FOR AGENDA

SM/07/241

July 10, 2007

To: Members of the Executive Board

From: The Secretary

Subject: **Euro Area Policies—Selected Issues**

This paper provides background information to the paper on euro area policies (SM/07/240, 7/10/07), which will be brought to the agenda for discussion on **a date to be announced**. At the time of circulation of this paper to the Board, the Secretary's Department has received a communication from the authorities of the Islamic Republic of Afghanistan indicating that they consent to the Fund's publication of this paper.

Questions may be referred to Ms. Tamirisa, RES (ext. 34371) and Mr. Haas, MCM (ext. 34885).

Unless the Documents Section (ext. 36760) is otherwise notified, the document will be transmitted, in accordance with the procedures approved by the Executive Board and with the appropriate deletions, to the European Central Bank forthwith; the WTO Secretariat on Wednesday, July 18, 2007; and to the Caribbean Development Bank, the European Bank for Reconstruction and Development, the European Commission, and the Organisation for Economic Cooperation and Development, following its consideration by the Executive Board.

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INTERNATIONAL MONETARY FUND

EURO AREA POLICIES

Selected Issues

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Approved by the European Department

July 10, 2007

EXECUTIVE SUMMARY

This year's Selected Issues paper for the euro area builds on two main themes of the staff report for the 2007 Article IV consultation: the integration of Europe's financial markets and the challenges facing the new EU member states (NMS) with respect to euro adoption.

Chapter I discusses the Markets in Financial Instruments Directive (MiFID), which represents a major step toward the creation of a single securities market in Europe. MiFID is expected to become applicable in November 2007. The Directive injects new competition among financial intermediaries at all steps of a security's transaction cycle, from the provision of investment advice to the practical execution and settlement of the transaction, and thus holds the promise to accelerate Europe's apparently sluggish financial sector productivity growth. A major feature of MiFID is to open the execution and settlement of transactions to a variety of operators, through competing trading venues. The Directive has the potential to significantly improve both the organization of the investment industry and the functioning of capital markets. Also, MiFID could be a catalyst for crossborder integration of retail banking and financial services exchange. Increased cooperation among securities regulators, notably thorough convergence of supervisory practices, is essential for a homogeneous implementation of MiFID. This, in turn, is crucial to ensure that more competition leads to larger and deeper rather than more numerous but less liquid capital markets.

The benefits of euro adoption for both the NMS and old member states (OMS) are likely to be considerable. Chapter II examines the macroeconomic policy challenges the NMS face as they prepare for joining monetary union. These challenges mainly derive from their lower per capita incomes than those in the OMS as well as EU accession and related factors. As a result, the NMS are experiencing higher output and productivity growth than the OMS, rapid financial deepening, and significant appreciation of real effective exchange rates relative to those of their OMS partner countries. The crucial issue is the extent to which today's high inflation or nominal exchange rate appreciation rates reflect longer- rather than shorter-run forces. If the former are at play, staff estimates suggest that appreciable short-run output losses might be needed for the purpose of meeting the Maastricht criteria. To the extent that high inflation or appreciation rates are largely driven by transient equilibrium forces or irrational exuberance, the amounts may be more manageable because real appreciation rates would slow over time or require policy responses regardless of the Maastricht criteria. In any case, additional fiscal adjustment would be needed in the NMS that are still far away from their "prudent" medium-term fiscal targets. Such targets are significantly below the Maastricht fiscal deficit limit, and would strengthen economic performance in the medium to long term.

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I. The Market in Financial Instruments Directive and the Transformation of Europe's Capital Markets[1]

A. Introduction

1. **The creation of a truly integrated, competitive financial market in Europe is key for EMU to deliver its full potential**. The transformation of the financial market architecture in Europe has been accelerated in the mid 1990s, with the preparation for the advent of monetary union. The momentum has built further since then, fueled by financial globalization, culminating with the 1999 Financial Services Action Plan (EU FSAP).[2] The EU FSAP is a broad legislative and regulatory program aiming at removing barriers to cross-border flows of financial services and capital within the EU.

2. **The Markets in Financial Instruments Directive (MiFID) is a central piece of the EU FSAP and a major step toward the creation of a single securities market in Europe**. MiFID was adopted in April 2004 by the European Council and the European Parliament, and is expected to become applicable in November 2007. MiFID is the most far-reaching piece of European legislation related to securities markets since the Investment Service Directive (ISD), which it replaces. The ISD was a first, partial attempt to create a single market for financial services across the EU. Although MiFID pursues the same ultimate objectives than the ISD, MiFID sets up a more comprehensive and homogeneous regulatory framework, including an updated and expanded passport system.

3. **MiFID relies on four complementary levers to foster increased integration of EU capital markets: increased competition, improved transparency, strengthened investor protection, and deeper cooperation and convergence of practices among supervisors**. The new framework injects new competition among financial intermediaries at all steps of a security's transaction cycle, from the provision of investment advice to the practical execution and settlement of the transaction. A major feature of MiFID is to open the execution (and settlement) of transactions to a variety of operators, through competing trading venues. To balance the risks of opaqueness and liquidity dissipation stemming from a potentially more fragmented trading infrastructure, MiFID relies on (i) increased transparency and information requirements for the benefit of the market as a whole; and (ii) more systematic investor protection, in particular through best execution requirements.

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[1] Prepared by François Haas (MCM).

[2] The impact of these transformations have been especially visible on stock markets, as illustrated for example by the creation of cross-border structures such as Euronext and OMX and, more recently, the merger of these structures with American exchanges, NYSE and Nasdaq, respectively.

4. **MiFID has the potential to significantly improve both the organization of the investment industry and the functioning of capital markets in Europe**. While cross-border retail banking and financial services exchange has remained rather low until now, MiFID could prove to be a catalyst for crossborder integration in these areas. Increased cooperation among securities regulators, notably thorough convergence of supervisory practices, is essential for a homogeneous implementation of MiFID. This, in turn, is key to ensure that more contestability and competition lead to larger and deeper markets rather than more but less liquid ones.

5. **The aim of this paper is not to offer a comprehensive description of MiFID, but to assess the directive and the dynamics it creates from a broader perspective, focusing on those aspects that carry relatively higher transformation potential**. Although the full impact of MiFID on the architecture of the European financial market and the financial services industry will only become clearer over time, the paper suggests some outcomes and risks. It is organized as follows. Section I.B presents the main features of MiFID. Section I.C assesses the potential impact of MiFID on the architecture and on the functioning of European capital markets. Section I.D highlights the challenges associated with the implementation of MiFID and suggests improvements in the existing regulatory framework. Section I.E concludes.

B. Main Features of MiFID

6. **The objective of MiFID is to foster the emergence of a single, more competitive, cross-border securities market across the EU**. The Directive promotes, and often prescribes through detailed rules, European-wide legislative harmonization for key components of the provision of financial services along three central principles: increased competition, including cross-border, in a level playing field; increased market efficiency; and better investor protection. This combination is expected to encourage market intermediaries to offer and investors to demand more financial services as well as to increase participation in (and therefore liquidity of) financial markets. More specifically, MiFID opens competition between trading venues and broadens and simplifies the use of the European passport for the provision of financial services across borders. Simultaneously, increased market transparency and best execution obligations aim at preserving market efficiency while guaranteeing investor protection.

7. **By suppressing the possibility for national authorities to impose an order concentration rule, MiFID aims at fostering competition for order execution between a variety of trading venue**s. Some form of an order concentration rule has traditionally been in place in various European countries (e.g., France, Spain, Italy, Germany, the Netherlands, Denmark, Finland). This requires that transactions be executed on a regulated market. While MiFID reaffirms the specific role played by regulated markets in listing securities and financial instruments, it authorizes two additional trading venues where orders can be executed: Multilateral Trading Facilities (MTFs) and "Systematic Internalizers" (SIs). MTFs

(or Alternative Trading Systems (ATSs)) are electronic platforms that facilitate the execution of trades by matching clients' orders.[3] "SIs are firms that execute client orders by dealing on their own account outside a regulated market or a MTF on an organized, systematic and frequent basis.[4]

8. **With a view to increasing cross-border provision of financial services and fostering competition, the Directive broadens the reach of the European passport**. The passport principle was first introduced by the ISD. Under the passport framework, a firm licensed to provide financial services in its home country has the right to provide these same services throughout EU countries, without the need for an additional license. MiFID applies the passport to a broader range of financial instruments and significantly extends the list of financial services that can be "passported" across European countries.[5] For instance, operating a Multilateral Trading Facility is explicitly recognized as a passportable activity: from its home country, a MTF can therefore freely provide remote access facilities on the territory of any "host" country. The provision of investment advice is similarly recognized as a stand alone "passportable" activity and so are a broader range of asset management activities. Moreover, with the aim of facilitating the use of the passport and the cross-border provision of services, MiFID established the principle of the exclusive application of home country regulation and rules out the possibility for host country regulators to impose additional requirements on foreign financial services providers. Branches of investment firms, however, are required to comply with host country regulation, in specific areas (e.g., conduct of business, best execution, order execution, etc.) for activities conducted in the host country.[6]

9. **To encourage investors and others to take advantage of the more level playing field, MiFID reinforces and harmonizes investor protection rules, in particular to the benefit of retail investors**. Best execution is a key concept introduced by MiFID. The notion of executing trades in the "best interest of customers" was part of the ISD, but its

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[3] Various forms of ATSs exist, order-driven systems as well as quote-driven, or market-maker, systems, to bulletin boards and crossing systems. In Europe, MTSs have developed primarily in bond markets (e.g., Bondware, MTS and EuroMTS), and to a lesser extent in equity markets (e.g., Instinet, Tradelink). While most are focusing on wholesale market participants, some are accessible to retail investors.

[4] Article 4(1)(7), Directive 2004/39. To be considered systematic internalization, such activity must be carried out according to non-discretionary rules and procedures, have a material commercial role for the firm, and must be available to clients on a regular or continuous basis.

[5] See Annex I.1 for a list of passportable financial services and activities, and financial instruments covered by MiFID.

[6] For activities conducted from a branch located in a host country in another Member State, home country regulation applies. Home/host supervisory arrangements for branches, and in particular the organization of transaction reporting remain among the most contentious interpretative issues.

implementation primarily focused on a narrower notion of best trading price. In contrast, the obligation of best execution refers to a broader range of quantitative (price and fees) and qualitative (speed of execution, likelihood of execution and settlement) factors and requires market intermediaries to seek the best overall execution conditions, considering the characteristics (size, nature) of the order received.[7] MiFID requires investment firms to establish and implement on a consistent basis a verifiable written order execution policy, to which clients have to give consent prior to start business, detailing how orders will be executed and the factors affecting the choice of the trading venues.[8]

10. **Increased market transparency aims at guaranteeing that competition between trading venues does not lead to fragmented market liquidity and contributes to better investor protection**. Pre-trade transparency requirements (i.e., disclosure of current bid and offer prices, depth of trading interests at current prices, best bid and offer prices posted by market makers) apply to share transactions conducted on regulated markets, MTSs, or through SIs. They are particularly important to allow investors and other market participants to have a complete view of market conditions and access trading venues where liquidity is superior. Combined with best execution obligations, pre-trade transparency is expected to ensure that increased competition between trading platforms does not result in liquidity fragmentation. However, pre-trade transparency requirements are less stringent for SIs than for regulated markets and MTSs: for SIs, the requirements apply only to shares that are also admitted for trading on a regulated market, for which a liquid market exists, and only for transactions up to a pre-defined standard market size. Post-trade disclosure obligations direct all market intermediaries to publish the details (i.e., price, volume, time) of share transactions they have undertaken.[9]

11. **Although the objective of MiFID is also to promote a homogeneous "rule book" for the provision of financial services throughout the EU, it does not impose an indiscriminate set of rules to all transactions**. Compared with the ISD, MiFID covers a much broader set of financial instruments, and in particular derivative instruments, including "exotic" structures (see Annex I.1). The requirements of the Directive vary with the

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[7] Note that clearing and settlement costs are explicitly mentioned among execution costs that need to be considered. Mirroring this provision, the Directive stipulates that Member States cannot prevent investment firms, MTFs and regulated markets from using clearing and settlement systems located in other Member Sates.

[8] In addition to best execution requirements, investor protection is organized through strengthened and harmonized client classification rules, marketing communication rules, suitability and appropriateness ("Know Your Customer") principles and reporting requirements.

[9] Although MiFID requires that transaction information be disclosed rapidly ("as far as possible in real time) after the trade is completed, exceptions can be granted by national authorities for large trades and block trades. However, rather than being left at the discretion of national authorities, the definition of what constitutes a large trade and the length of disclosure deferral is harmonized, and based on the average daily turnover in each share.

instruments traded, the platform on which they are traded, and the quality of the clients, resulting in a complex web of rules and multiple requirements imposed to market intermediaries. For example, best execution obligations benefit retail and "professional" clients, but do not apply to so-called "eligible counterparties."[10] The principle of best execution and transaction reporting to the authorities, however, apply to all market intermediaries (irrespective of the trading venue used) and all financial instruments covered by MiFID.[11] In contrast, pre-trade transparency requirements and post-trade disclosure to markets apply only to equity transactions, although Member States have the option to extent and adapt this transparency regime to financial instruments other than equities. Similarly, structured financial products, such as Collateralized Debt/Loan Obligations (CDOs/CLOs) are likely to be excluded from MiFID provisions altogether, provided they are "customized" to the needs of a particular client. Rules also differ depending on the platform where transactions are executed.[12]

C. Potential Impact on European Capital Markets

12. **The new environment created by MiFID could trigger drastic changes in the architecture of capital markets and the organization of financial intermediation in Europe**. Such changes could result from both the increased competition that MiFID unleashes and the technological challenges that the directive represents. Both can be expected to affect all market intermediaries and financial services providers, to varying degrees. Broader passporting possibilities and the opening of trading venues to new actors are likely to foster competition for market shares in a large array of financial services, from trade execution to investment advice to asset management. Simultaneously, MiFID is a major technological challenge for financial service providers. They will have to accommodate stringent new trade transparency and trade reporting requirements. More generally, the more level the playing field, the more technology (i.e., the ability to offer a large range of services and innovate in a cost-effective way) will operate as a discriminating factor.

13. **MiFID could result in increased polarization of the financial services industry in Europe**. MiFID is both a business opportunity and a source of additional costs for financial intermediaries. The emergence of SIs is among the most novel and visible feature of MiFID. SIs can be viewed as in-house exchanges for shares they elect to undertake business in. For

[10] Client categorization determines the obligations of financial service providers under MiFID. Most provisions apply to retail and professional clients, but not to eligible counterparties.

[11] Note that the obligation of best execution also applies to portfolio managers, a situation likely to increase competition between in-house trading desks and external service providers.

[12] Reflecting the riskier nature of their activity, Systematic Internalizers are subject to pre-trade transparency obligations only for equities listed on a regulated market, considered liquid (in the sense of the Directive), and for which the SI has chosen to make a market.

market intermediaries, internalizing market activity (and liquidity) is, in theory, an appealing alternative to routing orders to external trading platforms. In practice, however, the costs of setting up the appropriate infrastructure represent a barrier to entry that only firms with sufficient volume of activity and appropriate technical resources will be able to cross. Similar size and cost constraints are likely to prevent small to medium-sized banks and investment service providers to take full advantage of the broadening passporting possibilities offered by MiFID, whereas they may face increased competition in their domestic markets. In the same vein, MiFID could threaten the integrated business model that remains prevalent in Europe, as cost consideration and best execution requirements may increase the pressure to outsource activities and rely on third-party providers, in particular in the distribution of investment products and asset management. A possible outcome of MiFID could therefore be to widen the gap between the largest and the smallest market intermediaries. There might well be fewer intermediaries overall but a larger group that competes fiercely across borders; or, to put it differently, more concentration but also more contestability, which is what ultimately boosts efficiency.

14. **Stock exchanges are already pressured by emerging competition from MTSs and SIs to capture liquidity**. Trading fees and market data gathering and dissemination are significant sources of revenues for most stock exchanges.[13] With the disappearance of the concentration rule and the end of regulated markets' monopoly on data provision, stock exchanges find themselves in a situation similar to that of the telecommunications operators on the eve of the liberalization in the 1990s. Competitive pressure is already building. In September 2006, a consortium of major investment banks announced the creation of their own market data service ("Project Boat"), to compete with similar services offered by stock markets.[14] Competition is also gathering momentum on the trading front. Its form remains in flux, as illustrated by "Project Turquoise," an MTF established to compete with existing stock exchanges. Project Turquoise has been launched by some of the largest investment banks, potentially themselves among the main SIs.[15]

15. **While developments remain difficult to predict, stock markets appear unevenly positioned to withstand the challenge of increased competition**. Stock markets in Europe differ significantly in size and revenue sources, two key factors that will shape their ability to adapt to the new post-MiFID environment. An increasingly competitive environment is

[13] MiFID requires that transaction details be made available to market participants "on a reasonable commercial basis, and in a manner which is accessible to other market participants."

[14] Citigroup, Credit Suisse, Deutsche Bank, Goldman Sachs, HSBC, Merrill Lynch, Morgan Stanley, UBS, and ABN-Amro, the initial promoters of Project Boat are estimated to account for about 50 percent of equity trading in Europe. They have recently been joined by Barclays Capital, BNP Paribas, Dresdner Kleinwort, JPMorgan, Chase, and Royal Bank of Scotland.

[15] Citigroup, Credit Suisse, Deutsche Bank, Goldman Sachs, Merrill Lynch, Morgan Stanley, and UBS.

likely to raise the critical size needed for exchanges to attract and retain liquidity and to generate the resources required to invest in value-adding IT-intensive activities (Table I.1).[16] From that perspective, MiFID is a strong additional incentive for market operators to consolidate or intensify cooperation. While this is especially true for small and medium-sized markets (e.g., OMX strategy in the Nordic-Baltic region, Vienna SE strategy relative to Eastern and Central European stock markets), it is also a valid approach for larger markets (e.g., NYSE-Euronext).

Table I.1. Capitalization of European Stock Markets at year-end 2006

	Capitalization (Euro millions)	Value of Share Trading (Euro millions)	Number of Listed Companies
London SE	2,877,605	5,742,376	3,256
Euronext	2,812,261	3,047,592	1,210
Deutsche Boerse	1,241,963	2,164,848	760
BME Spanish SE	1,003,299	1,529,437	
Swiss Exchange	919,414	1,059,131	348
OMX markets	851,460	1,010,469	791
Bolsa Italiana	778,501	1,258,470	311
Oslo Bors	212,284	307,818	229
Athens SE	157,941	85,333	290
Warsaw SE	148,775	55,702	265
Vienna SE	146,197	64,893	113
Irish SE	123,824	64,592	70
Luxembourg SE	60,303	209	260
Budapest SE	31,689	23,441	41
Ljubljana SE	11,513	1,554	100

Source: World Federation of Exchanges

16. **Differences in revenue structures reflect the diversity of business models among European stock markets and point to different strategies in the post-MiFID environment** (Table I.2). Trading fees and the sale of data services, the primary areas exposed to increased competition, are significant sources of revenues for most exchanges (with the exception of Deutsche Boerse), and are especially important for the London Stock Exchange (more than 75 percent of revenues) and to a lesser extent, for the Spanish market and the OMX group (57.2 percent and 53 percent, respectively). While the size of the London market may be seen as a cushion against the immediate impact of heightened fee competition (a situation that will also benefit OMX once its merger with Nasdaq is completed), the same may not be true for the Spanish stock market. Furthermore, the Spanish, German, and Italian markets derive a substantial part of their revenue from their clearing, settlement, and custody activities (they are often termed to follow the "silo model"),

[16] Order optimization, algorithm trading devices, transaction cost analysis, real-time data dissemination are example of technology intensive services that are given increased importance under MiFID.

which are under increased pressure to open up to competition. Bolsa Italiana is the only exchange to derive a material share of its revenue from fixed-income trading, through its participation in MTS, the main electronic bond trading platform.[17] As competition rises, it will be increasingly important for market intermediaries to be able to offer technology-intensive value adding functionalities. At the moment, IT is a significant source of revenue only for OMX and, to a much lesser extent, Euronext.[18]

Table I.2. Selected European Stock Markets- Sources of Revenues (end 2006, % of Total)

	London SE	Euronext	Deutsche Boerse	BME Spanish SE	OMX markets	Bolsa Italiana
Listing	18.1	5	16.9	9	9.5	10.5
Trading	46.9	28.2		48.1	21.8	29.5
(o/w Fixed Income)		(2.2)		(2.2)		(10.4)
Derivatives	2.7	35.5	32.2	8.4	17.9	7.5
Post-Market activities*		1.3	37.8	21.7		35.7
Data Services	30.3	10.2	8	9.1	13.3	14.4
IT		16.7	5.1	3.7	33.7	0.8
Others	2.1	3			3.8	1.7
Total	100	100	100	100	100	100

* Clearing, Settlement, Custody
Sources: Annual Reports, Author's Calculations

17. **There is a risk that more competition and transparency lead to a fragmentation of market liquidity**. This risk revolves around the extent to which the opening of execution and settlement of transactions, best execution requirements, and transparency rules effectively compensate the potentially centripetal effects of more fragmented market structures on market liquidity. Also, there is a risk that increased transparency requirements will negatively impact the provision of liquidity by market intermediaries. While this is limited in equity markets, it cannot be fully discarded, in particular for second tier equities. Similarly, less constraining pre-trade transparency requirements for Systematic Internalizers may result in the emergence of pockets of opaqueness. Moreover, the ability of the many mechanisms to efficiently aggregate transaction data, a key component of the price formation mechanism, has not been fully tested. Ultimately, the extent to which fragmentation of liquidity presents a risk significantly hinges on the implementation of MiFID at the national levels.

[17] MTS is jointly owned by Bolsa Italiana and Euronext. On June 21, 2007, the Italian exchange announced it would exercise its call option right to purchase shares held by Euronext in MTS. The same day, news that the London SE and Bolsa Italiana entered in merger talks led Euronext to consider a counter bid for the Italian exchange.

[18] OMX derives more than a third of its revenue from IT, and is a major supplier of financial market technology solutions, including to other stock exchanges.

D. Implementation Challenges

18. **The Market in Financial Instruments Directive is a far reaching and complex web of legislation, and its implementation requires sustained and concerted efforts by public authorities and market participant**s. The challenge of implementing MiFID will not stop when the Directive comes into force. Rather, November 2007 will be the starting point of a new challenge for European supervisors tasked with the responsibility to deliver consistent convergence of supervisory practices over time. This is essential to ensure that more competition comes with more liquid markets.

19. **In the broader sense, MiFID comprises a "Lamfalussy Level 1" Directive, focusing on framework principles, complemented by technical implementation measures (Level 2 Directive and Regulation)**.[19] Following the adoption of these texts, attention has progressively shifted to their transposition into national legislation and their implementation by national regulators. In the Lamfalussy framework, this crucial task is delegated to expert committees composed of national regulators. [20] The Committee of European Securities Regulators (CESR) is responsible for promoting a consistent and homogeneous day to day implementation of MiFID, by issuing guidelines and reviewing national regulatory practices.

20. **The first and most pressing challenge is for national authorities to meet the implementation deadline**. Member states were required to transpose MiFID in their national legislation by the end of January 2007, a deadline effectively fulfilled by only two Member states. To allow market participants to put in place the practical arrangements required to be compliant with the directive and Member States to effectively transpose the directives, the application date of MiFID has been postponed until November 1, 2007.[21] Further delay in the application of the MiFID due to failure to resolve interpretative issues would send the wrong political signal and damage the credibility of the Lamfalussy framework. It would also entail significant opportunity costs and create potentially damaging legal uncertainty for market participants.

21. **Market participants appear unevenly prepared for the November deadline**. Although assessing readiness is difficult, surveys have typically indicated that only a small

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[19] The Regulation covers issues where a set of stand-alone, directly applicable implementing measures has been considered both legally possible and technically necessary to guarantee that MiFID can function uniformly in all EU financial markets. In contrast, in the transposition of the (principle-based) implementing directive, Member states have retained a limited ability to adapt MiFID provisions to their national legal system.

[20] See Annex I.2 for a description of the Lamfalussy framework and the Comitology procedure.

[21] By January 2007, only the United Kingdom and Romania had transposed Level 1 and 2 Directives into their national legislation. 10 more Member States are expected to complete the transposition process by the end of June 2007, although only one has effectively notified full transposition to the Commission. At least two countries (Spain and Slovenia) do not expect to have done so by the November 2007 deadline.

number of market participants (i.e., the large banks and brokers, and the large stock exchanges) have a clear understanding of the full implications of MiFID for their own activities, and have taken the required actions. A majority of market players, however, often seems unconcerned, due to lack of knowledge or understanding, viewing the whole process largely as a compliance exercise.

22. **The nature and complexity of MiFID makes CESR's task in promoting the convergence of supervisory practices particularly challenging**. Although it is rather detailed and technical on many aspects, MiFID is primarily a set of high-level principles, requiring homogeneous interpretation for consistent implementation. The issues that CESR has to deal with easily become "politically charged" rather than purely technical in nature and are then referred back to the Commission for "arbitrage." For instance, while progress has been made regarding the interpretation of the notion of best execution and its implementation in fixed-income and derivative markets, the supervision and reporting of cross-border securities transactions and the organization of home/host supervisory arrangements for branches remain contentious issues. Ultimately, the logic of MiFID requires that securities supervisors move from a rule-based approach to a principle-based approach, and adapt their relations with market participants accordingly. This is illustrated for example by the implementation of best execution principle: the nature of the requirements (e.g., both an obligation of means and results) and the diversity of situations where the principle applies would make a rule-based approach impracticable. Few supervisors, however, have already adapted their approach to this. [22]

23. **The debate on the implementation of MiFID boils down to the appropriate supervisory arrangements for European securities markets**. The status and the decision-making process followed by CESR (and other Level 3 committees) compound the implementing difficulties caused by the complexity of MiFID. CESR operates within the boundaries of the "delegated mandate" from the Commission and the European Parliament but its members—national regulators/supervisors—are ultimately accountable to their national authorities, which can cause important tensions. The composition of the Committee and its consensual, non-binding approach has facilitated a common understanding of MiFID legislation among national regulators, thereby promoting a first level of regulatory convergence. The task would remain incomplete should these first steps not be followed by day to day convergence of supervisory practices and the development of a common supervisory culture and deeper cooperation among national supervisors.[23]

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[22] Furthermore, a number of countries either did not have up-to-speed securities regulators a few years ago, or lack the resources and the adequate expertise (or lack a truly active securities market).

[23] These concerns are not limited to the implementation of MiFID, but also to other components of the Financial Sector Action Plan. Similarly, they are not specific to CESR, but apply in similar terms to other Level 3 committees.

24. **The February 2006 report of the Financial Services Committee on financial supervision in the EU clearly emphasized that further steps were needed for European supervisory arrangements to keep up with market developments**. To this end, the report listed a series of possible improvements within and outside the Lamfalussy framework. Some of these suggestions have started to be implemented and have contributed to increased supervisory convergence.[24] However, more needs to be done, in particular to foster the use of delegation of tasks and responsibilities between members. Addressing existing or potential deficiencies in the supervisory organization is ultimately a political responsibility. Looking forward, significant benefits could be obtained by better establishing the legitimacy of CESR within the current institutional framework and strengthening its ability to act as an autonomous entity in targeted areas. This could entail the issuance of binding rules rather than guidelines and the use of majority votes, and possibly through the devolution of enforcement powers. Such changes would need to be matched in national supervisory arrangements. Introducing a European cooperation/convergence duty in the mandate of national supervisors and harmonizing supervisors' enforcement processes and sanctions would be significant steps toward a more efficient management of cross-border integration.

E. Conclusions

25. **MiFID is a milestone on the road toward an integrated, more innovative, and more efficient financial services industry in Europe and this needs to be reflected in supervisory arrangements**. Aside from major opportunities, MiFID also entails some risks. These risks relate to the evolution of market liquidity and keeping them at bay largely depends on the extent to which national markets successfully integrate. This, in turn, hinges on the quality of cooperation among regulators and the effectiveness of the convergence of supervisory practices. The nature and complexity of MiFID make this challenging. Progress achieved in recent years shows that the Lamfalussy framework has been instrumental in fostering cooperation and convergence among national regulators/supervisors. But the limitations of the framework's existing structure have also been exposed. CESR, as a Level 3 committee, will have an increasing role to play in the years to come to breathe life into MiFID and other FSAP regulations. This responsibility needs to be reflected in CESR's status and mandate as well as in the mandate of national supervisors. The review of the Lamfalussy framework planned for later in 2007 presents the opportunity to lay the foundation for adjusting Europe's existing supervisory architecture to the post-MiFID area.

[24] A review panel has been established within CESR, responsible for reviewing the implementation of EU legislation and CESR guidelines by national regulators. New supervisory tools include mediation mechanisms and updated data-sharing arrangements between CESR members.

ANNEX I.1

Financial Services, Activities and Financial Instruments Covered by MiFID

Investment Services and Activities

- Reception and transmission of orders, and Execution of orders on behalf of clients
- Own account dealing
- Portfolio Management
- Investment Advice
- Underwriting and Placing of financial instruments
- Operation of Multilateral Trading Facilities

Ancillary Services

- Safekeeping and administration of financial instruments on the account of clients
- Granting credits or loans to investors in order for these clients to carry out transactions in financial instruments
- Advice to undertakings on capital structure, industrial strategy, advice and services related to mergers and acquisitions
- Foreign Exchange services connected to the provision of investment services
- Investment research and financial analysis, or other forms of general recommendation relating to transactions in financial instruments
- Services related to underwriting

Financial Instruments

- Transferable securities and Money-market instruments
- Units in Collective Investment Undertakings (UCITS)
- Options, futures, swaps, forward rate agreements and any other derivative contracts relating to securities, currencies, interest rates or yields, or other derivative instruments, financial indices or financial measures which may be settled physically or in cash
- Options, futures, swaps, forward rate agreements and any other derivative contracts relating to commodities that must be settled in cash or may be settled in cash at the option of one of the parties.

ANNEX I.2

European Comitology and the Lamfalussy process

"Comitology" or "committee procedure" refers to the procedures under which the European Commission exercises the implementing powers conferred to it by European legislative bodies (i.e., the European Parliament and the Council).[25] So-called "Comitology committees" are created by the legislative branch to assist the Commission, and exist in nearly all important policy sectors. They are composed of Member State representatives. Draft implementing measures are submitted for opinion by the Commission to Comitology committees before adoption, and can be re-submitted to the Council for final decision in case of divergence between the Commission and the committee.

The Lamfalussy framework is the major vehicle for the design and the implementation of the FSAP regulatory work. The objective is to speed up the legislative process, deliver more uniform and better technical regulation, and facilitate supervisory convergence.[26] The framework comprises in four levels:

- Level 1: core principles of legislation, in the form of framework directives adopted by the European Council and the Parliament.

- Level 2: technical implementation of framework directives, by the Commission, on the basis of recommendations made by high level regulatory committees (Comitology committees), in consultation with Level 3 committees, users and experts from the industry.[27]

- Level 3: implementation of EU legislation at the national level, delegated to expert committees composed of national regulators.[28] Level 3 committees are responsible for supporting a consistent day-to-day implementation of EU legislation, by issuing guidelines and reviewing national regulatory practices.

- Level 4: compliance with and enforcement of legislation by Member States is mainly the responsibility of the European Commission.

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[25] Legal acts are regulations, directives or decisions which have a legal effect (direct or via transposition into national law by the Member States). These Legal acts are adopted by the legislative branch (The Council and the European Parliament), or the Commission, when it is entitled to adopt implementing measures.

[26] Initially limited to the securities markets, the Lamfalussy process was extended in November 2003 to the banking, insurance, and pension sectors as well as to the mutual funds industry.

[27] Level 2 Committees are the European Securities Committee (ESC), the European Banking Committee (EBC), and the European Insurance Committee (EIC).

[28] The Committee of European Securities Regulators (CSER), the Committee of European Insurance and Occupational Pensions Supervisors (CEIOPS), and the Committee of European Banking Supervisors (CEBS).

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II. THE EURO AND THE NEW MEMBER STATES[29]

A. Introduction

26. **The new member states of European Union are expected to gear their policies toward fulfilling preconditions for joining European Monetary Union and adopt the euro when they do**. The European Commission (EC) and the European Central Bank (ECB) are regularly monitoring progress in this area. The entry preconditions are embedded in the Maastricht Treaty and require countries to achieve a high degree of sustainable nominal convergence before they can participate in European Monetary Union (EMU).[30] The Maastricht criteria have for the past fifteen years served as the cornerstone of a gradual approach to expanding EMU, aiming to ensure its credibility and sustainability. The criteria helped create a shared culture of stability among the "old" members (OMS) and are now expected to play the same policy-anchoring role for the new member states (NMS).[31]

27. **This paper examines the macroeconomic policy challenges the NMS face as they prepare for joining monetary union**.[32] These challenges largely stem from the convergence of incomes and prices in the NMS to euro-area levels, capital inflows and financial deepening, and the resulting inflation and exchange rate developments. Indeed, foreign investors generally perceive the exchange rate risk in the NMS as low and are willing to on-lend capital to the domestic sectors in the NMS in euros and other European currencies.

28. **Against this backdrop, the paper explores the policies the NMS would need to pursue to enter the euro area smoothly and prepare for a good performance in monetary union**. Using a dynamic stochastic general equilibrium model, the paper

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[29] Prepared by Natalia Tamirisa (x34371) with Douglas Laxton (RES), Andy Jobst (MCM), Gavin Gray, Thomas Harjes, and Emil Stavrev (all EUR).

[30] The criteria are set out in Article 121 of the Treaty establishing the European Community and further detailed in a Protocol attached to the Treaty. The Convergence Reports prepared by the ECB and the EC describe how the criteria are applied in specific country cases.

[31] For the purposes of this paper, the OMS comprise Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, and Spain. Within this group, Greece, Ireland, Portugal, and Spain are considered catching-up economies. The NMS are defined as the central and eastern European (CEEC) countries in the 2004 wave of EU enlargement (the Czech Republic, Hungary, Poland, and the Slovak Republic), the Baltic countries in the same wave of enlargement (Estonia, Latvia, and Lithuania) and the two south-east European countries in the 2007 wave (Bulgaria and Romania). Slovenia, which adopted the euro in January 2007, and two island economies, Cyprus and Malta, which are soon to follow, are considered to be the former members of the NMS group. Per capita incomes in these three countries are higher than those in other NMS and/or economic growth is lower, and hence the analysis presented in this paper applies to them to a much lesser extent than to other NMS.

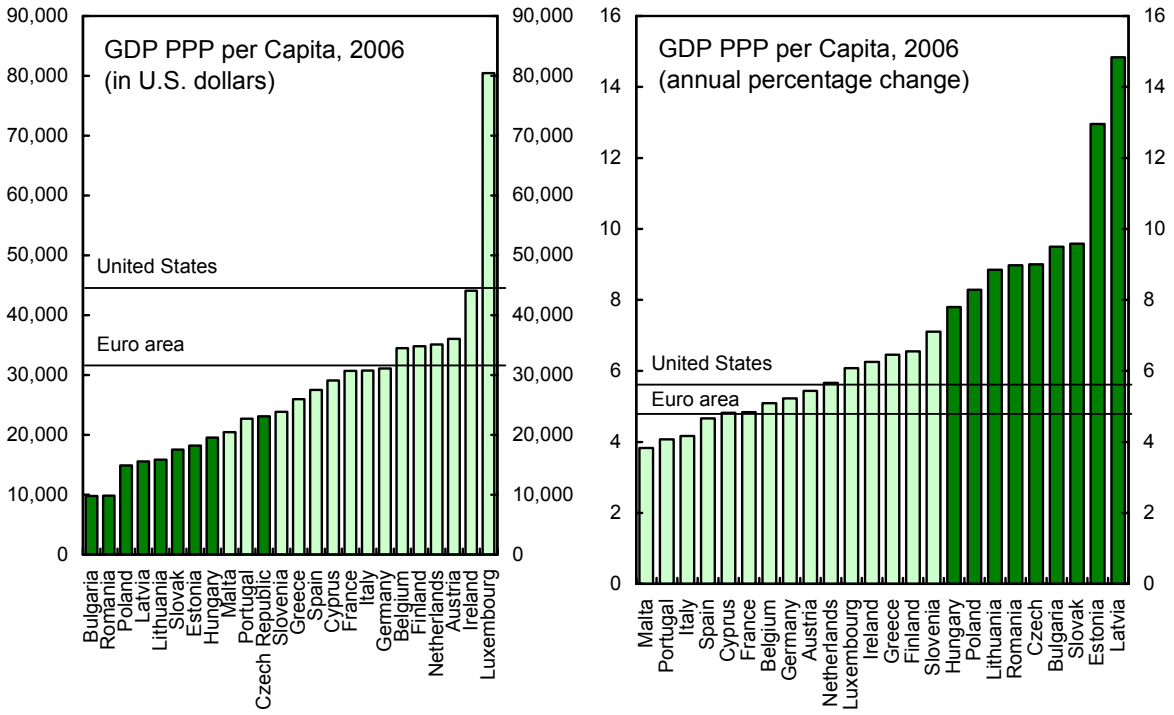
[32] For extensive IMF staff analysis of euro adoption issues, see Schadler and others (2005).

quantifies the degree of policy adjustment the NMS would need to undertake to meet the entry preconditions. The paper also explores structural features of NMS economies, notably their flexibility to adjust to shocks in monetary union.

29. **The paper is organized as follows**. Section II.B provides background information on the NMS. Section II.C summarizes the Maastricht criteria and Section II.D the policy challenges the NMS face in meeting them. Section II.E presents estimates of the policy adjustment needed. Section II.F summarizes the findings and concludes.

B. Background

30. **The NMS are catching-up economies that are in the process of converging to the euro area in real and nominal terms**. Per capita incomes in the NMS are generally lower than in the OMS and are growing fast. Price levels are also lower in the NMS and are converging to the euro-area levels, implying that inflation tends to be higher in the NMS and/or their nominal exchange rates tend to appreciate vis-à-vis the euro. Convergence in nominal interest rates, in part driven by declining risk premia for the NMS, is also proceeding at a rapid pace. Together, these phenomena tend to come with larger current account deficits in the NMS than typical in the OMS.



Source: IMF, World Economic Outlook.

31. **The economic and financial linkages between the NMS and the OMS are strengthening**. In general, the degree of business cycle synchronization between the NMS and the euro area is lower on average than between the OMS and the euro area. However, business cycle correlations between various NMS and the euro area now exceed those for Greece and Portugal. Production structures in the NMS are characterized by a higher share of agriculture and a lower share of services, but are gradually converging to those in the euro area.[33] Inflation correlations and variance shares explained by common euro-area shocks are lower than for the OMS, but the transmission of common euro-area shocks to the NMS does not differ significantly from those to the OMS.[34] About two thirds of NMS trade is with the euro area. The degree of integration of the NMS' equity markets has increased in recent years, especially for the larger NMS such as the Czech Republic, Hungary, and Poland.[35] Local bond prices in the Czech Republic and Poland exhibit fairly high comovement vis-à-vis Germany. With foreign banks, mostly from the euro area, accounting for a significant share of assets in the NMS, the banking systems of the OMS and the NMS are closely integrated.

32. **Most NMS have announced their plans to adopt the euro in the coming years**. This would necessitate changes to their current exchange rate regimes, which range from currency boards to freely floating exchange rates. Membership in monetary union is expected to bring long-term benefits in the form of further integration of NMS and OMS markets for goods, services, labor and capital and faster real and nominal convergence (Box II.1). When the NMS join the euro area, they will lose monetary policy independence and the nominal exchange rate will no longer be able to act as a shock absorber. Staff analysis suggests that this may not entail major losses.[36] Moreover, the elimination of exchange rate risks should at least partly compensate for these costs. The euro area is also expected to benefit from NMS euro adoption through further market integration and improvements in production efficiency.

[33] Angeloni, Flad and Mongelli (2005). Frankel and Rose (2000) suggest, however, that a currency union can foster endogenous convergence, making countries less susceptible and more adaptable to asymmetric shocks.

[34] Eickmeier and Breitung (2005).

[35] Cappiello and others (2006).

[36] Schadler and others (2005).

Exchange Rate Regimes in the NMS and Euro Adoption Plans

	IMF Classification 1/	Progress in Euro Adoption	
		ERM II	EMU 2/
Czech Republic	Float	Has not joined yet	Target date set for January 1, 2012
Hungary	Intermediate	Has not joined yet	No official target date
Poland	Float	Has not joined yet	No official target date
Slovak Republic	Fixed	Joined on November 28, 2005	Target date set for January 1, 2009
Estonia 3/	Fixed	Joined on June 28, 2004	No official target date
Latvia	Fixed	Joined on May 2, 2005	Target range set for 2011-13
Lithuania	Fixed	Joined on June 28, 2004	Target date set for January 1, 2010
Bulgaria	Fixed	Has not joined yet	Target date set for January 1, 2010
Romania	Float	Has not joined yet	Target date set for January 1, 2014

Sources: IMF *Annual Report on Exchange Arrangements and Exchange Restrictions* and *International Financial Statistics*; European Central Bank; National central banks.
1/ "Fixed" includes currency boards, conventional pegs, and narrow bands. "Intermediate" includes tightly managed floats and broad bands. "Float" includes managed and independent floats.
2/ Latest information available from European Commission and national authorities.
3/ The government is committed to euro adoption at the earliest possible date, which it now estimates to be 2011.

33. **The latest plans represent a delay in euro adoption compared to the original schedules announced in 2004, shortly after the NMS' accession to the EU**. The main reason for the delay was a failure of most NMS to satisfy convergence criteria. Growing skepticism about benefits from euro adoption and reform fatigue also contributed to a weakening of political support for euro adoption in some NMS. The latest Eurobarometer survey (May 2007) indicates that the majority of population in most NMS still supports euro adoption, but the margins are small in the Czech Republic and Estonia. Most citizens in Latvia and Lithuania are against euro adoption. There was a noticeable decrease in support for euro adoption in the Baltic countries in May 2007 compared to September 2006.[37]

C. Maastricht Criteria for EMU Membership

34. **The Maastricht Treaty leaves the timing of EMU entry open**. The NMS are expected to join the euro area if and when they satisfy the entry preconditions. However, unlike Denmark and the United Kingdom, the NMS do not have an indefinite opt-out regarding participation in EMU.[38] The fulfillment of the Maastricht criteria is assessed by the EU Council on the basis of the reports prepared by the EC and the ECB at least once every

[37] Lithuania's application was rejected on the grounds that the country did not meet the inflation criterion (by 0.03 percentage points) and that, crucially, convergence in inflation rates was considered not sustainable.

[38] Sweden does not have an opt-out but is not participating because of domestic political considerations.

two years or at the request of a member state wishing to adopt the euro.[39] Notwithstanding the NMS' commitment to join the euro area, there are no legal limits on how long they can stay outside the euro area, and there are no sanctions for not satisfying the Maastricht criteria.[40] Satisfying them before entering EMU is required. Adopting the euro otherwise, for example, through "euroisation" (i.e., using the euro as a legal tender) would be inconsistent with the spirit of the Maastricht Treaty.

35. **The Maastricht criteria require prospective members to achieve sustainable nominal convergence before entering monetary union**. This involves the following:

- ***Price stability***. The average annual rate of inflation should not exceed by more than 1½ percentage points that of the three best performing EU countries in terms of price stability. The notion of "best performance" is not defined in the Treaty. The current interpretation, revealed in the 2004 Convergence Reports, is that "best performance" means "the lowest non-negative inflation."[41] Sustainability is also not defined in the Treaty. In practice, the EC examines whether inflation was at or below the Maastricht reference value in the recent past, bearing in mind one-off and temporary effects, and assesses whether such convergence is likely to be sustained over the year following the evaluation. The ECB uses a broadly similar approach. In this context, the EC and the ECB also assess the recent trends and outlook for unit labor costs and the current account balance to gauge if these point to overheating pressures.

- ***Exchange rate stability***. Countries are required to keep their exchange rates within the "normal" fluctuation margins provided for by the exchange rate mechanism of the European Monetary System (ERM-II) without severe tensions for at least two years before the examination and not to devalue their currency during this period.[42] When assessing tensions in the exchange rate, the EC and the ECB examine how far the exchange rate is from the central parity, the size of the short-term interest rate differential and the size of foreign exchange interventions. Specific limits on the size

[39] The euro-area authorities indicated that the assessments are guided by the principle of equal treatment of the NMS vis-à-vis the OMS. (The informal Ecofin document adopted on April 5, 2003, as cited in Backé, Thimann and others, 2004).

[40] With the exception of the excessive deficit procedure under the fiscal criterion.

[41] The euro-area authorities faced a question in 2004 as to whether countries with negative inflation (Lithuania at that time) should be included in the calculation of the reference value for the inflation criterion. See Filáček, Horváth and Skorepa (2006) for a detailed review of how the Maastricht criteria were interpreted in past Convergence Reports.

[42] Requirements concerning participation in the ERM-II and the exchange rate stability criterion jointly imply that the exchange rate is allowed to appreciate within the 15 percent of the ERM-II band but it cannot depreciate by more than 2¼ percent from the central parity (see Schadler and others, 2005, for more details).

of interventions or revaluations that would be consistent with the fulfillment of the exchange rate stability criterion have not been specified.

- ***Convergence of long-term interest rates***. The average over the latest 12 months of the nominal long-term interest rate should not exceed by more than two percentage points the average of the three best performing EU member countries in terms of price stability.

- ***Fiscal sustainability***. The fiscal deficits should not exceed 3 percent of GDP, and gross government debt should not exceed 60 percent of GDP.[43] The examination of the fiscal deficit and debt under the excessive deficit procedure outlined in the Maastricht Treaty is designed to take into account whether the fiscal deficit ratio "has declined substantially and continuously and reached a level that comes close to the reference value" or that "the excess over the reference value is only exceptional and temporary and the ratio remains close to the reference value." The government debt ratio is allowed to be "sufficiently diminishing and approaching the reference value at a satisfactory pace." The Stability and Growth Pact (SGP), introduced after the creation of EMU, added sanctions for the violation of fiscal targets.[44]

36. **When assessing progress in fulfilling the Maastricht criteria, the euro-area authorities guard against countries' satisfying the criteria in an "opportunistic" manner**. Accordingly, they would consider the roles of unusually favorable external conditions (e.g., declining oil prices), rapid nominal exchange rate appreciation (where applicable), and changes in administrative prices or indirect taxes in lowering inflation. The reason is that the effects of temporary factors or "quick-fix" measures would unwind after entry into EMU.[45]

37. **Although most NMS already comply with at least some of the Maastricht criteria, achieving all of them is proving difficult**. As of December 2006, inflation was below the Maastricht reference value in only two out of the nine NMS: the Czech Republic and Poland. Low inflation in these two countries largely reflected the strength of their domestic currencies (Figure II.1). Fiscal deficits exceeded the 3 percent limit in the CEECs,

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[43] The fiscal criteria are supplemented by the definitions of the excessive deficits and debt, the "no-bail-out" clause (which makes countries responsible for servicing their own debt) and a ban on direct central bank financing and access to favorable financing of public deficits.

[44] Specifically, the EC can threaten a "fine", in the form of a non-interest bearing deposit of 1½ percent of GDP. This procedure comes into effect by a qualified majority vote in Ecofin. Transfers from the EU budget in the form of Cohesion funding could be suspended.

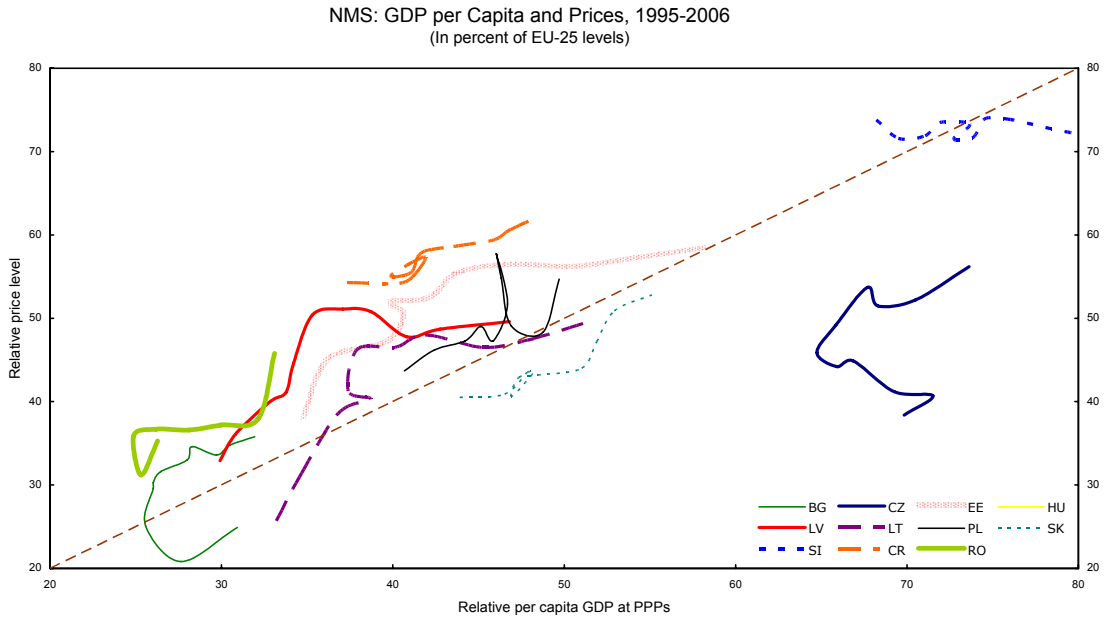
[45] Szapary (2001) coined the term "the 'weighing-in' effect" to describe this strategy, comparing it to that of a boxer who refrains from eating and drinking before a weigh-in only to binge afterwards.

and were particularly large in Hungary. However, the Baltics, Bulgaria, and Romania all had small deficits or surpluses. Government debt was below 60 percent in all NMS, except Hungary. Long-term interest rates were within the Maastricht reference limits in all NMS, except for Hungary where fiscal sustainability problems loom large.[46]

D. Policy Issues in the Context of Euro Adoption

Achieving Nominal Convergence

38. **Achieving nominal convergence among countries with different per capita incomes can be challenging**. Income convergence tends to be accompanied by convergence in price levels. This takes place either through inflation running above or the nominal exchange rate appreciating relative to that in higher income partner countries. Both imply an appreciation of the real effective exchange rate of the lower income countries. The best-known mechanism through which price convergence takes place is the Balassa-Samuelson effect, whereby productivity growth in the traded goods sector leads to an overall increase in prices and puts upward pressure on CPI-based real exchange rates.[47]



Source: World Economic Outlook, IMF staff estimates.
Note: Countries shown on the chart include Bulgaria (BG), the Czech Republic (CZ), Estonia (EE), Hungary (HU), Latvia (LV), Lithuania (LT), Slovenia (SI), Poland (PL), Slovak Republic (SK), Romania (RO).

[46] ECB (2006).

[47] Balassa (1964) and Samuelson (1964).

39. **While Balassa-Samuelson related challenges could be large for the NMS, empirical studies suggest that this is not necessarily the case**. Productivity differentials seem to explain from ⅓ to 2⅓ percentage points of annual inflation differentials in the transition economies vis-à-vis the euro area, with most estimates clustered around 1–2 percent. In some NMS, no evidence of the Balassa-Samuelson effect is found currently, for example, because productivity in the non-tradable goods sector is growing faster than in the tradable goods sector, owing to significant inflows of foreign direct investment (FDI) in the non-tradable goods sector. In others, however, the Balassa-Samuelson effect is likely to be operating, putting pressure on prices or the exchange rate.

Empirical Estimates of the Balassa-Samuelson Effect, 1995-2005
(In percent per year)

		Latest Estimates Using Total Services 1/ (1)	Latest Estimates Using Market-Based Services 1/ (2)	Average of Estimates Available in the Literature 2/ (3)	*Average of Columns (1)-(3)*
Czech Republic	*(1)*	1.0	0.7	0.4	*0.7*
Hungary	*(2)*	2.1	1.6	1.7	*1.8*
Poland	*(3)*	2.4	1.7	1.4	*1.8*
Slovak Republic	*(4)*	2.1	1.5	0.4	*1.3*
Estonia	*(5)*	2.3	1.3	0.5	*1.4*
Latvia	*(6)*	1.6	1.1	0.5	*1.1*
Lithuania	*(7)*	2.4	1.7	0.9	*1.7*
Average of Rows (1)-(7)		*2.0*	*1.4*	*0.8*	*1.4*

Sources: Égert (2007), Égert, Halpern and McDonald (2006).
1/ Égert (2007).
2/ Based on the literature survey by Égert, Halpern and McDonald (2006). The time period varies across the studies surveyed, but generally precedes 2001.

40. **Several considerations suggest that the equilibrium rates of nominal convergence may be higher than suggested by the Balassa-Samuelson estimates** (Figures II.2–3). These relate to the rapid structural transformation of the NMS economies that followed their opening up to the world economy and long-term improvements in living standards. For instance, the quality of tradable and non-tradable goods (for example, health care, education, telecommunication and financial services) is likely to gradually improve, commanding higher prices. Also, in tandem with rising incomes, consumption preferences in the NMS are likely to shift away from food and other basic goods to services. Similarly, EU membership may prompt lasting real appreciations, for example, via the transfers from the OMS to the NMS for the purpose of upgrading infrastructure.[48]

[48] For example, using empirical estimates from the aid literature, IMF staff put real appreciation that would result from the projected 2 percent of GDP increase in EU transfers to Poland during 2006–2011 at about 2 percent per year and 13 percent cumulatively over a five year period (see IMF, 2006; p. 10).

41. **By the same token, more transient or disequilibrium phenomena are also likely to be embedded in rates of real appreciation**. These include, for instance, the one-off, level-adjustment associated with the elimination of the undervaluation gap in the NMS currencies observers believe existed at the beginning of transition.[49] Another set is the strongly favorable impulses associated with EU membership and the confluence of rapid financial integration and unusually benign global financial conditions. Crucially, EU membership entails a whole range of highly beneficial legal and institutional reforms. Their implementation is likely to have fostered an initial, stock-adjustment-type economic boom, notably heavy investment in the NMS economies by foreign investors.[50] Expectations of continued rapid economic and monetary integration, including euro adoption might have also contributed to these booms. Information asymmetries in financial markets might in some cases have lead to irrational exuberance and exchange rate overshooting in the course of such stock- or level-type adjustments.

42. **Accordingly, there is significant uncertainty as to what drives differentials between NMS and OMS price and exchange rate developments**. These could be transient or more permanent forces. The transient forces could be fundamentals, such as the adoption of the EU acquis, or disequilibrium trends such as investor exuberance and policy shortcomings. No comprehensive estimates of trend real appreciation associated with the factors that have been discussed above are available.[51]

43. **The uncertainty about the size of the "true" real appreciations associated with real convergence has contributed to controversies over the Maastricht criteria**. The inflation criterion allows a 1½ percentage point margin over inflation in the three EU member countries with the lowest nonnegative inflation, while the exchange rate stability criterion allows up to 15 percent nominal appreciation during the two years countries need to

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[49] Lipschitz, Lane, and Mourmouras (2002). The IMF's CGER exercise also assumes that the NMS currencies covered by the exercise were significantly undervalued at the beginning of transition.

[50] Significant FDI the NMS received since the beginning of transition is likely to have contributed to improvements in the quality of the NMS tradable goods, triggering shifts in foreign consumer preferences toward the NMS goods and helping eliminate the undervaluation gap. No direct estimates of such quality-adjustment effects are available, but, in an indirect take on the issue, Fabrizio, Igan and Mody (2005) estimate that quality upgrading helps eliminate the negative impact of real appreciation on the market share in developing countries by almost a half: the impact of a 10 percent appreciation can be offset by a 22 percent improvement in quality (measured in terms of unit value ratios).

[51] Empirical studies on the Balassa-Samuelson effects do not control for the afore-mentioned additional factors that might result in trend real appreciation. Furthermore, these studies are based on strong assumptions. They assume that the law of one price holds for tradable goods, which is not confirmed by the data—goods prices are 10 percent to 40 percent lower in the NMS than in the euro area (Égert, 2007), possibly owing to differences in taxes, competition practices, and pricing-to-market behavior. Price differentials for market and non-market services are even larger.

spend in ERM-II and there is scope to adjust the central parity. This raises at least two considerations:

- Some have questioned whether the room under the Maastricht inflation criterion is sufficient to fully accommodate equilibrium real appreciation trends. While Balassa-Samuelson effects are typically estimated to be small, this might not be the case for all NMS and other factors might push equilibrium inflation beyond the 1½ percent margin over the best EU performers.[52]

- Others consider that current NMS inflation and exchange rate developments are appreciably transient in nature, driven by both transient "equilibrium" stock-adjustment (such as the acquis communitaire) and "disequilibrium" investor exuberance and the NMS country authorities' policy complacency. These observers do not consider the Maastricht inflation criterion inordinately tight and argue that the "disequilibrium" developments could come back to haunt the NMS in the case of premature euro adoption.

In this setting, the key challenge for NMS policymakers, including with respect to euro adoption, is dealing with the current economic booms that have raised vulnerabilities. At the same time, work on strengthening the NMS economies' resiliency to shocks in monetary union needs to continue.

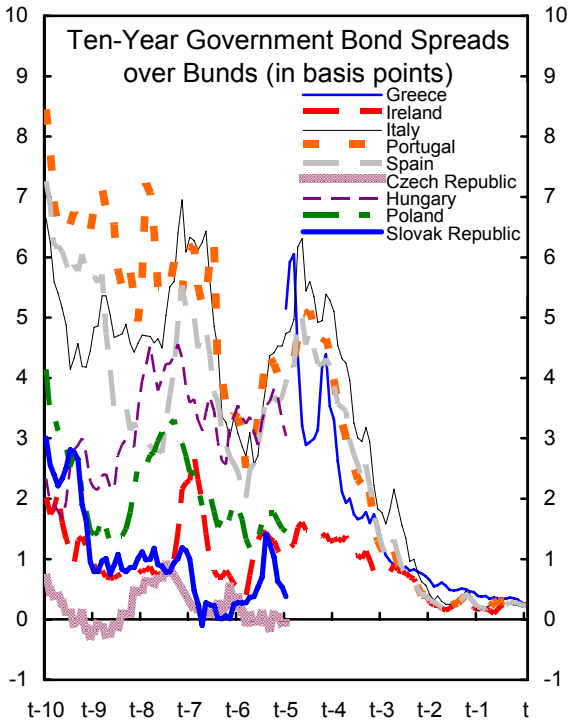
Inflation and Exchanges Rates in the Context of an Accession-related and Global Upswing

44. **Against the backdrop of EU membership and interest rate declines, domestic credit and demand booms have been unfolding in the NMS**. Country risk premia for the NMS seem to have declined earlier than they did in the catching up OMS prior to their joining EMU. Financial markets are viewing the NMS favorably, pricing their sovereign assets some 50–100 basis points below the levels that would be expected based on standard policy fundamentals.[53] The NMS' success in macroeconomic stabilization and structural reforms, EU accession, the policy-anchoring role provided by the euro adoption plans, all seem to have contributed to rapid interest rate convergence. Global factors, such as low

[52] For example, during 1999–2006 four catching up euro-area countries posted an average inflation rate in the 3–3½ percent range; in 2006, these countries posted an average inflation rate of 3.2 percent. The Maastricht reference value for the purpose of the December 2006 Convergence Report was 2.8 percent. As Choueri, Ohnsorge, and van Elkan (2007) show, the reference value for the Maastricht inflation criterion might be unduly depressed because low inflation in the "three best performing EU economies in terms of price stability" might reflect idiosyncratic factors, for example, changes in regulated prices and indirect taxes or recession.

[53] Luengnaruemitchai and Schadler (2007).

interest rates, ample liquidity and a widening of the investor base for emerging markets have also played a role.[54] As a result, capital flowed to the NMS, in the form of direct investment (especially in the CEECs), bank loans (especially in the Baltics), and portfolio investment. Last year, for example, capital inflows reached about 6 percent of GDP in the Baltics, 12 percent of GDP in Bulgaria and Romania, and about 3 percent of GDP in the CEECs.[55] As in the catching up OMS, convergence-driven booms in the NMS are associated with rapid credit and domestic demand growth, appreciating real exchange rates and inflationary pressures.

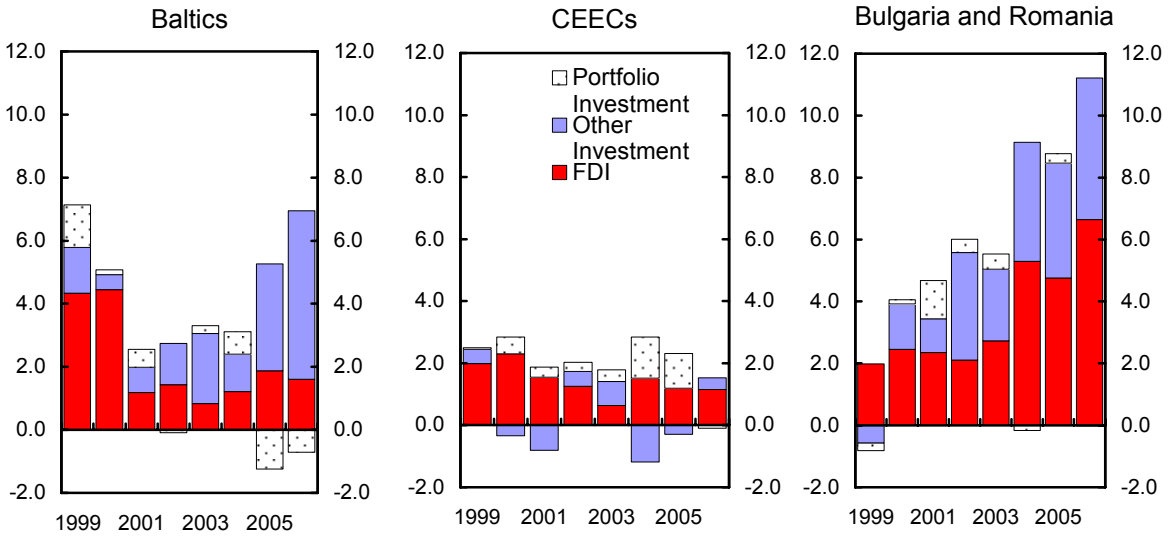


Sources: Bloomberg, IMF staff estimates.
1/ *t* corresponds to the time of EMU entry for Greece, Ireland, Portugal and Spain and 2011 for the NMS.

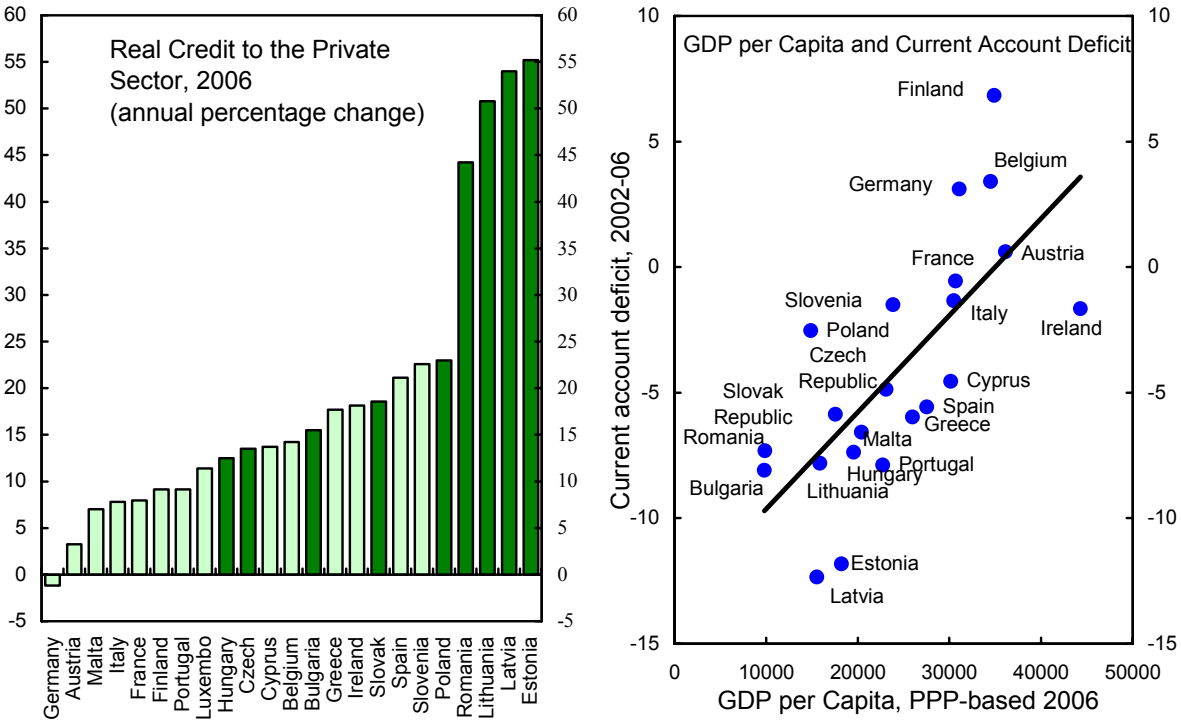
[54] Brzoza-Brzezina (2005) estimates that post-euro adoption credit booms are likely to be smaller in the CEECs, because the degree of interest rate convergence the NMS have already achieved is greater than what the catching up OMS were able to achieve during the comparable period.

[55] Discussions with market participants suggest that carry trades based on using the Swiss franc (and, to a lesser extent, the Czech koruna) as the funding currencies for investment in other NMS currencies supported capital flows to the NMS.

NMS: Net Capital Flows, 1999-2006
(In percent of GDP)



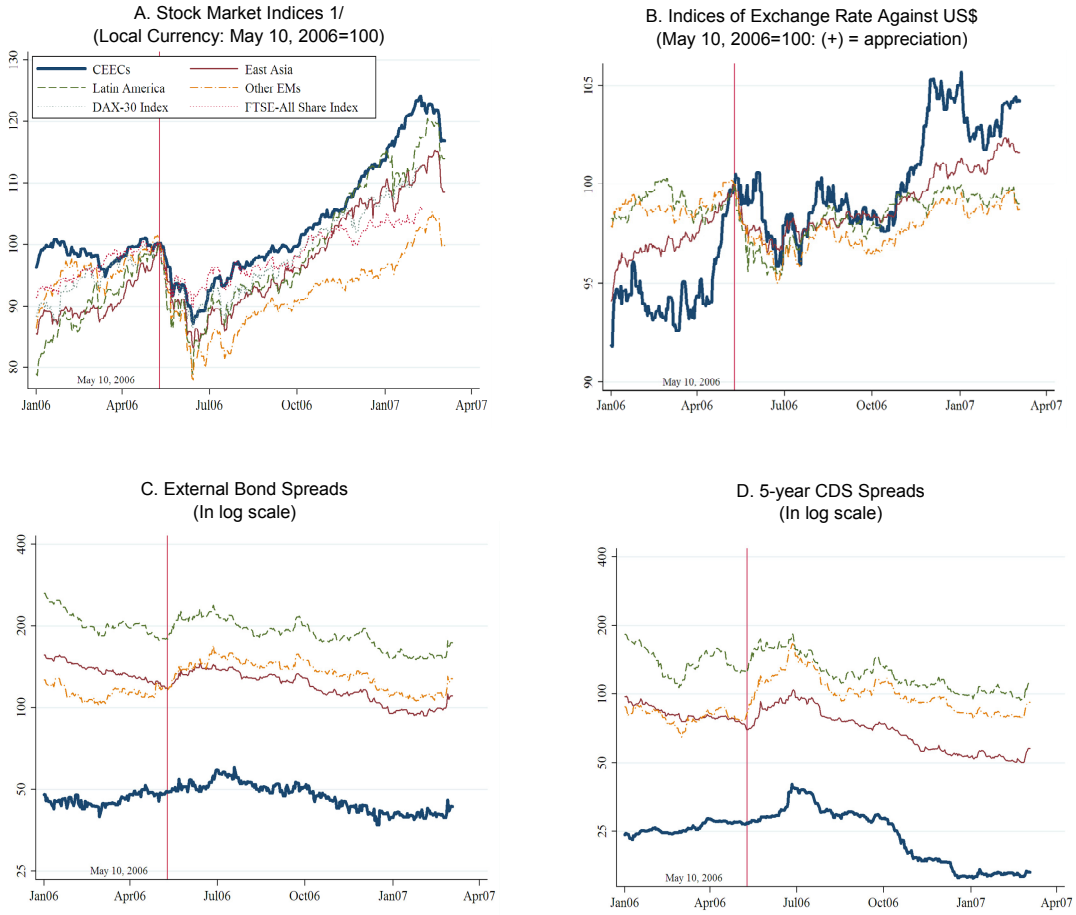
Source: IMF, *World Economic Outlook.*



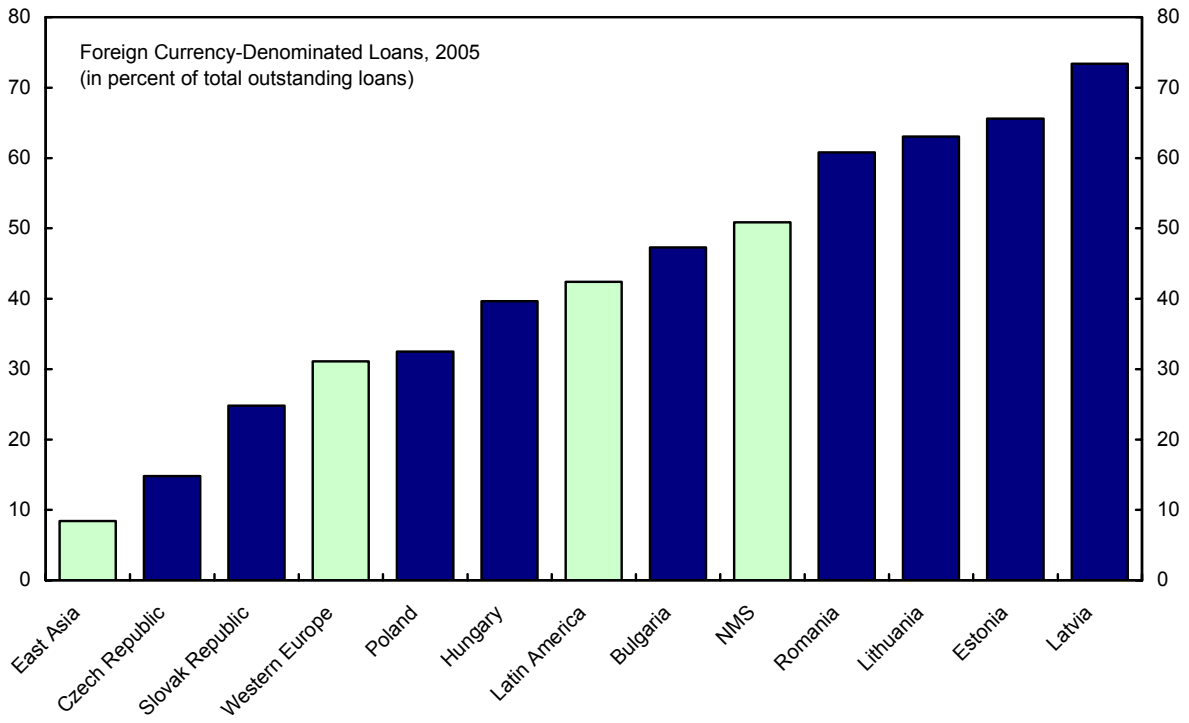
Sources: Eurostat; IFS, National Statistical Offices; and IMF staff estimates.

45. **With large capital inflows also come some vulnerabilities**. Rapid credit expansions are raising concerns about overheating, widening external imbalances, and rising balance sheet risks in some NMS. Domestic borrowers have been contracting loans in euros and other European currencies (mostly the Swiss franc), leading to a build up of currency mismatches in the private sector balance sheets. For NMS banks, many of which are foreign owned, lending in euros and other major European currencies facilitates or reduces the need for hedging. As a result, the share of foreign currency lending in the NMS exceeds that in Western Europe and in Latin American and East Asian emerging markets. Currency mismatches make the private sector vulnerable to an exchange rate depreciation, and through credit risk, the NMS banking sector might also be affected. Via the potential for spillovers, vulnerabilities extend beyond the NMS (Boxes II.2–3).

Financial Market Developments in the NMS Compared to other Emerging Markets
(January 2006–February 2007)



Source: Bloomberg, Luengnaruemitchai and Schadler (2007).



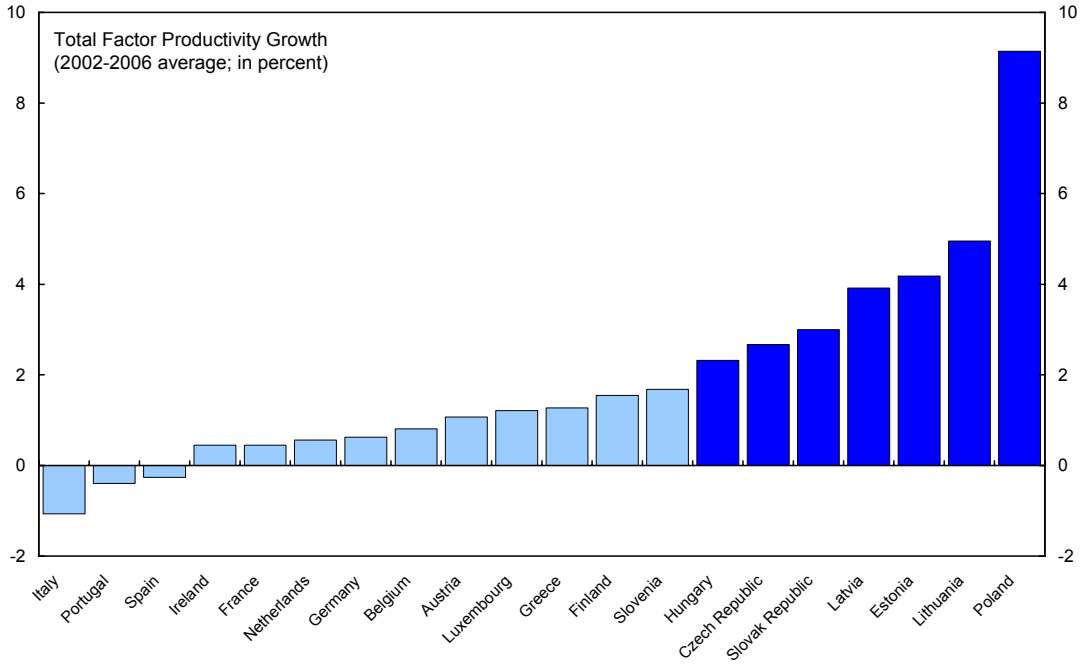
Source: National authorities, Fund staff estimates.
Note: Regional averages for East Asia and Latin America cover emerging market countries.

46. **Cooling off an economy during a surge in capital inflows and rapid credit growth is a challenge**. The NMS with fixed exchange rate regimes have to rely on fiscal policy for managing demand pressures. Even in countries with floating exchange rates, monetary tightening would be unlikely to slow credit growth, as higher interest rates would tend to encourage further capital inflows and borrowing in foreign currency. Fiscal tightening could help rein in inflation, but it might need to be of considerable magnitude to have the necessary impact. Prudential measures might slow credit expansion, but their effectiveness is likely to decline over time, if the underlying incentives for credit expansion remain strong, for example, because of a pent-up demand for credit in formerly financially repressed economies or because foreign banks move business abroad. Capital controls might help slow a surge in capital inflows, but they are illegal in the EU in other than crisis situations.[56]

[56] All restrictions on capital movements and payments, both between Member States and between Member States and third countries, are prohibited, although there are exceptions for crisis situations and related to taxation, prudential supervision, public policy considerations, money laundering, and financial sanctions agreed under the Common Foreign and Security Policy.

Fostering Resiliency to Shocks in Monetary Union

47. **Successful performance in the monetary union depends on a variety of features, which NMS economies display to varying degrees**. These features relate to trend productivity growth, adjustment to shocks, integration with other union members (intra-and inter-temporal risk sharing), and scope for using fiscal policy (intertemporal risk sharing). Productivity growth in the NMS has been running significantly above the levels experienced by the OMS. Ascertaining the extent of the sustainability of this strong productivity growth, part of which may be related to the current economic booms in the NMS, is difficult, but significant catching up potential in the NMS remains. Other macroeconomic indicators in the NMS compare favorably, notably with those OMS that are widely considered to have faced difficulties (Figures II.4–5).

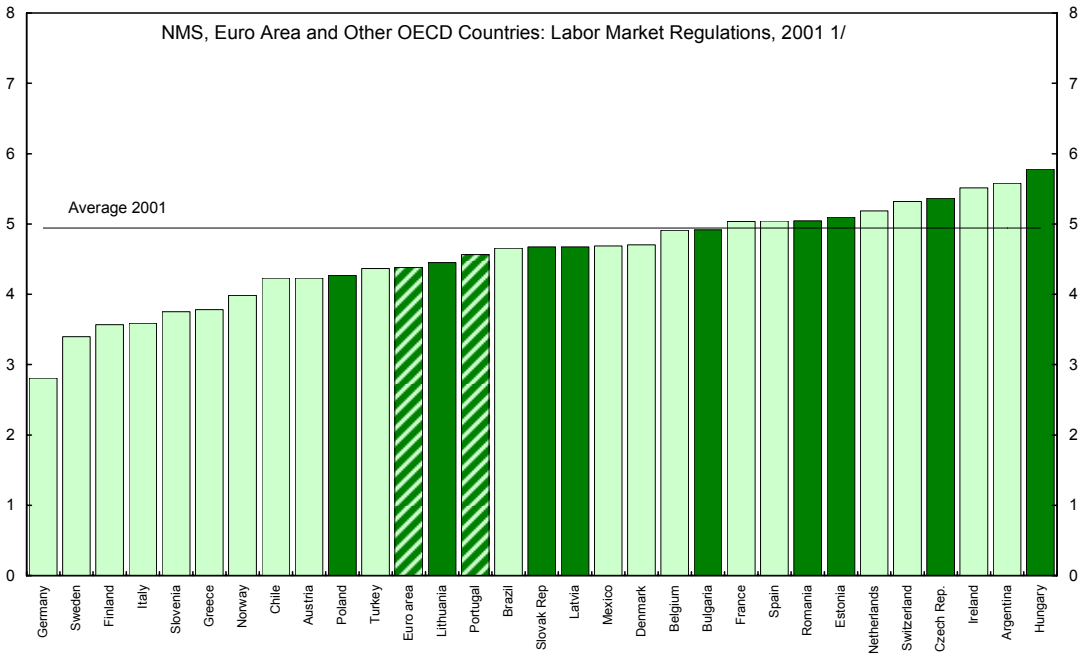


Sources: Eurostat, Ameco, national statistical offices, IMF staff estimates.

48. **Considerable labor market flexibility in the NMS should facilitate restoring competitiveness in the event of adverse shocks but product markets are more rigid**. Employment protection legislation is less restrictive in the NMS than OMS, minimum wages are lower,[57] collective bargaining structures in the NMS are less centralized, and

[57] Although union density is similar in the NMS and the euro area, it does not imply the same degree of labor market rigidity. In contrast to the euro area, where the influence of trade unions goes beyond their membership, non-unionized workers in the NMS typically are not covered by wages negotiated under collective agreements.

unemployment benefits are less generous.[58] Measures of labor market flexibility provide comfort that the NMS are relatively well poised to adjust to asymmetric shocks in monetary union. However, downward flexibility in wages has largely been untested in the NMS and this provides grounds for caution. In addition, there is variation in labor market flexibility across the NMS, with wages being more responsive to productivity and unemployment in the Baltics than in the CEECs.[59] Further improvements of product and labor market flexibility, including through deregulation, welfare reforms, and measures to facilitate geographical labor mobility, remain a priority for many NMS.[60]

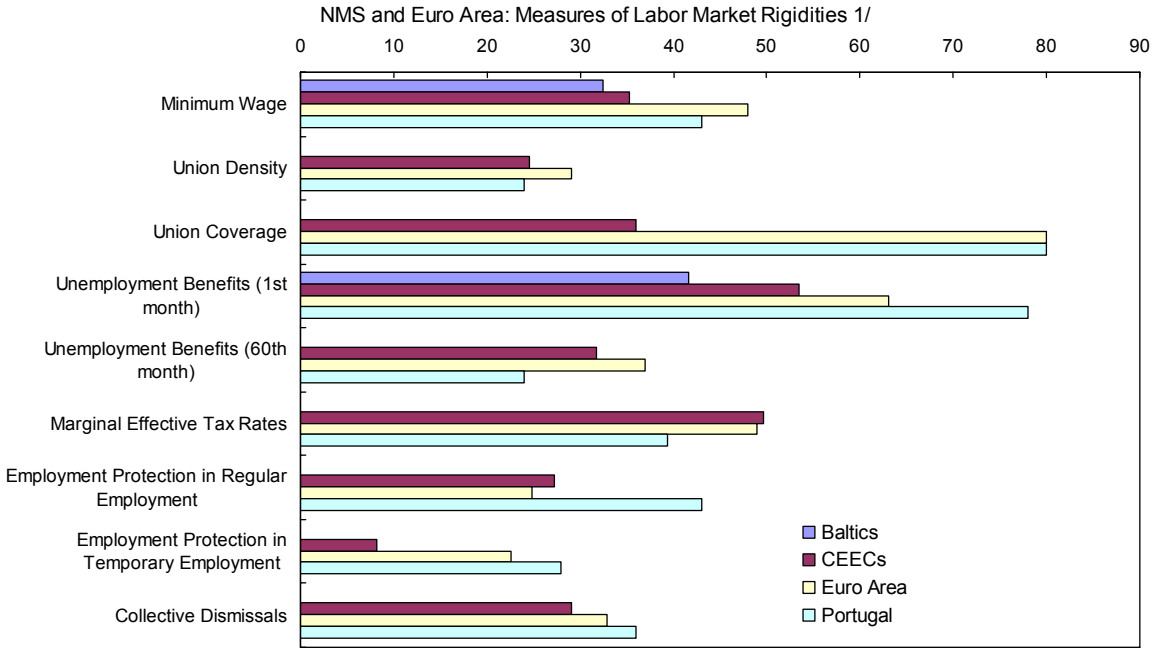


Source: OECD.
1/ Sorted by 2001 values. The scale of indicators is 1-10 from most to least regulated. The value for the euro area is calculated as a simple average.

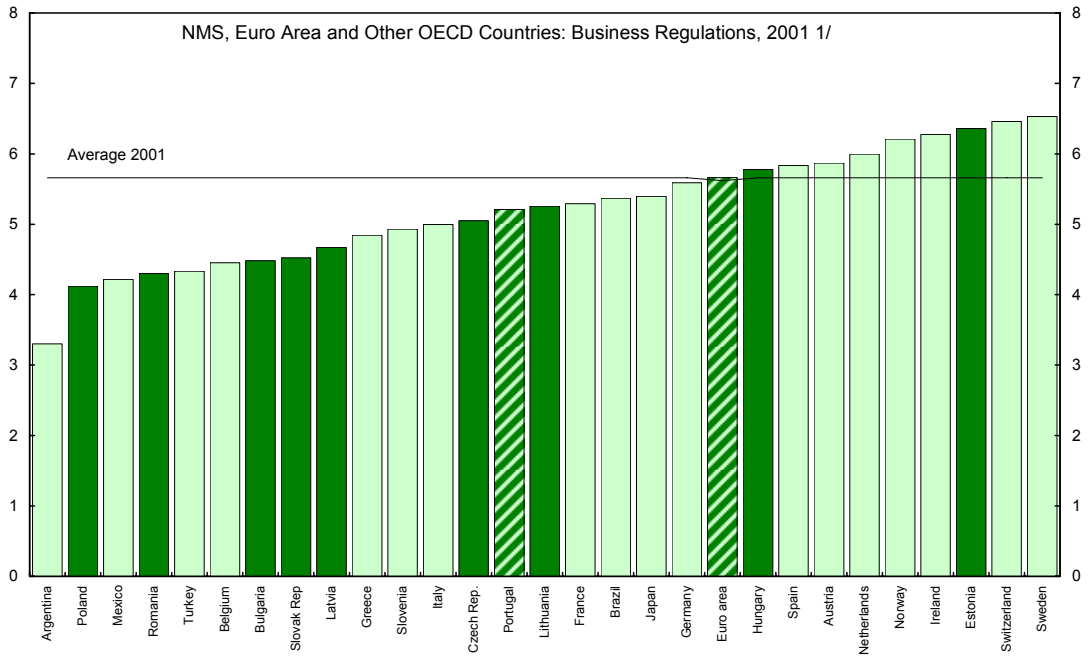
[58] Boeri and Garibaldi (2006). In addition, the authors argue that the view held in some quarters that the NMS have rigid labor markets is based on the fact that the job content of growth is low. The paper shows that the latter fact reflects productivity-enhancing job destruction in an environment of traditional labor hoarding.

[59] Von Hagen and Traistaru-Siedschlag (2006).

[60] For more details on specific reform measures, see staff reports for individual NMS, available at www.imf.org.

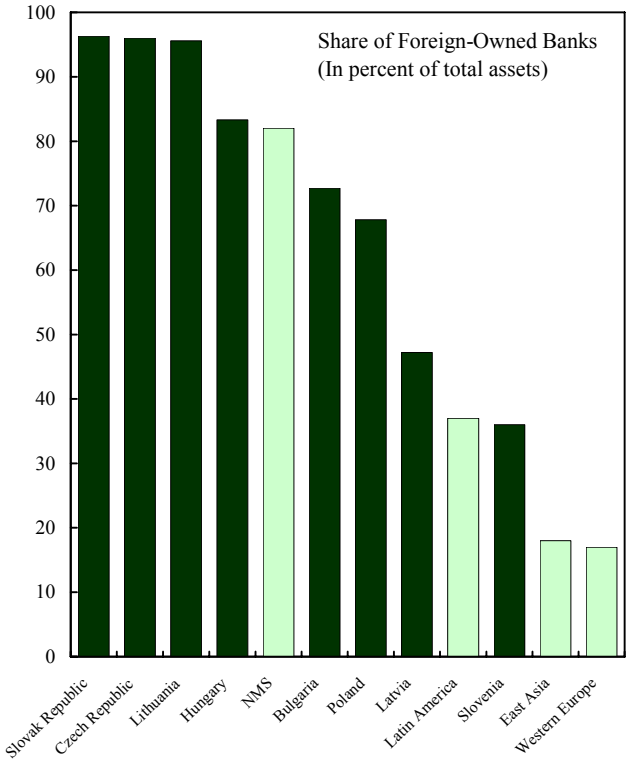


Sources: OECD, Boeri and Garibaldi (2006), IMF staff calculations.
1/ Data refer to the latest year available. Minimum wage is in percent of average wage. Unemployment benefits are in percent of averages wages. Marginal effective tax rates refer to 100 percent of average wages for single persons without children. Country averages are calculated based on data availability.

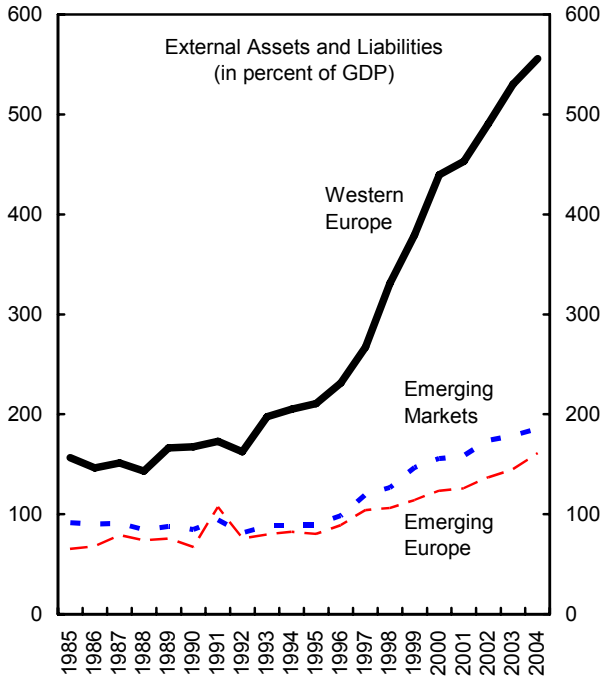


Source: OECD.
1/ Sorted by 2001 values. The scale of indicators is 1-10 from most to least regulated; Euro area (simple average).

49. **Significant financial integration of the NMS with the OMS should facilitate risk sharing**. Foreign banks, mostly from euro-area countries, account for a significant portion of banking system assets in the NMS, greater on average than in Western Europe and in emerging markets in other regions of the world. Foreign presence is significant in other financial sectors, albeit to a lesser degree. The variety of financial products and services available to NMS consumers is thus similar to that in the OMS. The NMS have also been major recipients of cross-border capital flows, both FDI and portfolio investment, which are likely to have contributed to a decline in consumption volatility in recent years. However, judging by the de facto indicators of the degree of financial development and integration,[61] NMS financial systems remain less developed and less integrated into the global financial system than those in Western Europe and other emerging markets. Continued financial deepening, notably development of market-based finance, should further enhance the ability of the NMS to adjust to shocks in EMU.



Source: European Central Bank, national central banks.
1/ Data refer to 2004 or 2005, depending on availability.



Source: Lane and Milesi-Ferretti (2006).

50. **The NMS also seem to have fiscal flexibility, which they can draw on for stabilizing their economies in response to asymmetric shocks in monetary union**. Although the automatic stabilizing properties of the NMS budgets overall seem weaker than in the euro area, this is not appreciably so. Some budget categories in the NMS,

[61] See Lane and Milesi-Ferretti (2006) on the latter.

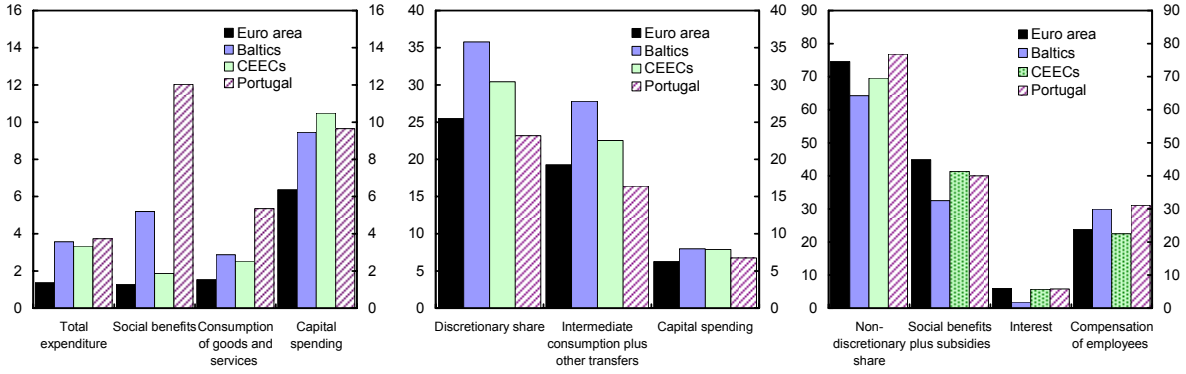
especially in the Baltics, have higher cyclical elasticities than those in the OMS. A broad measure of budget flexibility—variation in different categories of expenditures—is higher in the NMS than in the euro area, largely owing to greater variation in discretionary spending.[62] The Baltic countries score particularly well on this measure. Nonetheless, there is scope for further improvement of budget flexibility in the NMS, particularly in nondiscretionary expenditures.

Budget Elasticities for a One Percentage Point Change in the Output Gap 1/

	Personal Income Tax	Social Security Contributions	Corporate Income Tax	Indirect Tax	Expenditure	Total
Czech Republic	1.19	0.80	1.39	1.00	-0.02	0.39
Hungary	1.70	0.63	1.44	1.00	-0.03	0.47
Poland	1.00	0.69	1.39	1.00	-0.14	0.44
Slovak Republic	0.70	0.70	1.32	1.00	-0.06	0.37
Latvia	1.13	0.97	2.25	1.17	n.a.	n.a.
Lithuania	1.03	0.98	1.03	1.17	0.0	n.a.
Portugal	1.50	0.90	1.17	1.00	-0.05	0.46
Baltics	*1.08*	*0.98*	*1.64*	*1.17*	n.a.	n.a.
CEECs	*1.15*	*0.71*	*1.39*	*1.00*	*-0.06*	*0.42*
Euro area	*1.48*	*0.74*	*1.43*	*1.00*	*-0.11*	*0.48*

Source: Girouard and André (2005), Convergence Programs; and IMF staff estimates.
1/ Estimates for the CEECs and the euro area are unweighted averages. Expenditures are current primary expenditures. The last column is the semi-elasticity, which measures the change in the budget balance, as a percent of GDP for a 1 percent change in GDP, based on 2003 weights. Budget elasticities for Latvia are averages for 2002-06, except that for the corporate income tax (CIT), which is estimated for 2001-05. The very high elasticity for CIT reflects sharp revenue increases in spite of tax cuts in 2003 and 2004.

Variation in Key Expenditure Categories, 2000-2005
(Coefficient of variation, in percent)



Sources: National Statistical Offices; Eurostat; and IMF staff estimates.
1/ The coefficient of variation is defined as the ratio of the standard deviation to the mean. The Baltics in this chart cover the Estonia, Latvia, and Lithuania. The CEECs comprise the Czech Republic, Hungary, Poland, and the Slovak Republic.

[62] We leave aside here the long-standing debate on the appropriateness and effectiveness of discretionary fiscal policy in monetary union. See EC (2005).

E. Quantifying the Macroeconomic Policy Adjustment Needed to Prepare for Participation in Monetary Union

51. **A dynamic stochastic general equilibrium model (DSGE) is used to quantify the effects of monetary and fiscal policies in the NMS**.[63] The Global Integrated Monetary and Fiscal Model (GIMF) developed by Kumhof and Laxton (2007) brings in the non-Ricardian features of overlapping generations (OLG) models by Blanchard (1985) and Weil (1989) into an open economy monetary business cycle model.[64] The combination of finite planning horizons and liquidity-constrained consumers imply that fiscal policy has strong short-term and long-term effects. For example, the OLG structure for an open-economy means that permanent changes in government debt will have long-term effects on the net foreign liability position of a country. Consequently, GIMF predictions differ from the predictions based on standard open economy macroeconomic models with an infinitely-lived representative agent, rational expectations and non-distortionary taxation, which assume that Ricardian equivalence holds.[65] The non-Ricardian features of the model are described in Box II.4.

52. **A two-country annual version of GIMF is calibrated to representative NMS and the euro area**. The results should not be taken as the precise estimates of the impulse responses in any particular NMS; the focus rather needs to be on the qualitative conclusions. Two versions of the model are considered: a NMS with a floating exchange rate regime and another with a fixed exchange rate regime. In the latter case, the "monetary" reaction function aims at stabilizing the exchange rate. To mitigate against uncertainty inherent in calibration-based modeling, extensive sensitivity analysis is undertaken. The approach to calibration is pragmatic and eclectic.[66] The calibration of medium- and long-term responses relies on microeconomic studies, where available. Some parameters reflect the key characteristics of the NMS and the OMS, for example, the relative size of countries, their levels of trade, and their capital-output ratios.

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[63] Structural change, short data series and measurement problems in the NMS make the econometric estimation of policy effects, especially on the fiscal side, unreliable.

[64] The empirical literature provides mixed evidence on Ricardian equivalence, in part owing to difficulties in controlling for macroeconomic interactions and feedback effects in an econometric setting.

[65] For example, Obstfeld and Rogoff (1996), Caselli (2001), and Corsetti and Pesenti (2001).

[66] We draw on the existing DSGE models for the euro area and the NMS, DSGE models for the U.S., and selected forecasting models of the NMS central banks. See, for example, Kumhof and Laxton (2007), Laxton and Pesenti (2003), and Karam and others (2007).

Long-Run Values and Parameters Used in Calibration
(In percent, unless specified otherwise)

Steady State Values	NMS	OMS
• Long-Run World Real Interest Rate	3.00	3.00
• Steady State Inflation	2.00	2.00
• Long-Run NMS GDP as a Share of World GDP	0.50	99.50
• Share of Liquidity-Constrained Agents in the Population	0.40	0.25
Steady State Ratios		
• Imports of Intermediate Goods/GDP	20.00	0.10
• Exports of Intermediate Goods/GDP	20.00	0.10
• Imports of Final Goods/GDP	20.00	0.10
• Government Consumption Spending/GDP	15.00	15.00
• Government Productive Investment Spending/GDP	3.00	3.00
• Private Investment/GDP	16.00	16.00
• Nontradables Output/GDP	50.00	50.00
• Labor Income Share (total)	60.00	60.00
• Labor Income Share in Nontradables Sector	60.00	64.00
• Government Debt/GDP	25.00	25.00
Structural Parameters		
• Intertemporal Elasticity of Substitution	0.25	0.25
• Habit Persistence	0.40	0.40
• Depreciation Rate of Private Capital	0.10	0.10
• Depreciation Rate of Public Capital	0.04	0.04

Structural Parameters	NMS	OMS
• Elasticity of Substitution between Good Varieties:		
– Nontradables Manufacturing	6.00	6.00
– Tradables Manufacturing	6.00	6.00
– Wholesale	21.00	21.00
– Consumer Goods Retail	21.00	21.00
– Importers of Intermediate Goods	41.00	41.00
– Importers of Final Goods	41.00	41.00
– Labor Market	6.00	6.00
– Home and Foreign Final Goods Imports	1.50	5.00
– Home and Foreign Intermediate Goods Imports	0.50	5.00
– Capital and Labor in the Nontradables Sector	0.75	0.75
– Capital and Labor in the Tradables Sector	0.75	0.75
• Price Stickiness Parameters:		
– Nontradables Manufacturing	10.00	10.00
– Tradables Manufacturing	10.00	10.00
– Wholesale	10.00	10.00
– Importers of Intermediate Goods (if there is pricing to market)	0.00	10.00
– Importers of Final Goods (if there is pricing to market)	0.00	10.00
– Labor Market	10.00	10.00

Source: IMF staff estimates.

Modeling Fiscal and Monetary Shocks

53. **First, a permanent 1 percent decrease in the fiscal deficit implemented through a balanced package of expenditure and tax measures is considered**. Specifically, it is assumed that the package includes cuts in government consumption (with the weight of 0.33), an increase in labor taxes (0.33) and a decrease in labor transfers (0.34).[67] Public investment, which is assumed to be a productive complement to private investment in GIMF, is exempt from cuts. As part of sensitivity analysis, alternative compositions of adjustment (exclusively through consumption and/or investment expenditures or exclusively through taxes and transfers) are considered as well.

54. **The long-term effects of permanent fiscal consolidation in this non-Ricardian, intertemporal optimization model are independent of the exchange rate regime**. When fiscal deficits permanently decline, the government's debt position improves. The net foreign liabilities (NFL) position also improves in the long run, because consumers with finite life horizons do not increase consumption one-for-one with a decline in the tax burden on future generations.[68] The real interest rate falls to equilibrate the savings-investment balance, while

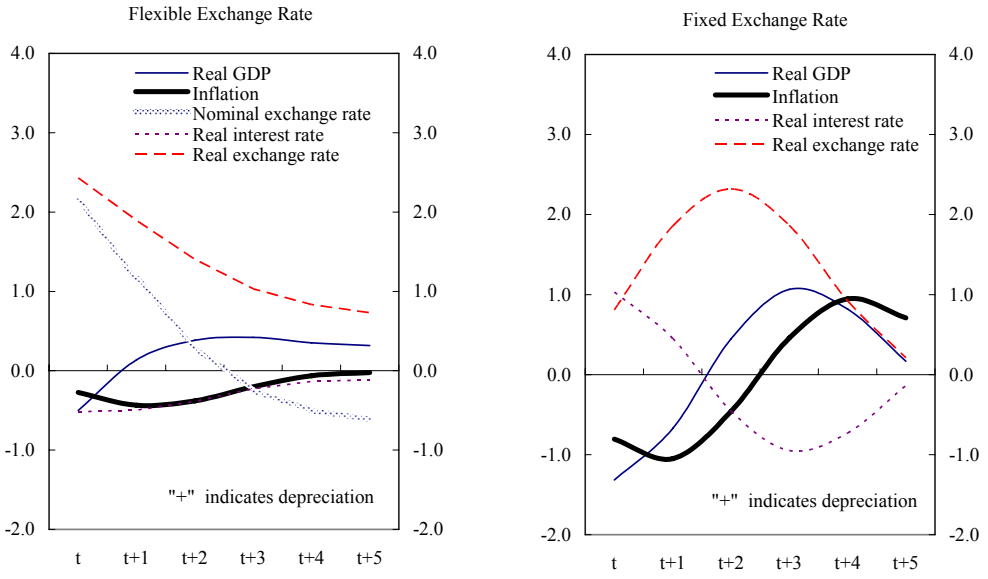
[67] The latter might include, for example, public sector wages or social payments.

[68] In an intertemporal optimization model where the Ricardian equivalence does hold, a permanent decrease in the fiscal deficit does not have any effect on the current account balance and the net foreign liability (NFL) position in the long run. When the short- and medium-term effects of fiscal policy unwind, the NFL ratio converges to its assumed long-run value. By focusing on the intertemporal and stock-flow implications of fiscal policy the GIMF goes well beyond the Mundell-Fleming model, which restricts the analysis to flows.

investment rises to match a higher level of savings in the new equilibrium. The real exchange rate appreciates in the long run, because a lower stock of debt obligations requires a lower current account surplus to finance debt obligations.[69] In contrast to the above, the short- and medium-term effects of fiscal policies differ in economies with fixed and flexible exchange rate regimes, largely reflecting differences in how these economies adjust to shocks.

55. **For the NMS with flexible exchange rates, fiscal consolidation reduces domestic demand and inflation in the short run but over time inflation returns to the central bank target**. The bank's reaction function entails cuts in nominal interest rates in response to fiscal tightening. This lowers the impact of fiscal consolidation on domestic demand and inflation, albeit with a lag. The decline in nominal interest rates exceeds the decline in inflation and therefore the real interest rate falls, crowding in investment. The nominal exchange rate depreciates in line with the interest rate parity, further easing monetary conditions. Since the degree of nominal depreciation exceeds the decline in inflation, the real exchange rate also depreciates. The current account improves, which over time improves the NFL position. In the medium term, the central bank brings inflation back to target. How long inflation remains below the target depends on the profile of fiscal adjustment: a consolidation program with a constant annual decrease in the fiscal deficit will have a more lasting effect on inflation than a one-off temporary or permanent reduction in the fiscal deficit.[70]

NMS: Effects of a One-Percent Permanent Decrease in Fiscal Deficit
(In percent or percentage point deviation from the baseline)



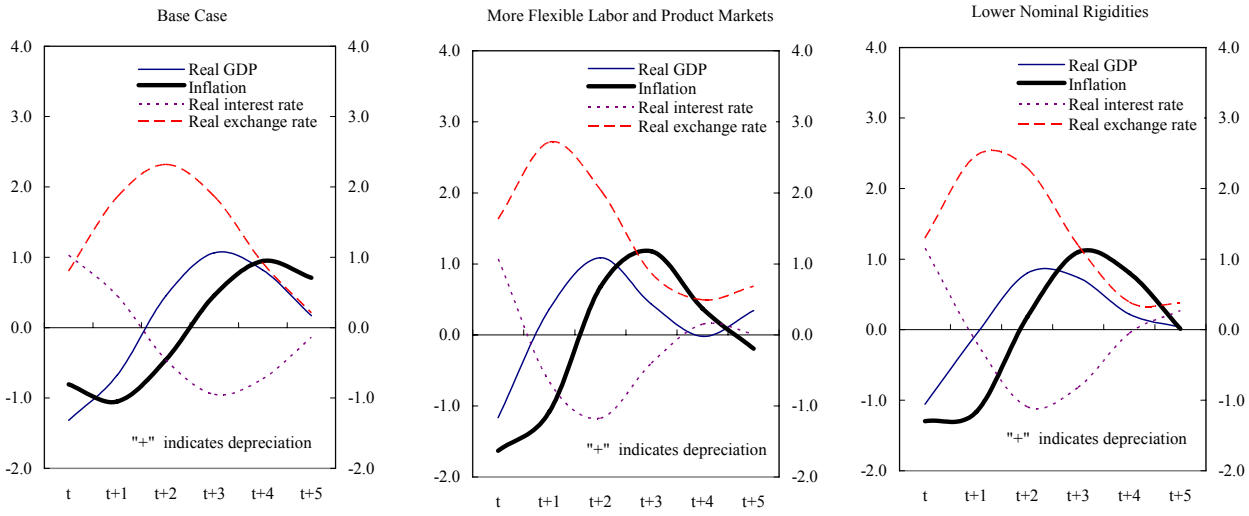
Source: IMF staff estimates.

[69] These effects are negligible for a small open economy.

[70] The effects of fiscal consolidation obtained through simulations are broadly consistent with the estimates based on panel regression analysis of fiscal consolidation in the CEECs (Afonso, Nickel, and Rother, 2006).

56. **For the NMS with fixed exchange rates, a permanent decrease in the fiscal deficit has a larger impact on inflation in the short run, but a perverse impact over the medium term**. Cuts in government expenditures and transfers and a tax hike crowd out domestic demand and reduce inflation in the short run. Inflation and real GDP fall by more than under the flexible exchange rate regime, because monetary conditions cannot be eased quickly through interest rate cuts and nominal exchange rate depreciation. Lower inflation pushes the real interest rate up, which crowds out investment. Private consumption declines owing to higher taxes. Lower domestic demand depresses imports, while exports strengthen as the real exchange rate depreciates. Eventually, the excess of savings over investment puts downward pressure on the real interest rate. As the real interest rate declines, domestic demand and inflation pick up in the medium term. Such a reversal of the short-term effect of fiscal consolidation on inflation is independent of the pattern of fiscal adjustment (whether it is one-off temporary, one-off permanent, or persistent permanent adjustment, i.e., a given decrease in the fiscal deficit per year). Greater wage and price flexibility and lower nominal rigidities imply faster price adjustment, reducing output volatility, but inflation volatility becomes more pronounced.

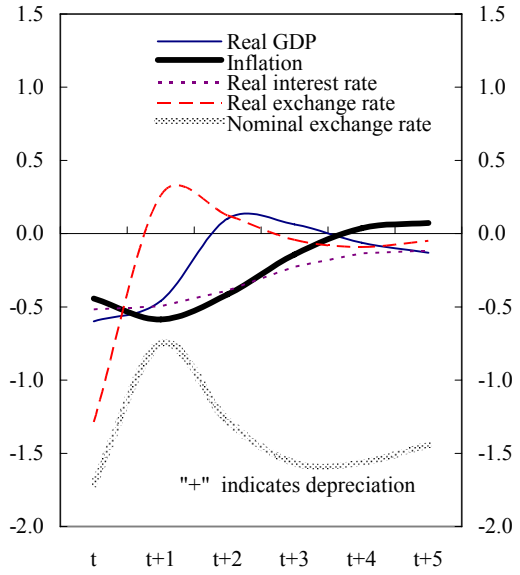
NMS with Fixed Exchange Rate Regimes: Effects of a One-Percent Permanent Decrease in Fiscal Deficit
(In percent or percentage point deviation from the baseline)



Source: IMF staff estimates.

57. **The effects of a monetary policy shock in GIMF are predictable**. The real interest rate rises and the exchange rate appreciates in response to an interest rate shock. Private investment and consumption weaken, leading to excess supply and disinflationary pressures. These effects unwind over time, and monetary policy neutrality holds in the long run.

NMS with Flexible Exchange Rates: Effects of a One Percent Interest Rate Increase
(In percent or percentage point deviation from the baseline)



Source: IMF staff estimates.

Lowering Inflation

58. **When setting policy targets to fulfill the Maastricht criteria, the NMS need to build in a safety margin to accommodate unanticipated shocks**. As emerging market economies, the NMS are susceptible to risk premium shocks to a larger extent than the OMS. The impact of oil price shocks on inflation in the NMS is likely to be stronger than in the OMS, because of the higher share of energy products in the consumer price baskets in the NMS. Monetary policy can offset the inflationary impact of the above shocks, but it would do so with a lag. Based on the historical volatility of oil prices, a moderately conservative strategy for satisfying the inflation criterion would call for setting the inflation target about 0.3 percentage points below the Maastricht reference value, which in the December 2006 Convergence Report was 2.8 percent. Such a margin would accommodate differences in the estimated impact on the NMS and the euro area of about 70 percent increase in oil prices as well as exchange rate shocks of up to 2¼ percent.

Safety Margins for Accomodating Oil Price and Exchange Rate Shocks

	Pass-through Coefficient 1/	Shock 2/	Safety Margin 3/
Oil price increase	0.004	68.6	0.3
Exchange rate depreciation	0.10	2.3	0.2

Source: IMF staff estimates.
1/ Difference between the estimated pass-through coefficients for a 1 percent increase in oil prices in the euro area and the NMS.
2/ Two standard-deviation oil price shock, based on the historical data for 1999-2006. A depreciation shock consistent with the exchange rate stability criterion.
3/ The impact of the shocks in question on inflation.

59. **Quantifying the degree of required policy adjustment and potential output losses is not straightforward**. One question is which sacrifice ratios to use to assess output losses associated with disinflation. For the NMS with floating exchange rates (for example, the CEECs),[71] the available estimates of the long-run sacrifice ratios for a 100 basis point permanent reduction in inflation among the NMS range from -½ percent of GDP to -4 percent of GDP.[72] The sacrifice ratios tend to be higher in countries with lower policy credibility and weaker monetary transmission mechanisms. For the NMS with fixed exchange rate regimes (for example, the Baltics), long-run estimates of the sacrifice ratio are not available. Instead, GIMF simulations provide estimates of the short-run output losses from a decrease in fiscal deficits and show that the resulting disinflation is sustainable over the one-year horizon.[73] These short-run losses might be offset by the long-run gains from fiscal consolidation, to the extent that adjustment allows crowding in private investment and consumption by lowering public debt obligations and distortionary labor and consumption taxes and does not involve cuts in productive public investment compementary to private investment. Given the strong fiscal positions in the Baltics, the long-run gains associated with further fiscal consolidation are likely to be limited, we focus our attention on the short-run losses.

60. **Another question is which levels of inflation to use**. Since the objective of the analysis is simply to illustrate potential output losses, we abstract from forecasting inflation for the NMS and other EU countries and instead use a backward-looking approach to estimate potential output losses associated with disinflation. We use the reference inflation rate reported in the December 2006 Convergence Reports, adjusted for the safety margin (paragraph 58), as a reference value for the Maastricht criterion; the adjusted reference value comes to 2½ percent. For the starting value of inflation, we consider two approaches, aiming to estimate a range of potential losses, given uncertainties about the equilibrium rates of real exchange rate appreciation in the NMS (paragraph 40):

- The first approach uses the actual values for inflation corresponding to December 2006. Output losses relating to disinflation would then range from 5½–6½ percent of GDP in Hungary and Latvia to 2–3 percent of GDP in Estonia and Lithuania to

[71] The analysis below focuses on the CEECs and the Baltics because reliable estimates of the sacrifice ratios for Bulgaria and Romania are not available.

[72] Bulíř and Hurník (2006). This compares to the sacrifice ratios ranging from -½ percent of GDP to -3½ percent of GDP in EU-15 countries (Bulíř and Hurník, 2006) and -1¼ percent of GDP in the eurozone (Coffinet, Matheron, and Poilly, 2007).

[73] This would appear sufficient, given the interpretation of the sustainability principle in practice (paragraph 35).

1½ percent in the Slovak Republic.[74] Significant fiscal retrenchment would be needed in the NMS with fixed exchange rate regimes to achieve such disinflation, for example, by about 5 percent of GDP in Latvia and 2⅓ percent of GDP in Estonia. This would bring budget surpluses in these countries to 5¼ percent of GDP and 6 percent of GDP, respectively. However, the adequacy of the starting point—inflation in 2006—is questionable. As discussed above, various temporary, NMS-specific factors might have boosted inflation in 2006, notably demand shocks related, for example, to interest rate convergence (falling risk premia), EU accession in 2004, and the prospects for EU transfers.

- Accordingly, an alternative but still simple approach is to argue that only inflation reduction to below the longer-run equilibrium trend is costly for purposes of meeting the Maastricht criteria. Assuming this longer-run equilibrium trend is captured in all NMS only by the Balassa-Samuelson estimates that add 1½ percent to average OMS inflation, which is running just under 2 percent, this would refer to any inflation reduction below 3½ percent. Relative to the cautious 2½ percent reference value discussed above, the losses would thus relate to a 1 percentage point temporary reduction in inflation. Assuming the NMS manage to achieve the policy credibility and structural flexibility of the best performers among them, the related output loss would be in the range of ½–1½ percent of GDP.

These two groups of estimates provide some rough idea about upper and lower bounds of possible output losses. Which group of estimates is more relevant for a given country depends on country-specific circumstances, particularly the degree to which inflation and exchange rate developments in the country in question are sustainable and the extent to which the country authorities would be willing and able to strengthen their policy frameworks, including monetary policy credibility, the effectiveness of the monetary transmission mechanism and the structural flexibility of the economy.

[74] In the Czech Republic and Poland, strengthening currencies helped bring inflation below the Maastricht reference values.

Output Effects Associated with Disinflation 1/

	Current Inflation (In percent)	Desired Degree of Disinflation 2/ (In percent)	Output Losses from a 1 Percentage Point Decrease in Inflation 3/ (In percent of GDP)	Output Losses Associated with Desired Disinflation (In percent of GDP)
Czech Republic	2.6	0.1	-0.5	0.0
Hungary	3.9	1.4	-4.0	-5.5
Poland	1.0	-1.5	-0.8	0.0
Slovak Republic	4.4	1.9	-0.8	-1.5
Estonia	4.4	1.9	-1.6	-3.1
Latvia	6.5	4.0	-1.6	-6.5
Lithuania	3.8	1.3	-1.6	-2.1

Sources: ECB (2006), Bulř and Hurník (2006), IMF staff estimates.
1/ The table illustrates the output losses associated with disinflation. Actual inflation data and the reference values for the Maastricht criterion are taken from the December 2006 Convergence Report of the ECB.
2/ Actual inflation and the Maastricht reference value (as of December 2006) minus the ¼ percent safety margin.
3/ Data for the CEECs are estimates of full-horizon sacrifice ratios from Bulř and Hurník (2006). Data for the Baltics are 4-quarter output losses from a decrease in the fiscal deficit needed to achieve a 1 percentage point decrease in inflation, based on GIMF. Disinflation of 1 percentage point is sustainable for 4 quarters.

Maintaining Exchange Rate Stability

61. **The potential for inconsistency between inflation and exchange rate objectives in ERM-II makes meeting the exchange rate stability criterion challenging for the NMS with floating exchange rate regimes**.[75] Inflation targets in such NMS would have to be set relatively low (the Maastricht reference value, as of December 2006, minus the safety margin renders 2½ percent). Any equilibrium real appreciation would likely have to take place through the nominal exchange rate. Assuming that equilibrium real appreciation is limited to the Balassa-Samuelson effects (estimated at 1½ percent on average), the 3 percent cumulative appreciation during the two years that the NMS would spend in the ERM-II can be easily accommodated within the 15 percent appreciation part of the ERM-II band. However, the remaining room for appreciation (6 percent per annum) might not be sufficient if other equilibrium factors are at play. Interest rates can be reduced in this case, but this might put the fulfillment of the inflation criterion at risk. Simulations suggest that a 1 percentage point increase in interest rates can lower inflation by ½ percent, with the exchange rate appreciating by 1½ percent. Fiscal consolidation would help resolve the tensions between the inflation criterion and the exchange rate stability criterion. A 1 percent of GDP permanent decrease in the fiscal deficit would reduce inflation by about ⅓ percentage points, according to GIMF simulations, and the exchange rate would depreciate by about 2 percent on impact—an effect that would gradually unwind. The potential tensions

[75] Satisfying the exchange rate stability criterion is trivial for the NMS with fixed exchange rate regimes.

involved in simultaneously satisfying the exchange rate and inflation criteria argue for minimizing the time the NMS spend in the ERM-II.

Reining in Fiscal Deficits

62. **The NMS also need to build in safety margins in their fiscal targets relative to Maastricht criteria, given the historical volatility of their GDP and budget elasticities**. The variability of output is greater in the NMS—emerging market economies—than in the OMS. A cyclical slowdown or an adverse external demand shock, for example, can widen budget deficits, putting the fulfillment of the fiscal criterion at risk. To mitigate this risk, the NMS would need to set fiscal targets below the Maastricht and SGP limit of 3 percent of GDP. Such a buffer would serve the NMS well in the euro area too, as it would create room for the operation of automatic stabilizers or discretionary policy in the event of a cyclical downturn. Going below the Maastricht limit might be necessary to insure against the risk that a negative shock shortly before euro adoption would raise the deficit above the limit and require a procyclical tightening of fiscal policies to bring the deficit below the limit. Based on the historical volatility of GDP and budget elasticities, the necessary margins are estimated at about 1–2 percent of GDP. Clearly the Maastricht 3 percent fiscal deficit limit therefore does not appear to be a prudent target for the NMS.[76] Going beyond the Maastricht requirements may also help contain inflation.

63. **As for the effects of a decrease in the fiscal deficit on output, there is a trade-off between short-run and long-run effects**. In the short run, fiscal consolidation reduces GDP, while in the long run the effects are positive owing to the improvement in the government's debt position, and the long-run effect tends to outweigh the short-run effect in present value terms. The extent of the fiscal adjustment needed to reach prudent fiscal targets (i.e., the Maastricht 3 percent of GDP ceiling minus the safety margin) varies across countries. Using fiscal positions described in the December 2006 Convergence Report as an example, the magnitude of the needed fiscal adjustment would be 9 percent of GDP in Hungary and about 2 percent in the Czech Republic, Poland and the Slovak Republic. The Baltic countries are already meeting their prudent medium-term targets.

[76] Schadler and others (2005).

Output Effects Associated with Achieving Prudent Fiscal Targets
(In percent of GDP)

	Fiscal Balance 1/	Prudent Fiscal Balance 2/	Difference from the Prudent Balance	Short-Run Output Losses from Fiscal Consolidation 3/	Medium-Term Output Gains from Fiscal Consolidation 3/
Czech Republic	-3.5	-1.2	-2.3	-1.2	0.8
Poland 4/	-3.9	-1.9	-2.0	-1.0	0.7
Hungary	-10.1	-1.2	-9.0	-4.5	3.1
Slovak Republic	-3.4	-1.6	-1.8	-0.9	0.6

Source: ECB (2006), Schadler and others (2005), and IMF staff estimates.
1/ Data refer to 2006.
2/ Based on GIMF simulations, a 1 percent decrease in the fiscal deficit results in a ½ percent decrease in the level of GDP in 1 year and a ⅓ percent increase in the level of GDP over the 5 year horizon.
3/ The 3 percent of GDP Maastricht and SGP headline deficit ceiling minus the prudent fiscal buffer estimated in Schadler and others (2005).
4/ With the second pillar pension pillar classified outside government.

F. Conclusion

64. **The NMS face considerable macroeconomic policy challenges as they prepare for participation in monetary union**. These challenges relate to their lower per capita incomes and financial depth than those in the OMS and the ensuing pace of convergence. As a result, the NMS are experiencing higher output and productivity growth than the OMS and rapid credit growth, supported by large capital inflows. This has led to significant appreciation of the NMS real effective exchange rates relative to those of their OMS partner countries, via appreciation of nominal exchange rates or higher inflation. Some part of these real appreciations is clearly of an equilbrium character. One element is the so-called Balassa-Samuelson effect. Estimates of this effect vary, but average around 1½ percent per year. Other long-lasting equilibrium mechanisms may also be at play, for example, EU transfers, which are projected to be sizable in the coming years, are also likely to contribute to real appreciation, and improvements in the quality of services in tandem with rising demand for them might also command higher prices. Other mechanisms prompting real appreciations may be less lasting, including those associated with the adoption of the EU acquis and the confluence of rapid financial integration, unusually benign global financial conditions, and structural change in the investor base for emerging market countries. These may have fostered stock-adjustment-type economic booms that will fade appreciably sooner than longer-lasting forces. These booms may well be fully justified, given the economic potential of the NMS but they may also go further than fundamentals warrant. Distinguishing benign appreciation trends in exchange rates and prices from overheating trends is thus difficult in the NMS.

65. **Against this backdrop, the degree of macroeconomic policy adjustment the NMS would need to undertake to join monetary union is generally uncertain and depends on country-specific circumstances**. The analysis in this paper is based on a dynamic stochastic general equilibrium model that allows for a joint analysis of monetary and fiscal policies.

The crucial issue is the extent to which today's high real appreciation rates reflect longer- rather than shorter-run forces. If they are largely driven by the former, simulations show that appreciable short-run output losses might be needed for the purpose of meeting the Maastricht criteria. To the extent that recent real appreciation trends largely reflect the latter forces, transient in nature, or irrational exuberance, short-run output losses may be more manageable, because real appreciation rates are likely to slow over time or require policy responses regardless of the Maastricht criteria. In either case, fiscal adjustment is not only needed but would also be beneficial, especially in the NMS that are still far away from their "prudent" medium-term fiscal targets. On current estimates of output volatility and budget elasticities in the NMS, such prudent targets are significantly below the Maastricht fiscal deficit limit, and would strengthen performance in the medium to long term.

66. **A key challenge for the NMS and euro-area authorities is to ensure that the NMS enter in positions that allow them to perform well in monetary union**. The long-standing Maastricht criteria play a useful role as simple and transparent anchors for macroeconomic policies on the way to monetary union. A pursuit of consistent macroeconomic policies, further improvements in the structural flexibility of the economy, and financial deepening are essential for the NMS to excel in EMU. Sound prudential policies, particularly supervision of foreign currency and real estate lending, are also needed to maintain the quality of credit and bank strength. Clear communication of the NMS' euro-adoption prospects would help households, businesses, and financial markets make correct decisions and perhaps facilitate the unwinding of the currency mismatches accumulated on earlier, more optimistic expectations of euro adoption.

67. **The benefits of euro adoption for both the NMS and the OMS are likely to be considerable**. The NMS would benefit from the enhanced policy credibility that comes with the economic governance framework of EMU members as well as a further reduction in exchange rate-related risk. And both the NMS and the OMS would benefit from further expansion in trade and investment that comes with a common currency. This expansion in trade would inject greater competition, efficiency and growth in the EU and, via trade in intermediate goods, also help the OMS to optimize their production structures and improve their competitiveness in an increasingly competitive global economy.

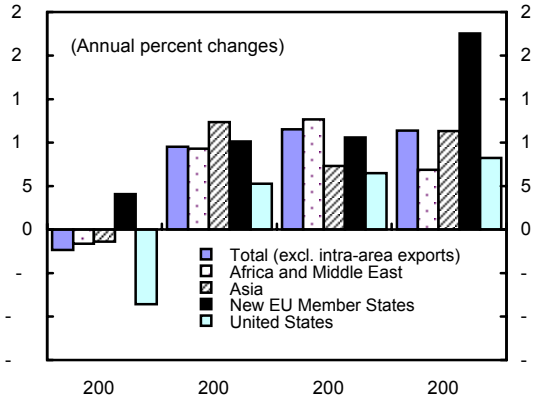
Box II.1. Economic Effects of the NMS' Joining the Euro Area

Long-Run Welfare Gains

Euro area membership is likely to boost growth by about 1 percent per year, speeding up convergence in living standards between the NMS and the OMS.[1/] Gains to the euro area are likely to be smaller, given differences in the relative size of the euro area and the NMS economies—the NMS as a group account for 6 percent of the euro area's GDP and 25 percent of population. Nonetheless, even for the euro area the gains are likely to be noticeable. They are likely to occur through trade, investment, and migration.

Trade. Empirical studies agree that a currency union is likely to boost trade over the long run, although the magnitude of this effect is believed to be smaller now than a few years ago.[2/] The elimination of currency risk and currency transaction costs between the NMS and the euro area is likely to augment the already achieved gains from trade resulting from the elimination of trade barriers between the two regions, resulting in considerable trade creation. Judging by the boost to euro area exports and trade balances that the NMS' accession to the EU provided, gains from trade with the NMS will be significant.

NMS are driving exports of euro-area countries.



Source: IMF, *Direction of Trade Statistics* and Fund staff calculations. Growth rates refer to exports of goods denominated in euros.

Investment. Lower currency risk is also likely to encourage further FDI in the NMS, promoting vertical and horizontal integration between firms in the two regions. FDI flows will facilitate technological and quality upgrading in the NMS. The euro area will share in these benefits, as outsourcing to lower-wage NMS is likely to improve the competitiveness of euro-area firms.

Migration. Increased migration flows between the NMS and the euro area are also likely to bring in efficiency gains, although the role of euro adoption in this is likely to be very limited. Recent studies for Ireland and the United Kingdom (major recipients of migrant flows from the NMS in recent years) suggest that these flows can boost GDP in euro-area countries by ½–1½ percent.[3/]

Implications for Macroeconomic Management

With euro adoption, the nominal exchange rate will no longer serve as a shock-absorber in the NMS; adjustment to asymmetric shocks would need to take place through prices and wages. To the extent that the latter are rigid, the volatility of output and inflation in the NMS after euro adoption is likely to increase. However, this cost of joining monetary union needs to be weighed against the benefit resulting from lower exchange rate risk. This would be important in the NMS that are susceptible to risk premium shocks (for example, owing to lower than euro-area policy credibility) or where significant currency mismatches have accumulated in recent years in the private sector balance sheets.[4/] Another consideration is that increased trade and investment flows with the euro area are likely to speed up convergence of business cycles and production structures, reducing the incidence of asymmetric shocks.

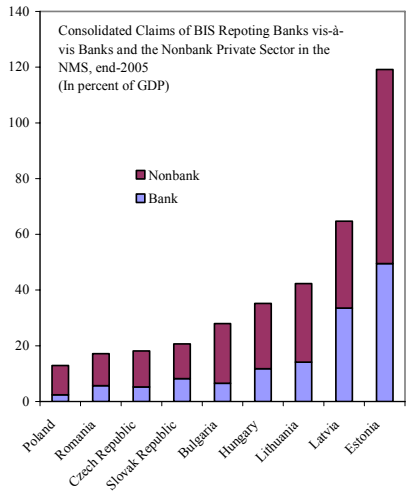
1/ Schadler and others (2005).
2/ Rose (2000), Faruqee (2004), and Baldwin (2006).
3/ Barrell, Fitzgerald, and Riley (2007).
4/ Karam and others (2007).

Box II.2. Financial Instability in the NMS: Costs and Spillovers[1/]

Empirical studies suggest that the cost of a financial crisis if it were to originate in a NMS are likely to be significant, slowing real convergence. De Gregorio and Lee (2004) estimate that twin currency and banking crises in emerging market countries on average result in the output loss of 16 percent of GDP, cumulative over 5 years of an average duration of the crisis. Hutchison and Noy (2005) put the average duration of crisis at about 3 years and output losses at 10 percent of GDP. The loss could be significantly higher, if the decline in output is permanent (Boyd and others, 2004).

A downturn in one NMS may affect other NMS and, to a lesser extent, the euro area through trade links. Exports to the NMS accounted for about 7 percent of total euro-area exports in 2005. For the NMS, the euro area is the most important trading partner. However, the importance of intra-NMS trade increased in recent years. For example, 32 percent of Latvia's total imports came from the NMS in 2006 and 35 percent from the euro area. The respective shares were 22 percent and 39 percent in 2000.

A widening of the risk premium for one NMS may prompt investors to reassess sovereign risk of other NMS. For example, CDS spreads for Hungary and Poland are highly correlated in periods of a sharp increase in spreads. Investors may be also forced to sell assets of other NMS to finance margin calls or cash outflows from the country where the shock originated. The potential for capital outflows is significant: according to the IMF's Coordinated Portfolio Investment Survey, the outstanding stock of portfolio investment was $17.4 billion in the Czech Republic, $8.8 billion in Poland, $3.0 billion in Estonia, and $3.4 billion in the Slovak Republic in 2005.



Source: IMF's Coordinated Portfolio Investment Survey, BIS, and IMF staff estimates.

Cross-border financial linkages are another important channel for spillovers between the NMS and the euro area. Foreign banks, from the euro area and Sweden, account for about 80 percent of total banking sector assets in the NMS. Foreign banks have played a prominent role in the rapid expansion of foreign currency-denominated credit in the NMS—through lending to NMS subsidiaries, leasing companies, and corporates. The stock of outstanding cross-border claims on the NMS is large.

Most of these claims are owned by a few banks from a few countries—common lenders to the NMS. The banks that are most active in lending to the NMS are from Austria, Belgium, France, Germany, Italy, the Netherlands and Sweden. Although assets in the NMS represent a small fraction of these banks' total balance sheets, the share in profits is higher. For example, for Austrian banks, activities in the CEEC countries accounted for about 16 percent of consolidated total assets in 2005, while profits from these activities reached 35 percent of pre-tax profits.[2/] Changes in earnings outlooks of the banks active in the NMS are likely to affect equity prices for these banks, and through interbank linkages this might have implications for other European banks.[3/] The fact that some banks are common lenders to several NMS points to the scope for transmission of shocks across the NMS.

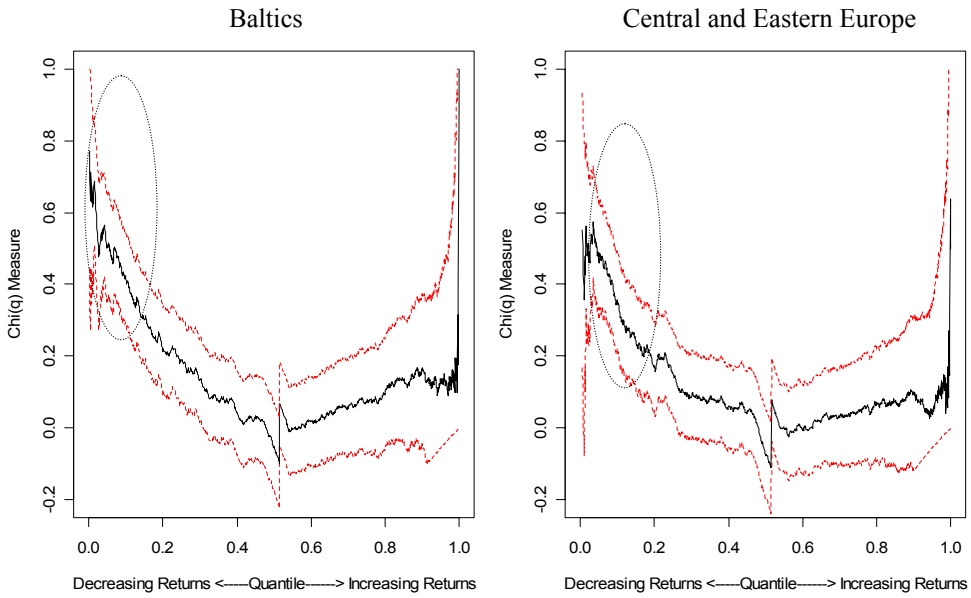
1/ Prepared by Natalia Tamirisa, with inputs from Gavin Gray and Andy Jobst (MCM).
2/ Hilbers (2007).
3/ Gropp, Lo Duca, and Vesala (2006) find evidence of significant cross-border contagion among European banks.

Box II.3. Cross-Border Bank Contagion between the NMS and the Euro Area[1/]

A measure of joint asymptotic tail dependence that underlies bivariate extreme value distribution (EVD) functions is used to assess the potential for financial contagion between European banks active in the NMS and a broader aggregate of European banks. Conventional Pearson's linear correlation coefficients characterize variable dependence as a central tendency and are thus diluted in the presence of skewed distributions. We consider an alternative measure of bivariate dependence—the Chi(q) measure plot of quantile-based dependence between two i.i.d. random vectors—defined as $\chi(q) = 2 - \log\left(\Pr\left(F_X(X) < q, F_Y(Y) < q\right)\right) \Big/ \log(q)$, where F_X and F_Y are the marginal distribution functions, quantile $q \in [0,1]$.[2/] The statistic measures dependence at extreme values of the distribution.

The analysis suggests that markets are likely to believe that problems in the European banks active in the NMS will get transmitted to other European financial firms. We find a precipitous increase in quantile-based dependence between equity prices of European financial firms and the banks exposed to either the Baltics or central and eastern Europe at low percentiles of individual equity return distributions. This indicates joint asymptotic tail behavior in line with extreme value dependence during periods of large declines in equity prices. Although large equity price movements are likely to reflect common shocks to the European banking sector rather than shocks specific to the NMS, high extreme-value dependence between the NMS-active banks and other European banks could point to little investor differentiation among these two groups of banks in times of stress. The high share of index-based funds investing in European banking stocks might explain this result.[3/]

Extreme-Value Dependence between Equity Prices of Banks Active in the Baltics and Central and Eastern Europe and European Financial Firms Overall



Source: Bloomberg, Bankscope, annual reports of individual banks, and IMF staff estimates.
Note: The chart shows the Chi square measure plot on daily log returns of MSCI Equity Index for European Financials and a composite equity price index of selected European banks with the largest asset exposures to the Baltics and the CEECs (from 11/1/2000–4/13/2007; 1,684 obs.). The confidence interval assumes independent observations at a statistical power of 95 percent. The plot is estimated on 1,000 intervals using the delta method, which may lead to poor interval estimates around q=0 and q=1.

1/ Prepared by Andy Jobst (MCM), with inputs from Gavin Gray and Natalia Tamirisa.
2/ Coles, Heffernan, and Tawn (1999).
3/ Sáez, Fratzscher and Thimann (2007) also find that shocks to equity prices of banks in Emerging Europe (the Czech Republic, Poland, Russia, and Turkey) are transmitted to the European financial sector.

Box II.4. Non-Ricardian Features in GIMF

The non-Ricardian properties of GIMF result from the following assumptions. First, the OLG consumers have finite planning horizons and are therefore myopic with respect to future tax liabilities. Second, the life-cycle income patterns of consumers feature declining life-cycle productivity and labor income profiles. Third, some consumers are liquidity-constrained because they lack access to financial markets and as a result they change their consumption one-for-one with their after-tax labor income. This feature is particularly relevant for the NMS economies with underdeveloped financial markets. Lastly, labor and consumption taxes are distortionary, because labor effort and consumption depend on relative prices, which in turn depend on tax wedges.

Several other elements of the model enrich the dynamic response to fiscal policy shocks. Preferences and technologies are defined broadly enough, highlighting the role of the intertemporal elasticity of substitution in the propagation of fiscal shocks. A multi-sector production structure includes traded and nontraded goods manufacturers, import agents, distributors, retailers and trade unions. Labor supply decisions and capital formation are endogenous. The latter serves as an additional channel through which government debt can crowd out economic activity. The model also allows for productive government investment in infrastructure, which makes it particularly relevant for the analysis of fiscal policy effects in the catching up NMS with considerable infrastructure needs.

Nominal and real rigidities in the model are typical of monetary business cyclical models. Nominal rigidities include producer currency pricing for manufactured goods and final goods, local currency pricing for imported goods, and sticky wages. Real rigidities include habit persistence in consumption, adjustment costs in investment, imports and retail trade, as well as international trade frictions.

The non-Ricardian features and rigidities in the model allow for monetary and fiscal policies to be examined jointly. Monetary policy is based on an interest rate rule, similar to the rules suggested by Orphanides (2003), which aims to stabilize inflation and output growth, while smoothing interest rates. The main difference, reflecting the non-Ricardian features of the model, is that the steady-state real interest rate is not constant but depends on fiscal policy. Fiscal policy aims to stabilize government debt-to-GDP ratio by adjusting labor and capital tax rates or by reducing government spending for consumption and investment purposes. The policy is implemented by a fiscal rule where the primary surplus adjusts to deviations of the government balance ratio from a desired value. Interactions between monetary and fiscal policy determines the short-run dynamics of the model, while the medium- and long-run dynamics depend on the fiscal rule. For a more detailed description of the model, see Kumhof and Laxton (2007).

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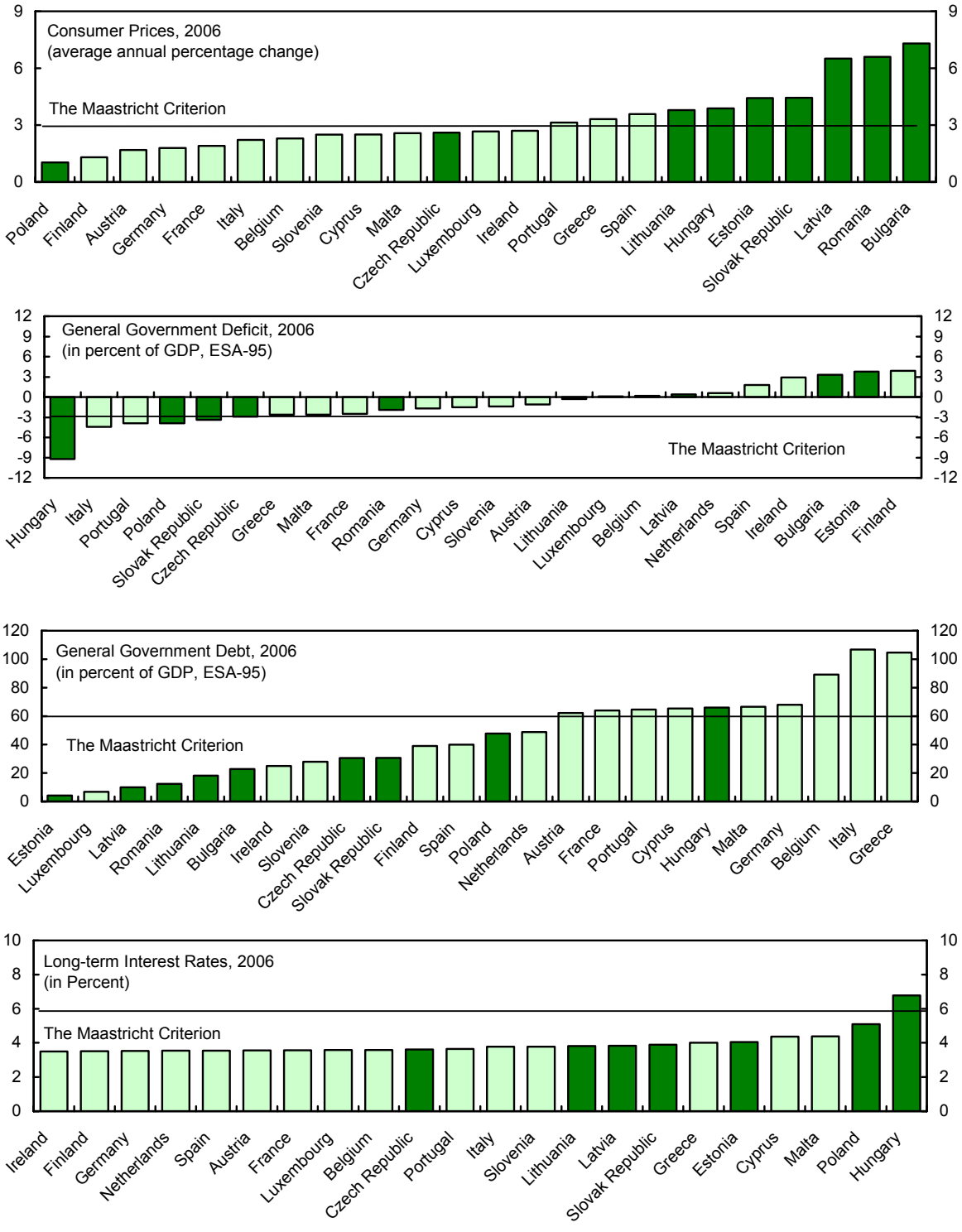
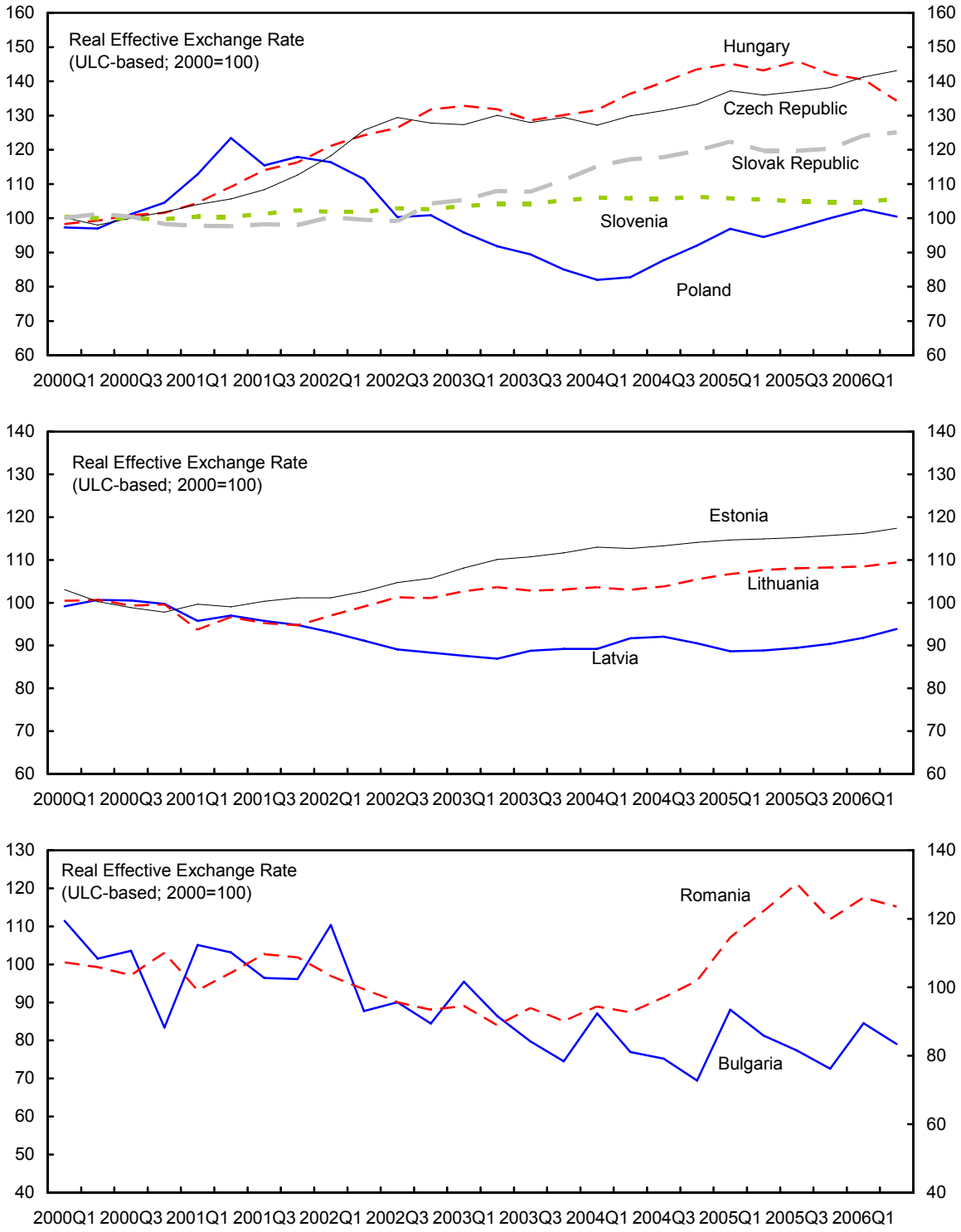
Figure 1. NMS and Euro Area Members: Maastricht Criteria



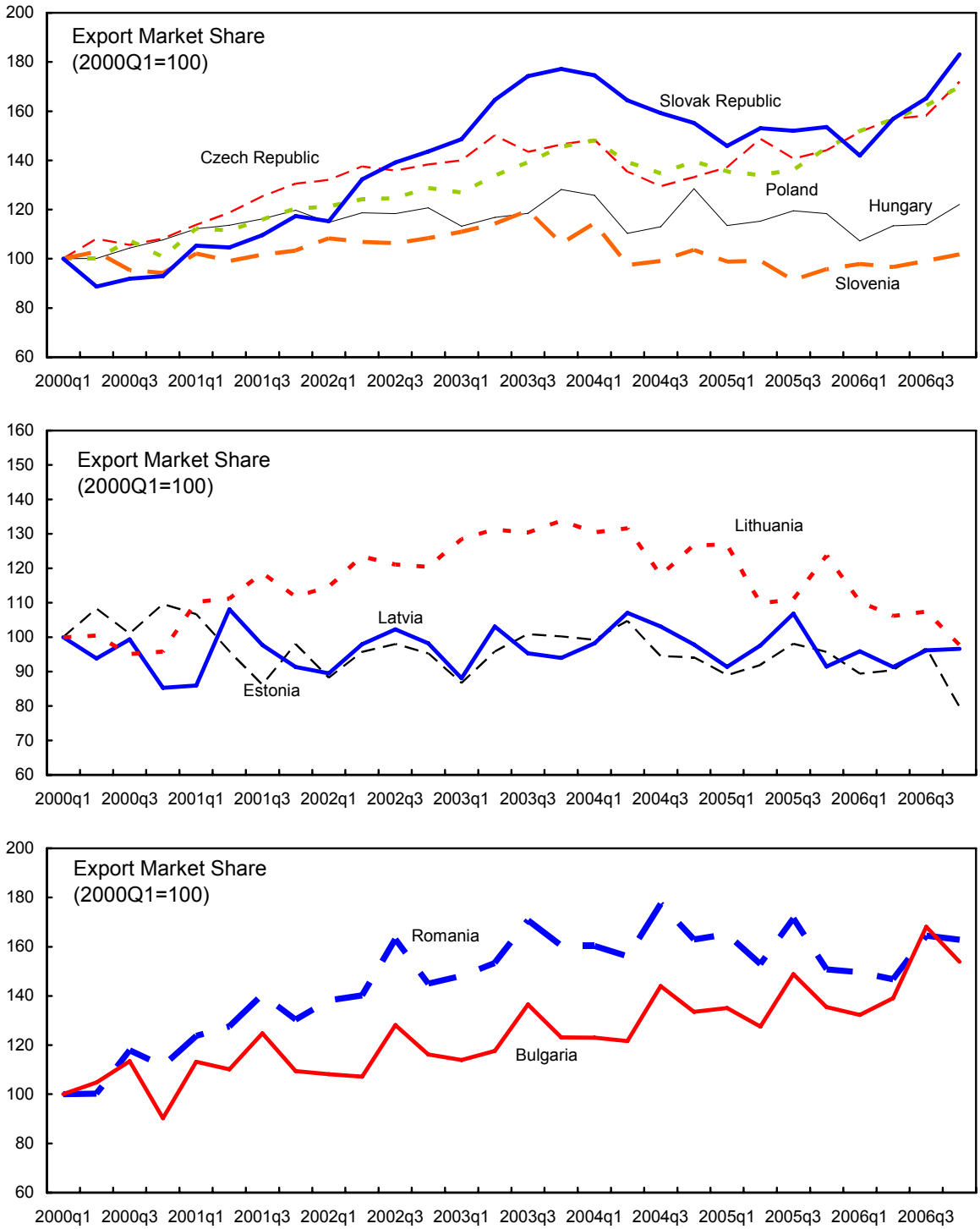
Sources: Eurostat, national statistical offices, IMF staff estimates.

Figure 2. NMS: Real Effective Exchange Rates, 2000-06



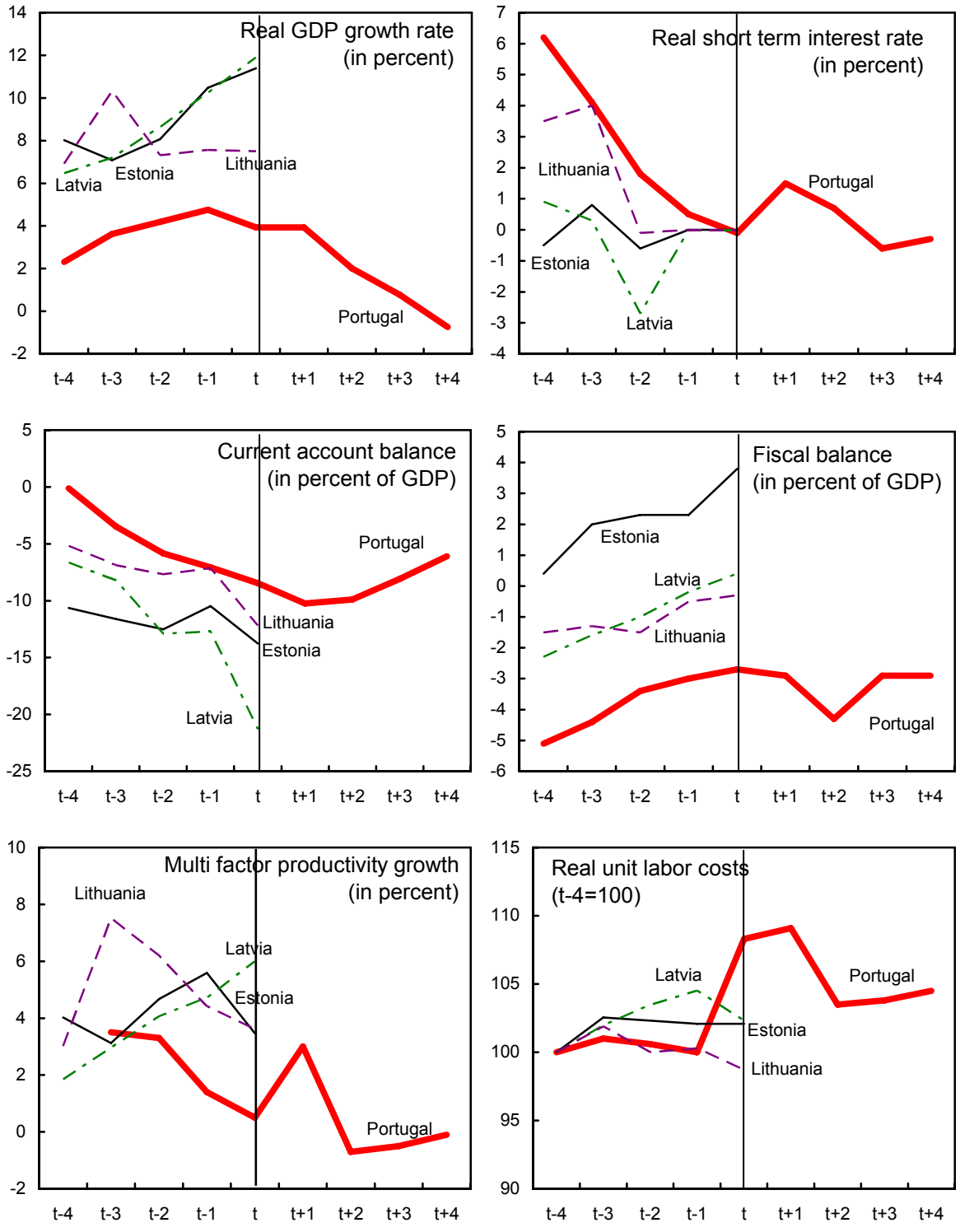
Source: Eurostat.

Figure 3. NMS: Export Market Share to the EU15, 2000–06



Source: IMF, Direction of Trade Statistics.

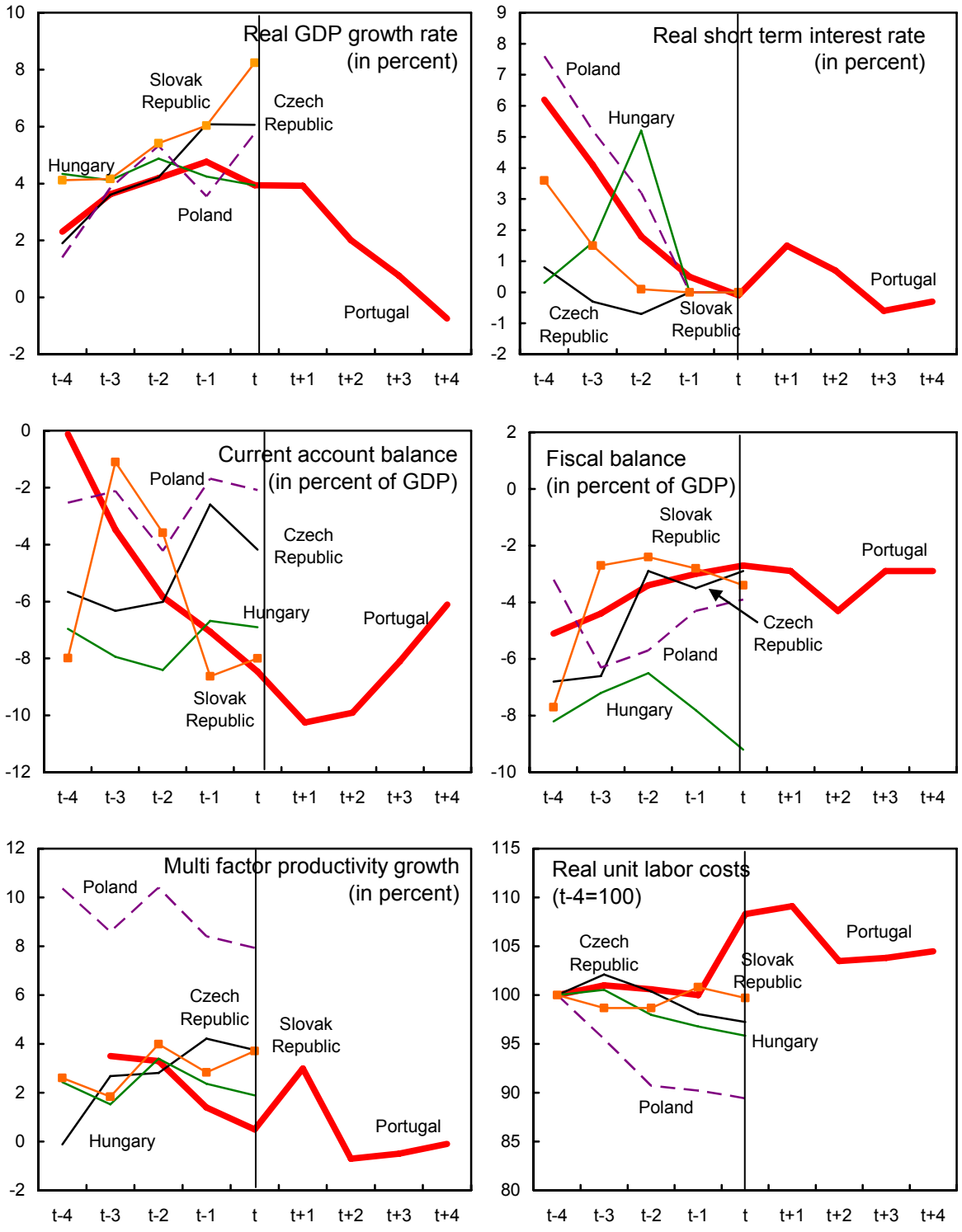
Figure 4. Portugal and the Baltics: Selected Macroeconomic Indicators 1/



Source: AMECO; OECD; and WEO.

1/ For Portugal, *t* corresponds to 1999, when the country joined EMU. For the Baltics, *t* is 2006.

Figure 5. Portugal and the CEECs Selected Macroeconomic Indicators 1/



Source: AMECO; OECD; and WEO.

1/ For Portugal, *t* corresponds to 1999, when the country joined EMU. For the CEECs, *t* is 2006.