediation was done by bank-affiliated companies. Still, nonbank financial products have grown faster than might have been the case in absence of the credit limits.
- **How does Bulgaria's nonbank sector compare with regional peers?** Bulgaria consistently ranks in the middle range among its peers in terms of private debt and equity market development, as well as institutional investor size.
- **Is there scope for diversifying financial risk through developing private debt markets?** The market has nonnegligible growth potential in the medium term. As in other countries in the region, nonfinancial corporates are not expected to be major issuer of corporate bonds in the medium term.
- **Is there scope for diversifying financial risk through developing local equity markets?** The local equity market has been buoyant and has the potential to contribute to risk transfer and risk exposure diversification in the medium term, but some critical problems need to be addressed first to improve the asset pricing mechanism and to diversify the investor base.

70. **Bulgaria's commercial banks dominate the financial sector.** Bank assets are more than ten times larger than total assets of the next largest financial subsector, but some of the other subsectors are growing much faster than commercial banks, albeit from a small base (Table IV.1).

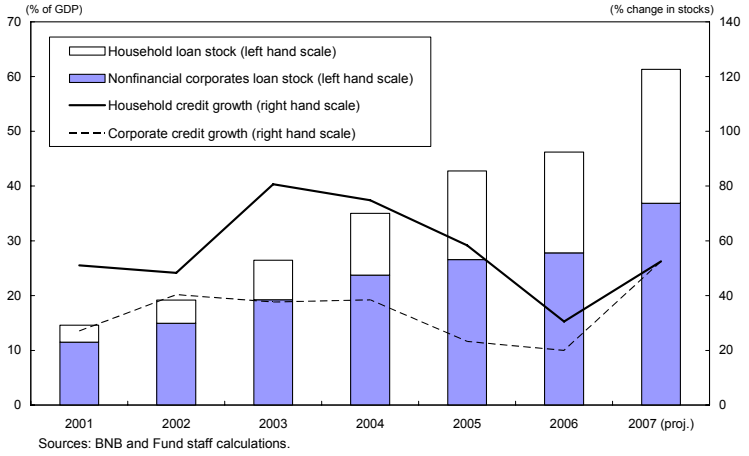
Table IV.1 Bulgaria: Financial Sector Assets, June 2007.

	Assets		Asset Growth Dec 2006- June 2007	No of companies
	(BGN million)	(perc. GDP)	(Percent)	
Commercial banks	48,952	86.8	12.2	32
Insurance companies	1,928	3.4	8.0	49
Pension funds	1,860	3.3	22.2	27
Investment companies	563	1.0	80.7	51
Leasing companies	3,819	6.8	29.3	70
Fin. corporations engaged in lending	1,538	2.7	17.8	68

Source: BNB and Fund staff estimates.

71. **The banking sector remains well capitalized and profitable following years of rapid credit growth**. Initially credit to the corporate sector dominated total bank lending. But following years of rapid growth in bank lending to the household sector, bank lending to the corporate sector represents just 60 percent of total bank lending to the nonfinancial sector (Figure IV.1). Banks are profitable and the return on equity has reached around 25 percent, up from 15 percent in 2002.

Figure IV.1. Bulgaria: Bank Loans to the Private Sector, 2001–07



Sources: BNB and Fund staff calculations.

During 2002–04, capital inflows financed about a third of total bank lending and the risk-weighted capital adequacy ratio declined from 25 to 17 percent. Loan quality remained good and nonperforming loans are a stable 2.2 percent of total loans, partially as a result of the rapid credit growth.

72. **This chapter asks two questions.** What was the impact of administrative limits on bank lending that were in effect during March 2005-December 2006? What is the scope for diversifying financial risk through capital market development?

73. **Section A argues that the administrative limits on bank lending stimulated nonbank financial intermediation and constrained total credit flows for only a brief**

period. Various forms of nonbank financial intermediation picked up the slack. Further banks could observe the credit limits by selling their loan portfolio. Following the lapsing of the credit limits in 2007, some of these loan portfolio sales were reversed.

74. **Section B notes that there is scope for further expanding the role of the domestic private debt and equity market in financial intermediation.** Bulgaria already ranks ahead of several more advanced countries in the region in private debt market size, and equity market capitalization growth has been very strong in recent years, although market liquidity remains thin. Banks' access to the capital market has been rising from a small base. Nonfinancial enterprises are not expected to be major bond issuers in the local market, although the recent rise in IPOs at the BSE indicates that they are increasingly turning to the stock market for capital. While stock market development is welcome in principle, the pricing of stocks raises questions about the market's role in allocating scarce capital, and capital market regulation and supervision needs further strengthening to support sustainable equity market development.

A. *Post Mortem* on Bulgaria's Credit Limits[17]

75. **The BNB put limits on bank lending during April 2005-December 2006**. The authorities (and Fund staff) were concerned about: (a) the macroeconomic impact of booming bank lending, in particular on the current account balance; and (b) a possible deterioration in bank loan quality as a result of excessive risk taking by Bulgaria's banks. In response to the boom, the BNB had already tried several routes: (a) enhance the information flows so that banks and customers were aware of risks; (b) strengthen prudential supervision; and (c) adopt liquidity measures, which withdrew a total of leva 0.5 billion from the banking system (1.3 percent of 2004 GDP).[18] However, these measures were largely ineffective because banks were able to freely borrow abroad, due to the open capital account. Individual banks were keen to maintain or increase their market share, and were reluctant to take the lead in curbing credit to the private sector.

76. **In early-2005, the BNB attempted to reduce the aggregate credit expansion to the non-government sector in a further effort to contain risks to the stability of the banking sector.** The aim was to limit credit growth to 30 percent, from 49 percent in 2004. Banks were allowed to expand credit by 6 percent per quarter, taking end-March 2005 as the base period. Bank credit in excess of this limit would be subject to a marginal reserve requirement by the BNB, comprising 200 percent of the excess. The measure was expected to only be temporarily effective and was originally initiated for one year until March 2006. In

[17] Prepared by Johannes Herderschee.

[18] The latter was done through a transferal of public deposits from commercial banks to the BNB and by adjusting the reserve requirement that applied to commercial bank liabilities.

November 2005, the BNB announced that the measures would remain in effect until the end of 2006, when Bulgaria was expected to join the EU. When some banks continued to lend beyond the credit limits while paying the penalty deposits, the BNB temporarily raised the marginal penalty deposits for banks that exceeded the limits by a wide margin to 400 percent.

Financial Sector Responses to the Measures

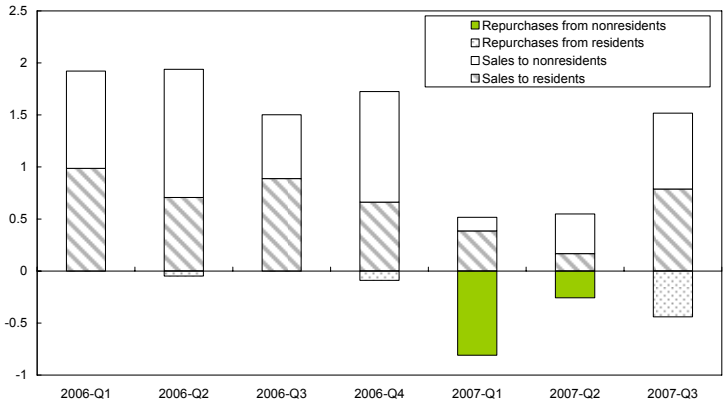
77. **Overall, the initial impact of the measures in constraining overall credit growth evaporated quickly**. Bulgaria continued to maintain an open capital account and a liberal economy where banks and others were free to borrow abroad and to set up nonbank financial intermediaries that were not subject to the credit limits. The BNB had anticipated some of these developments and set up a data collection system that allowed continued monitoring of some of the macroeconomic developments. Notably, the BNB monitored developments in the leasing sector and also required banks to provide data to the credit registry on loans that they had sold. These data, as well as information collected by the NSI, provide the basis for an overview of the response to the credit measures. In spite of the measures, overall credit extension by the financial sector continued to boom. Once the limits lapsed at the end of 2006, bank-credit growth accelerated again, reaching 56 percent in September 2007. Financial soundness indicators continue to suggest that the banking sector remains well capitalized and profitable.

78. **The responses of banks varied.** Some banks observed the limits, while others circumvented the measures. A small number of banks continued to lend and pay the penalty rates. At the time, there were 28 registered Bulgarian banks and 6 branches of foreign banks. After the first quarter during which the measures were in effect, four Bulgarian banks and one branch of a foreign bank exceeded the limits (Petkova and Manolov, 2007). Some of these banks continued to exceed the credit limits over time. In response, in March 2006, the BNB increased the penalty deposits for banks whose lending exceeded the credit limits by 1–2 percent to 300 percent and to 400 percent for banks that exceeded the limits by more than percent. Even at these rates, the penalty rates were largely compensated by the banks' lending margins; bank loans could be funded at rates of around 3½ percent and consumer loan rates were around 12 percent. Some banks continued to exceed the limits and by the end 2006 when the limits lapsed, total penalty deposits amounted to leva 1 billion, almost 2½ percent of GDP and 10 percent of reserve money.

79. **Banks circumvented the measures by selling part of their loan portfolio to either foreign banks or Bulgarian nonbank financial institutions** (Figure IV.2). Initially during 2005, banks sold loans to foreign banks. However in November 2005, the BNB announced that the credit limits were extended until the end of 2006. However, at the time banks had already established institutional arrangements to sell loans to Bulgarian nonbank financial institutions. A variety of loans were sold, including corporate loans, mortgage-backed mortgages and consumer loans. Initially, the BNB required that there be no affiliation

between any bank that sells loans and the Bulgarian institutions that buys the securities. However, over time this requirement was not strictly enforced because some banks arranged or guaranteed the financing of the nonbank financial companies to which the loans were sold. After the measures lapsed at the end of 2006, some sales of loan portfolios were reversed. Hence the sale of some of their loan portfolio may not have diversified risks from the banks to nonbank financial institutions. In September, the BNB raised the reserve requirement to 12 percent, up from 8 percent thus increasing the cost of financial intermediation through the banking system. During this month sales of bank loan portfolios accelerated once again, possibly in response to the higher reserve requirement.

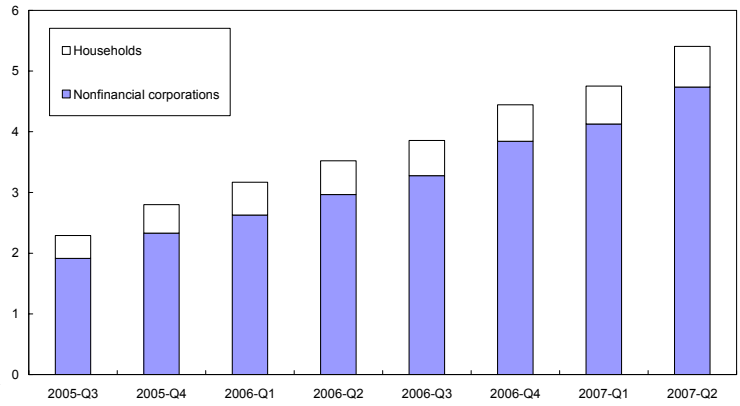
Figure IV.2. Bulgaria: Sales and Repurchases of Loans from the Banking System to Residents and Nonresidents, 2006–07 (percent of annual GDP)



Sources: BNB and Fund staff calculations.

80. **In response to limits on bank lending, growth in the nonbank financial sector accelerated**. Markets for asset-backed securities developed from a very small base as banks sold their portfolios. As anticipated by the BNB, leasing also became much more important, and the share of leasing assets in GDP doubled during the time that the measures were in effect (Figure IV.3). Some leasing companies were owned by banks, but others were not and—on balance—their growth diversified risks from the banks to the nonbank financial institutions. Since the measures lapsed, growth of leasing activities slowed to 65 percent down from 82 percent during 2006.

Figure IV.3. Bulgaria: Leasing Company Assets, 2005–07 (percent of GDP).

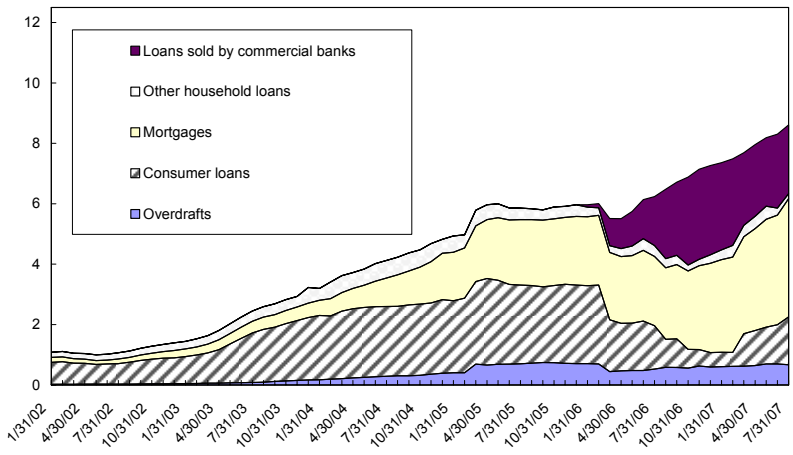


Sources: BNB and Fund staff calculations.

81. **There is anecdotal evidence that the measures limited bank credit to the corporate sector during the immediate period after they were announced.** While bank credit to the corporate sector contracted, there is evidence that the corporate sector found alternative sources of finance. Intercompany credit increased dramatically, in particular for foreign-owned companies. The institutional structures for intercompany lending were well established since such credit is a regular form of finance. However, the use of this form of corporate finance expanded dramatically in the wake of the limits on bank lending.[19] The data do not allow to analyze developments in intercompany lending during 2006, but the incentives for such loans may have diminished.

82. **The bank loan flow to households was initially stable but increased again in 2006 when banks were able to securitize these loans.** In 2005, the loan flow to households was some 6 percent of GDP, largely consisting of consumer loans and residential mortgages (Figure IV.4). The loan flow began to grow rapidly during 2006 when banks were able to securitize household loans. After the measures were lifted, commercial bank consumer credit and mortgages began to grow rapidly again, and securitization became less important.

Figure IV.4 Bulgaria: Bank Credit Flow to Households, 2002-07
(percent of GDP)



Source: BNB and Fund staff calculations.

83. **During the time that the measures were in place, banks became familiar with selling loans and this experience remains at their disposal**. It remains to be seen whether the institutional arrangements that developed in response to the banking limits will be sufficient when banks are unconstrained but need to carry the costs of prudential regulations. The cost of these regulations is substantial as Bulgaria has the highest minimum capital adequacy ratio among all EU new member states. Further, in response to the growth in bank credit, the BNB raised reserve requirements from 8 to 12 percent in September 2007. On balance, the BNB's tight prudential policies strengthen the banking system but also encourage the development of the nonbank financial sector.

[19] The analysis of intercompany lending is based on sector balance sheet data.

B. Diversifying Financial Risk Through Capital Market Development[20]

84. **The benefits of diversified financial sectors are well-known** The efficiency and stability of financial intermediation is greatly enhanced by well-functioning and liquid local capital markets. Markets provide the best (though sometimes imperfect) mechanism for asset pricing. Risk transfer and pricing mechanisms in the securities market allow financial institutions to manage risk more efficiently, and thus contribute to financial stability. Deeper local markets enable the diversification of risk exposure more evenly in the financial sector, thus alleviate the concentration of risk in the banking system. They allow institutional investors and households to diversify their portfolios. They are also crucial for the absorption of pension savings in reformed pension systems.

85. **In small countries like Bulgaria, capital market development faces particular challenges arising from banking sector dominance and finding local comparative advantages in an environment of increasing capital market integration in Europe.** At this point, though growing in importance, the Bulgarian capital market and non-bank financial intermediaries remain underdeveloped compared to the banking sector, similar to most Central and Eastern European countries (CEE). Nevertheless, recent developments—including a boost by the BNB's credit limits imposed on the banking sector in 2005–06—and demand and supply incentives indicate that there is potential for the development of the private debt and equity markets in the medium term.[21] The sustainable development of these markets, however, requires addressing some key bottlenecks, especially in the investor base and the stock market.

The Bulgarian Capital Market in Regional Comparison

86. **The current stage of private debt and equity market development, as well as institutional investor size, consistently put Bulgaria in the middle range among CEE countries.** Financial development in emerging Europe has progressed considerably in the last decade, with overall banking sector domination and significant differences across countries in securities market development.[22] The size and composition of the institutional investor base has depended heavily on the timing of Pillar II and III pension reforms and the general development level of the country.

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[20] Prepared by Zsofia Arvai.

[21] The paper focuses on private capital market segments, the government securities market's growth potential is not covered as it mainly depends on public sector financing needs.

[22] For a detailed discussion on financial development in Emerging Europe see EUR Regional Economic Outlook (2007) and Iorgova and Ong (2007) "The Capital Markets of Emerging Europe: Institutions, Instruments and Investors", IMF WP forthcoming.

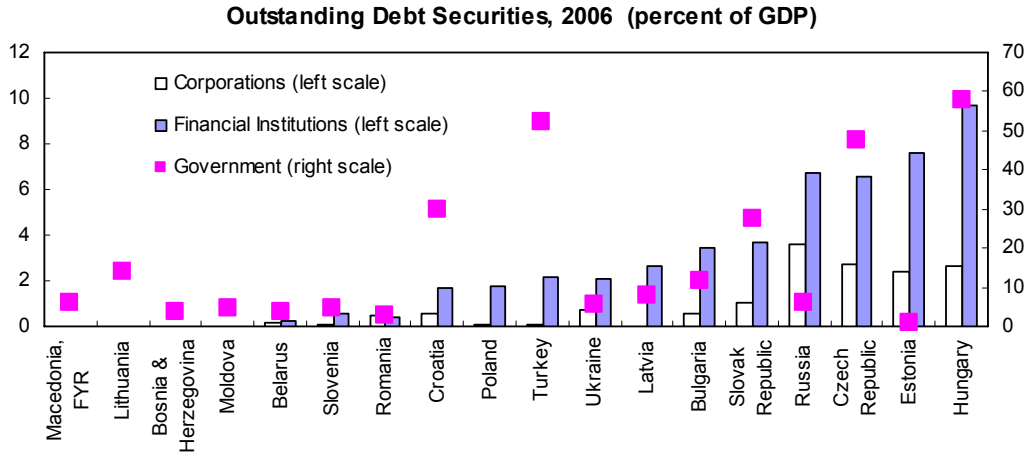
87. **Bulgaria's ranking in private debt market size is ahead of several more advanced countries in the region** (Figure IV.5). As in most CEE countries, corporate bonds have been predominantly issued by the financial sector.[23] Similarly to the Czech Republic and Hungary, mortgage covered bonds account for a large share of financial sector bonds in Bulgaria, making up about half of the outstanding stock at end-2006. In terms of mortgage covered bonds, Bulgaria had the fifth and fourth largest outstanding amount at end-2006 in absolute terms and relative to GDP, respectively. There are several reasons behind the relatively high ranking in private debt market size: (i) credit controls imposed by the BNB gave a big boost to corporate bond issuance in 2005 and 2006 by banks and the nonbank financial sector; (ii) transaction costs for bond issuance are low; (iii) the local bond market has been a convenient source of financing for banks with no access to cheap foreign parent funding; and (iv) demand has been increasing from domestic institutional investors, especially in the context of small government securities stock.

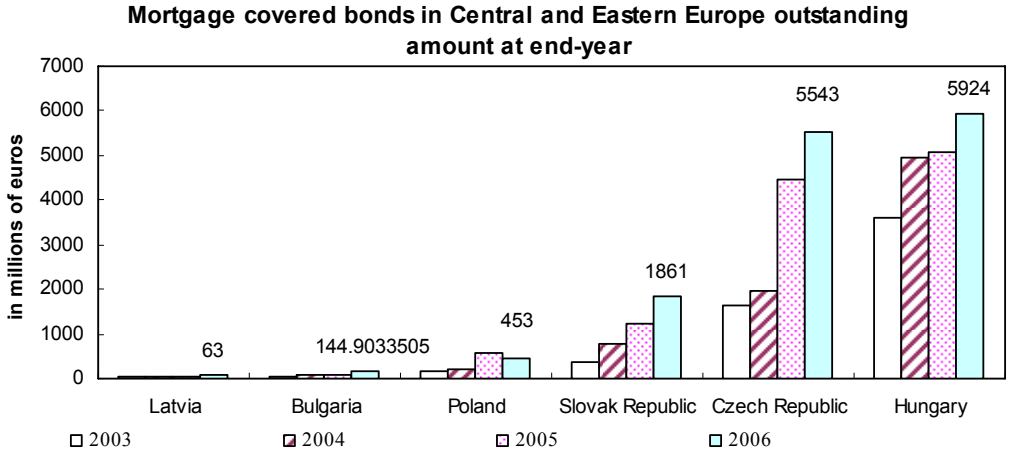
88. **The nonfinancial corporate sector has not relied extensively on the bond market for funding given the strong competition in the banking sector.** The largely foreign-owned and well-capitalized banking sectors of most CEE countries have been in a good position to provide the necessary funding to the corporate sector at competitive interest rates. Russia has been a notable exception where significant domestic ownership in the banking sector and the large size of some corporations relative to banks made bond market funding attractive for the corporate sector.

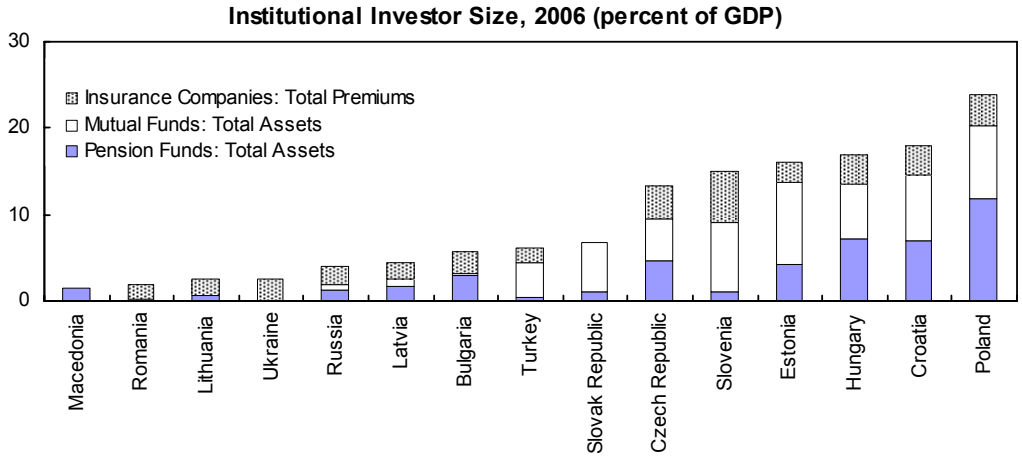
89. **The composition of the institutional investor base is rather diverse in CEE, with pension fund dominance in Bulgaria**. Countries that adopted pillar II and III pension systems relatively early—such as Bulgaria in 2001—have gradually accumulated sizeable pension fund assets. Given their investment guidelines, pension funds' demand for domestic securities has been growing along with the continuous rise in pension fund savings and it has important implications for local capital market development. Mutual fund assets have been negligible in Bulgaria compared to most new EU members, though the sustained rise in BSE stock prices has given a significant boost to assets under management since 2006. Finally, the size of the Bulgarian insurance sector has been comparable to other new EU members, but due to the overwhelming dominance of the non-life segment, the insurance sector is not a major player in the capital market yet.

[23] Throughout the paper, the term corporate bonds refers to unsecured bonds by the financial and nonfinancial sectors, as well as mortgage-covered bonds by the financial sector. Asset-backed securities using an SPV structure will be noted separately.

Figure IV.5. Bulgaria: Fixed income securities and the institutional investor base in regional comparison







Sources: Bank for International Settlements, Standard&Poor's; Bloomberg, National authorities, OECD, European Covered Bond Fact Book, Investment Company Institute, Swiss Re, WEO.

90. **Equity market capitalization growth has been among the strongest compared to other CEEs in recent years** (Figure IV.6). This increase has been mainly driven by rapidly rising stock prices, but IPOs have also been picking up. Market capitalization of the Bulgarian Stock Exchange (BSE) at 40 percent of GDP at end-June 2007 was in the middle range in the region, commensurate with larger new EU member states.[24] BSE capitalization increased fourfold between end-2004 and mid-2007, but market liquidity remains very low with a turnover ratio of 20 percent in 2006. Low turnover can be largely explained by the large number of companies with low free-float in the unofficial market segment that were listed in the early stage of transition, and the low share and trading activity of foreign investors who are usually the most active traders in more advanced countries in the region. The latter is due to the BSE's "frontier market" status, thus its miniscule weight in emerging market portfolios.

Scope for Diversifying Risk Through Private Debt Market Development

91. **The Bulgarian primary market for corporate bonds and asset-backed securities has grown considerably since the first issue in 2002.** The financial sector has been the most active issuer of bonds, accounting for three quarters of the outstanding amount in October 2007 (Table IV.2). In addition to corporate bonds, the assets of real estate investment trusts and securities issued by special purpose vehicles and backed by receivables stood at 420 million euros and 49 million euros, respectively.[25] Credit controls imposed by the BNB gave a burst to NBFI corporate bond issuance in 2005 and 2006. These bonds were a mix of asset-backed securities (ABS, mostly backed by receivables), collateralized and uncollateralized bonds. With the lapse of credit controls, issuance subsided in 2007. Secondary market activity has been low.

92. **There is scope for risk transfer and risk exposure diversification through further expanding the role of the private debt market, mainly based on incentives for financial sector bond issuance**. As in most CEEs, corporate bonds (including mortgage bonds) by the financial sector are likely to be the main driver of the private bond market also in the future. Given the established legal base and the lower transaction costs, mortgage covered bonds are likely to be the preferred structure to true-sale mortgage-backed securities. Bonds and asset-backed securities are likely to continue to be a funding source for nonbank financial institutions in Bulgaria, mainly for leasing companies with no parent banks. Finally, no strong pick-up in issuing activity is expected from nonfinancial corporates.

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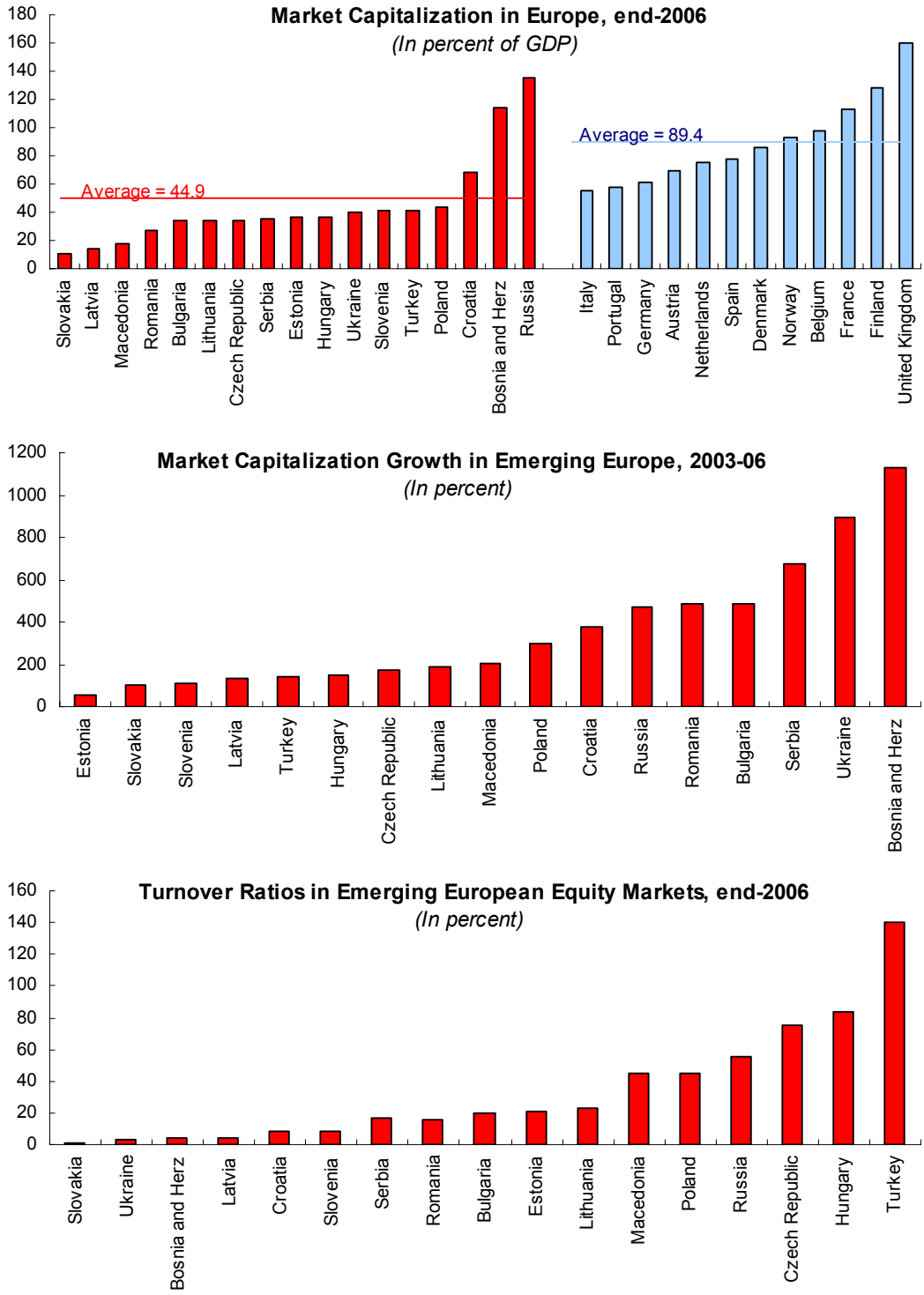
[24] Market growth in Bosnia and Herzegovina and Croatia were boosted by recent requirements to list all joint stock companies above a certain size on the stock exchange, thus their capitalization growth is not directly comparable with others.

[25] Asset-backed securities in Bulgaria are unstructured and are listed in the stock exchange.

Figure IV.6. Bulgaria: The Equity Market in Regional Comparison



Sources: IMF staff calculations based on data from EMDB, Bloomberg and WEO.

Table IV.2. Bulgaria: Corporate Bond Issues (including mortgage bonds) [1/]

	2002	2003	2004	2005	2006	2007
Annual corporate bond issuance						
total number	2	6	10	20	30	18
total value in EUR million	52.8	88.2	73.7	361.1	620.8	178.8
Financial sector issues						
number of issues	2	3	3	10	10	9
value in EUR million	52.8	43.3	96.0	302.3	517.7	117.3
Nonfinancial Sector issues						
number of issues		3	8	10	20	9
value in EUR million		45	64	59	103	61
Outstanding corporate bonds at-end year						
total number	2	8	15	32	59	74
total value in EUR million	52.8	141.0	212.7	518.0	1,117.3	1,281.7
Financial sector issues						
number of issues	2	5	8	15	23	30
value in EUR million	52.8	96.1	105.7	352.2	849.2	961.9
Nonfinancial Sector issues						
number of issues		3	7	17	36	44
value in EUR million		44.9	107.0	165.8	268.1	319.8

Source: Bulgarian Financial Supervision Commission.

1/ Public placements of issues.

93. **Bond issues can reduce the growing maturity mismatch in the banking sector.** The maturity mismatch in the banking system is increasing with the lengthening of the average maturity of assets, especially mortgage loans. At the same time, the average maturity of liabilities remains very short. The increasing mismatch gives banks an incentive to extend the average maturity of liabilities through mortgage bond or unsecured bond issuance. Recently, maturities for unsecured and mortgage bonds have been between two and five years, with interest rates shifting towards floating rates tied to Euribor or the local Sofibor. As in other countries in the region, bond maturities are expected to gradually lengthen further in the future.

94. **Recourse to the domestic bond market can reduce reliance on foreign funding.** Recently, credit expansion has been mainly financed by deposit growth as capital inflows have been overwhelmingly FDI. To a lesser extent, euro deposits by credit institutions, syndicated lending, and Eurobond issuance by domestically-owned banks have also been used as funding sources. Going forward, the share of domestic deposits in total funding is likely to decline. Growing reliance on foreign financing would increase banks' FX liquidity risk and give additional incentives to banks to increase their funding from the local capital market. Recognizing these incentives, in addition to domestic banks, several foreign-owned banks have issued unsecured and mortgage bonds with a wide range of sizes in the local market in recent years. Given most of these banks' have high ratings and transaction costs are low even for small issues, the local market can help them optimize their funding structure.

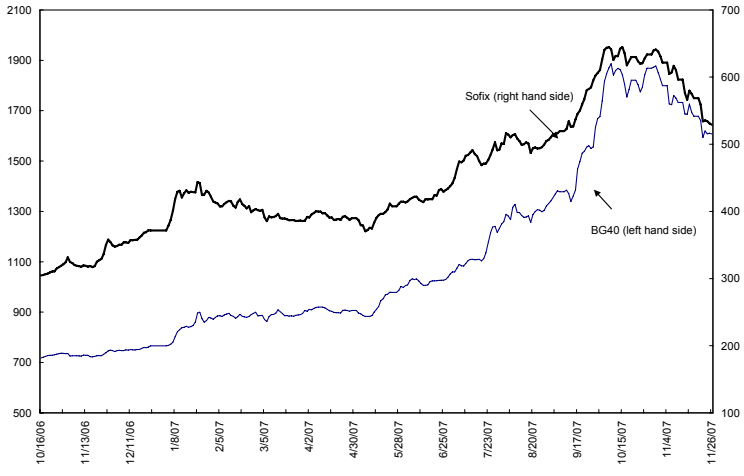
95. **For nonbank financial institutions, bond financing is likely to remain an important funding source, while nonfinancial corporates continue to have weak incentives to issue domestic bonds.** Though a large part of the past two years' issuance by NBFIs was artificially generated by the credit controls, leasing companies and consumer finance companies without a parent bank continue to raise funds through corporate bonds and ABS relatively cheaply. However, a potential problem for future growth of this segment is that these companies are unsupervised and their issues are unrated, and a default in this sector can set back the sector and ABS issues substantially.[26] Nonfinancial corporates are not expected to be major bond issuers as their funding needs can be fulfilled by the banking sector at competitive interest rates.

96. **Demand for domestic private debt instruments have been growing along with the expansion of the institutional investor base.** Bulk of the demand comes from pension funds, but the life insurance sector is also expected to grow in the medium-term as the penetration rate is currently very low in Bulgaria, even compared to other new EU members. Mutual funds providing a large variety of risk-return alternatives have been also expanding rapidly in the last two years. These investors have a high demand for domestic private debt securities, since during the convergence process, returns in Bulgaria are expected to be higher than in mature markets. Nevertheless, the share of foreign assets has been growing in institutional investors' portfolio, and this trend is expected to continue.

Scope for Diversifying Risk Through Equity Market Development

97. **The BSE has showed spectacular performance in the last three years, but liquidity remains very low.** Market capitalization increased sharply in both the official and unofficial segments in recent years (Table IV.3). The major SOFIX and BG-40 indices grew by 82 and 220 percent year-on-year in October 2007, but the market has trended downwards since end-October (Figure IV.7). At end-June 2007 the share of the 20 largest company in market capitalization was 71.4 percent,

Figure IV.7 Bulgaria: Main Stock Price Indices at the Bulgarian Stock Exchange



Sources: Bloomberg; and Bulgaria stock exchange.

[26] So far there have been no corporate bond or ABS defaults. Issues generally have no credit ratings in Bulgaria. Contrary to usual practice, credit rating is not required even for eligibility for pension fund investment.

and the average free float of equities traded was 25.15 percent. IPO activity at the BSE has picked up since 2005 and several of these listings involved relatively large manufacturing companies and financial institutions.[27] The BSE has intensified efforts to attract promising Bulgarian companies to the stock market through outreach and education activities, improvements in financial disclosure and corporate governance guidelines, and upgrades in trade transparency, infrastructure and supervision.[28] The FSC's efforts to raise financial disclosure standards have also contributed to the increased supply and demand for equity investments.

Table IV.3. Bulgaria: Equity Market Capitalization (In millions of BGN)

	2003 Dec	2004 Dec	2005 Dec	2006 Dec	2007 June
Official market A	28.0	53.4	122.1	319.3	485.1
Official market B	283.5	423.3	688.5	3239.1	4629.9
Official market C	674.5	898.1	1337.7	2084.2	abolished
Unofficial market	1736.0	2658.3	6285.7	9671.5	15662.3
Market capitalization/GDP	7.9%	10.5%	20.1%	29.3%	39.8%

Source: Bulgarian stock exchange.

98. **The local equity market has the potential to serve large and medium-sized domestic companies and alleviate reliance on the banking sector for funding.** The medium and long-term developmental potential of the BSE is influenced by the following: (i) there are only a few large domestic companies left to be listed, and some major companies are expected to be delisted; (ii) companies currently listed at the BSE are too small to migrate to major European exchanges because of the home bias factor and high transaction costs; (iii) there is significant potential for the listing of medium-sized companies and raising new capital by listed companies as already manifested by increasing number of IPOs.

99. **The supply of IPOs by medium-sized companies is expected to increase.** Growing IPO activity is likely for the following supply reasons: (i) companies with short track record are eager to use the BSE as bank lending to these firms is insufficient and expensive; (ii) high growth and profit expectations by companies during the convergence process increase their need for capital; (iii) the BSE efforts to encourage IPOs and upgrade infrastructure; (iv) underwriting capacities exist.

[27] There were 3, 4 and 6 IPOs in 2005, 2006 and 2007, respectively, and several more IPOs are planned by the end of 2007.

[28] A decision was made to acquire the Xetra trading platform that would give access to a multitude of foreign stock exchanges for Bulgarian investors and to the BSE for foreign investors. Deliberations on the privatization of the BSE and potential alliances have been postponed.

100. **Strong demand from investors for domestic equities underpins the potential for market growth.** Demand for Bulgarian stocks is supported by (i) large and growing amount of assets managed by pension funds compared to the size of the local stock market, (ii) improved services and product offering by the rapidly developing mutual funds segment; (iii) good performance predicted for Bulgarian companies in the convergence process; and importantly (iv) improving financial disclosure and corporate governance standards.

101. **Nevertheless, there are indications that the pricing mechanism in the stock market is not functioning properly and investor base diversification is inadequate.** Stock prices may have been growing too fast recently**.** Valuations have reached high levels fuelled by strong demand from domestic institutional investors, a nascent investment culture by end-investors, and insufficient differentiation of market segments and companies. The investor base is heavily dominated by domestic pension funds and collective investment schemes, both characterized by herding behavior due largely to the benchmarking regulation for pension funds and to very strong focus on recent return and low risk awareness by end-investors.[29] Given the BSE's relatively small size and frontier market status currently, foreign investors with strong risk management standards and analytical capacities account for a much smaller share of trading than in more advanced markets in the CEE region. Further growth of market capitalization and liquidity would raise the attractiveness of the market for foreign investors, thus improve risk exposure diversification and price discovery.

102. **A potential large correction may be damaging for the short and medium-term development of the market.** as the reputational risks for the BSE and equity investments can be high, and the short-term adverse consequences for pension funds' performance, foreign investor flows and the financial industry's reputation can be substantial.

103. **To reduce the potential for the build-up of boom-bust cycles by improving the asset pricing mechanism, and thus support the sustainable development of the market, capital market regulation and supervision needs further strengthening.** The mission recommended that the authorities consider (i) changes in the minimum return guarantee regulation for pension funds to alleviate incentives for herding behavior; (ii) further increase efforts to enforce regulations and educate the public about stock market risks; and (iv) consider a change in the structure and listing requirements for BSE to have a clearer differentiation of segments.

[29] Herding behavior induced by the minimum return guarantee regulation for pension funds is a problem in most systems that implemented some version of the Chilean pension reform model.

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