

INTERNATIONAL MONETARY FUND

Globalization, Financial Markets, and Fiscal Policy

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(In consultation with other departments)

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EXECUTIVE SUMMARY

This paper examines how fiscal policy can contribute to realizing the benefits of two important ongoing developments, globalization and financial deepening. The main conclusions are that:

- **Globalization and financial deepening have the potential to raise economic growth and improve the overall fiscal position, but there are reasons why they could put pressure on government finances.** While revenue has been generally robust, it could decline if tax competition intensifies, in which case efforts to protect revenue by strengthening tax administration and promoting cooperation designed to avoid harmful tax practices will gain in importance. There could also be upward pressure on expenditure as the demand for social protection and infrastructure investment increases. Furthermore, there is a possibility that contingent fiscal liabilities in the financial sector will increase. Although these potential fiscal pressures may not all materialize, should they do so there is a need to ensure that fiscal policy is prepositioned to respond by adjusting revenue and expenditure or having the capacity to borrow. This would strengthen the case for early fiscal adjustment in countries where there are debt sustainability concerns. Prepositioning and fiscal adjustment needs should also be assessed taking into account the likely deterioration in fiscal positions due to future expenditure pressures from population aging and climate change (Section II).
- **Reaping the benefits of globalization and financial deepening requires a commitment to fiscal discipline.** While financial globalization could make market discipline of fiscal policy more effective, there is also a danger that easier market access could fuel excessive borrowing and debt accumulation, especially by countries with weak fiscal frameworks. Sound fiscal policies and institutions, combined with careful fiscal monitoring and timely policy responses, will help to minimize the risks to government liquidity and solvency, in part by ensuring that two recent trends—redemption from original sin and increased debt tolerance—are sustained (Section III).
- **Fiscal policy can be used in some situations to respond to the adverse macroeconomic consequences of large capital inflows.** If capital inflows create or are the result of aggregate demand pressure, fiscal stabilization may be an appropriate and effective response, although this depends on the source of the inflows and a range of other factors. Globalization and financial deepening may also influence the effectiveness of fiscal stabilization, but this is difficult to determine *a priori*. In any event, it is clear that the appropriateness and effectiveness of a fiscal policy response to capital inflows is country specific (Section IV).

- **Globalization amplifies fiscal policy spillovers, strengthening the case for enhanced policy cooperation in certain areas.** In particular, fiscal policy externalities due to greater trade openness and financial globalization are likely to magnify the cross-country effects of policies pursued by individual countries, especially in the face of common shocks such as population aging. Against this background, policy cooperation could have a potentially large pay-off, although achieving the desired degree of cooperation may be a challenge (Section V).

The paper provides an overview of analytical and empirical work. While it draws policy implications, it also identifies areas where questions remain because the likely outcome of globalization and financial deepening is theoretically unclear, relevant empirical work is inconclusive and, for these and other reasons, appropriate policy responses are difficult to determine. While there is a good deal of ongoing work that can inform the surveillance of policies and developments both in the fiscal and financial areas, a work agenda emerges from the paper (Section VI).

I. INTRODUCTION

- 1. Globalization and financial deepening have substantial macroeconomic and fiscal implications.** Globalization, defined as increasing trade and financial openness, has increased significantly over the past two decades, with a particularly sharp pickup in capital flows (or financial globalization) in recent years. This has been accompanied by financial deepening as the financial sector has grown in economic importance. The ability of capital to move to where it can be used most productively, together with deeper domestic financial markets, can increase an economy's efficiency and growth potential. However, globalization and financial deepening can have consequences that require appropriate policy responses if higher growth is to materialize, and the ability to respond in part depends on how these developments affect the government's policy choices, including its fiscal policy options.
- 2. This paper considers how fiscal policy can be used to help countries benefit from globalization and financial deepening.** Section II examines the fiscal impact of globalization, focusing on how it could affect government revenue through tax competition, put upward pressure on expenditure as the demand for social protection and infrastructure investment increases, and raise the fiscal costs stemming from contingent liabilities in the financial sector. Section III looks at the consequences of globalization for fiscal discipline, which reflect, among other things, the scope for enhanced market discipline of fiscal policies, easier access to external financing, recent improvements in debt structures, and more favorable growth prospects. Section IV then turns to the role of fiscal policy, especially in responding to some of the adverse macroeconomic consequences of large capital inflows. Spillovers and policy cooperation are discussed in Section V, where it is noted that globalization can magnify the extent to which fiscal policies have spillover effects, which strengthens the case for cooperation. Section VI discusses policy implications and the work agenda, while Section VII suggests issues for discussion.
- 3. For the most part, the approach adopted in the paper is to take stock of what is known and not known about the issues discussed.** However, because research in this area is still evolving, and the literature does not yet yield many clear and conclusive results, there are several areas where a need for further analysis is identified. Moreover, since the focus is on macrofiscal aspects of globalization and financial deepening, many topical issues with clear fiscal dimensions—including the distributional, labor market and trade consequences of these developments, as well as structural fiscal issues and the interaction between fiscal policy and domestic financial markets, including in the important area of pension provisions—are not covered in the paper. Finally, it should be noted that the paper focuses on issues that are relevant to different degrees across country groupings, with Sections II and V being more applicable to industrial countries while Sections III and IV apply more to emerging market countries (and to some extent to developing countries as well).

II. THE FISCAL IMPACT OF GLOBALIZATION AND FINANCIAL DEEPENING

A. Tax Revenue

4. **It has been suggested that globalization could lead to increased tax competition which would reduce the ability to tax mobile factors.**¹ A particular concern is that there could be increasing pressure for all countries to lower corporate tax rates, and the evidence indeed points to a sizeable reduction in corporate tax rates worldwide.² While some reduction in corporate taxation may represent a preferred policy, there is a need to weigh this against other demands on the budget and available financing. In industrial countries, statutory corporate tax rates have declined markedly over the past two decades, from an average of around 45 percent to around 35 percent, with a similar downward trend in effective tax rates (Figure 1). The decline has been especially pronounced in some EU countries such as Austria, Denmark, Finland, Portugal and Sweden, and also in emerging market countries in Europe. Poland reduced the statutory corporate tax rate from 38 percent in 1997 to 19 percent in 2007, and the Czech Republic reduced it from 41 percent to 25 percent over a similar period. The evidence for emerging markets in Asia and Latin America also suggests a recent decline in corporate tax rates (Figure 2).³

5. **Despite the reduction in statutory and effective tax rates, corporate tax revenue has held up well.** Indeed, industrial countries have experienced an increase in corporate tax revenue on average, both relative to GDP and to total tax revenue (Figure 3). A similar trend is observed in emerging market countries, where corporate tax revenue now accounts for almost 20 percent of total tax revenue, which is the highest ratio recorded for these countries (Figure 4).

6. **There are a number of explanations for the combination of declining corporate tax rates and increasing corporate tax revenue.** Clearly corporate tax revenue was boosted by the earlier strengthened pace of economic activity and record-high profits in many countries. However, as evidenced by the fact that effective corporate tax rates have fallen much less than statutory rates (Devereux, Griffith and Klemm, 2003), the corporate tax base in many countries has been broadened substantially, both by cutting back exemptions and strengthening tax administration.⁴ Some more specific factors may also have played a role in

¹ Tax competition refers to strategic, non-cooperative tax setting by jurisdictions, with each determining some parameters of its tax system in response to the taxes adopted by others (Keen, 2008).

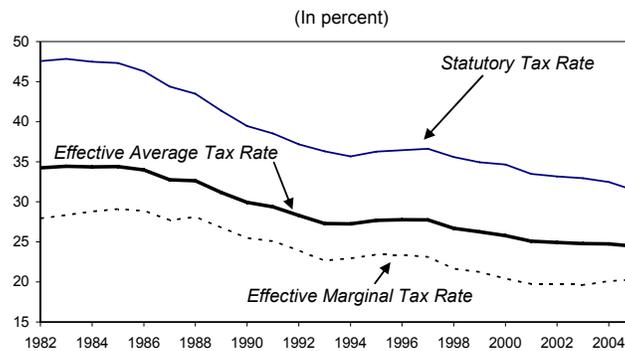
² It is difficult to disentangle whether this is due to globalization or to unrelated policy preferences. However, Devereux, Lockwood, and Redoano (2003) show that capital account liberalization tends to lead to lower corporate tax rates and increase strategic interaction between countries in corporate taxation.

³ Theory suggests that small countries benefit more from tax competition than large countries (Kanbur and Keen, 1993).

⁴ It should be noted that exemptions have actually increased in some developing countries (e.g., in Sub-Saharan Africa), but corporate tax revenue has still increased.

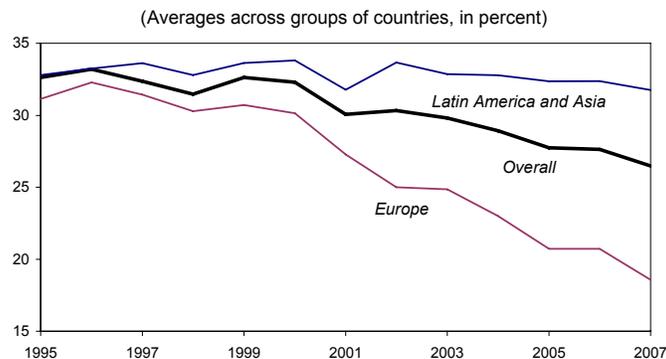
boosting revenue, including: an increased share of profits in GDP; increased volatility of profits coupled with only partial loss-carryover; a shift from personal to corporate taxation as lower corporate tax rates have encouraged small businesses to incorporate;⁵ and a shift from debt to equity financing, which is revenue enhancing insofar as the former is tax deductible while the latter is generally not (in spite of attempts in some countries to equalize the taxation of debt and equity). Going forward, downward pressure on corporate tax rates may ease, given that taxes are not all that matter in making business decisions. Surveys confirm that business activity is undertaken where it is most profitable, which is not necessarily where taxes are lowest (McKinsey, 2003), and the quality of tax-financed services, such as infrastructure, public administration, and law enforcement, has also been found to be important (Stewart and Webb, 2006).

Figure 1. Average Corporate Income Tax Rates in Industrial Countries



Sources: Institute for Fiscal Studies and Fund staff calculations.

Figure 2. Statutory Corporate Income Tax Rates in Emerging Market Countries



Sources: KPMG's Corporate and Indirect Tax Rate Survey 2007 and University of Michigan.

⁵ This accounts for a significant part of the increase in corporate tax revenue in EU countries (Bovenberg, 2006).

Figure 3. Corporate Income Tax Revenue in OECD Countries

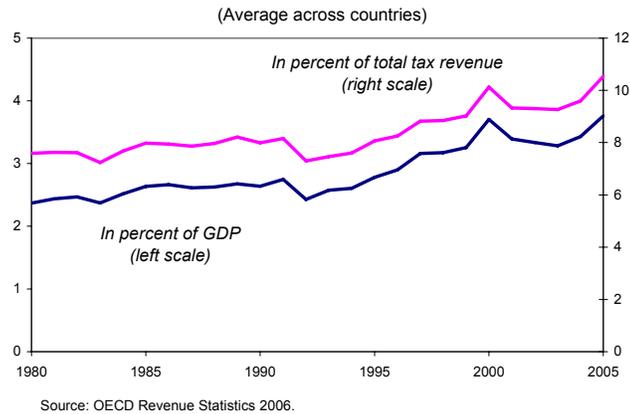
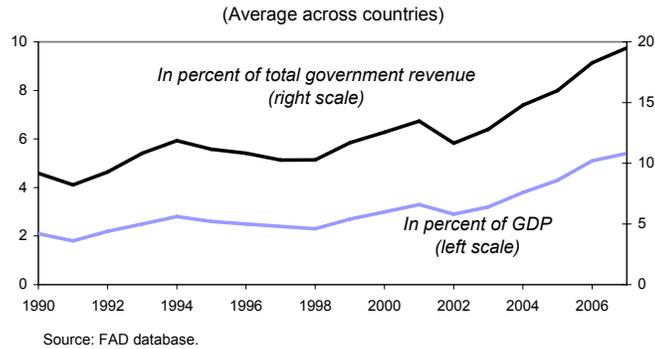


Figure 4. Corporate Income Tax Revenue in Emerging Market Countries



7. **Overall tax revenue has also held up well.** Indeed, tax revenue in industrial countries in 2006 remained close to historically high levels (Figure 5). Most emerging market countries have also seen an increase in revenue, as have many other developing countries, albeit from a low level. In addition to the earlier sharp cyclical rebound in activity and profits noted above,⁶ there has been a concerted effort to broaden the overall tax base and strengthen tax administration in many countries. This is in part a response to high deficits and debt, combined with high levels of mandatory spending (Genschel, 2001).

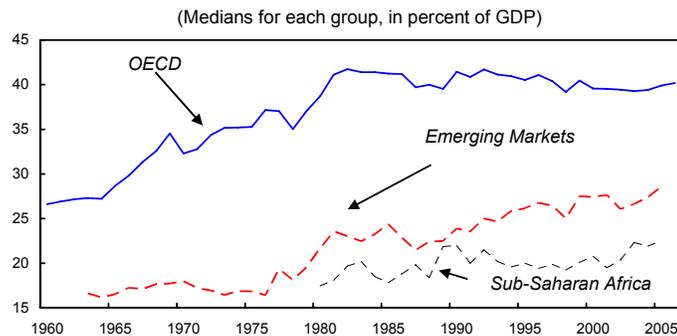
8. **However, as cyclical factors abate and the scope for additional base broadening shrinks, any further lowering of tax rates on mobile factors could reduce tax revenue.**⁷ This could lead over time to heavier taxation of less mobile factors, which could exacerbate distortions in the tax system and raise equity concerns. In addition, the growing use of electronic commerce, offshore financial centers, and new financial instruments (especially

⁶ In the case of commodity exporters, high demand and booming commodity prices have also had a significant impact on tax revenue (Haurer and Kumar, 2008).

⁷ See Bovenberg (2006). However, Nicodème (2006) questions whether this will occur.

derivatives) could make it more difficult to monitor economic activity and profits, with adverse consequences for tax compliance.⁸ Such concerns have led to a number of initiatives to explore a cooperative approach to tax policies and tax administration, with the focus not on promoting harmonization of tax rates, bases and/or procedures, but on containing harmful tax practices.⁹ This may be especially significant for developing countries with limited access to international financial markets that depend more on protecting their revenue base. However, the net welfare effects of cooperation are unclear, partly because a certain degree of tax competition can be welfare-enhancing (Keen, 2008).

Figure 5. Total Tax Revenue

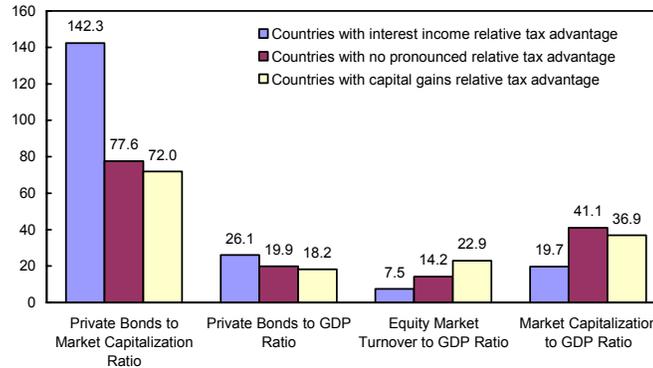


9. **Financial deepening also has implications for tax policy as the financial sector grows in economic importance.** While financial deepening can reduce revenue volatility by increasing the private sector's ability to smooth its income in response to shocks, it can also increase revenue volatility because financial sector income tends to be more volatile than that of other sectors, as is the case for example in Hong Kong (Porter, 2007). This can complicate the conduct of fiscal policy. Another issue is the VAT treatment of financial services, where the appropriate solution to the complications resulting from the bundling of intermediation and services (e.g., asset management) remains a subject of debate. Most countries exempt financial services from VAT, but recently some countries (e.g., New Zealand, Singapore) switched to zero-rating so that financial institutions can claim VAT credits for inputs (Zee, 2004). However, the revenue impact of this alternative VAT treatment of financial services is unclear. Also, the relative taxation of equity and debt is being revisited, with Germany recently limiting the tax deductibility of interest. This is likely to affect capital structure, as cross-country evidence suggests (Figure 6).

⁸ Tanzi (2000) refers to these as "fiscal termites."

⁹ For instance, the OECD launched the framework to counter the spread of harmful tax practices in 1998 (OECD, 2000). Other examples are the code of conduct on business taxation in the European Union and the proposed Central American treaty on technical cooperation in tax and customs administration. The limited scope of these initiatives points to the practical difficulties involved in cooperation in this area.

Figure 6. Relative Taxation of Debt and Equity and Capital Structure
(Averages across groups of countries, in percent)



Sources: World Bank, New Database on Financial Development and Structure, and Beck, Demirgüç-Kunt, and Levine (2000); period averages 1980–95, for OECD and other selected emerging markets.

B. Expenditure

10. Globalization could also have an impact on the demand for public spending.

While any downward pressure on revenue would be expected to spill over to expenditure, two trends are likely to work in the opposite direction.

- First, there could be an increase in inequality that would lead to calls for more social protection.** While the evidence suggests that observed increases in inequality are due more to technological change than globalization (IMF, 2007a), governments are likely to be called upon to assist those who may be adversely affected by globalization, and more specifically to provide income support and training for low-skilled workers who lose their jobs as trade opens up.
- Second, to better succeed in a more competitive environment, many countries will have to invest in economic and social infrastructure.** While the private sector can play an important role in developing infrastructure in industrial and emerging market countries (including through public-private partnerships), additional public investment is likely to remain crucial. Indeed, there may even be some expenditure competition as governments not only upgrade infrastructure to attract foreign investors, but also try to attract them with employment subsidies, etc. (Tanzi, 2004).

11. **However, the evidence on the impact of globalization on public expenditure is mixed.** Studies have shown that increased trade openness may stimulate *higher* government spending (Rodrik, 1998), but that increased financial globalization (Liberati, 2006), and increased trade openness combined with financial globalization (Garrett and Mitchell, 2001) leads to *lower* government spending. While these results are not necessarily inconsistent—especially when it is noted that a positive link between trade openness and spending holds

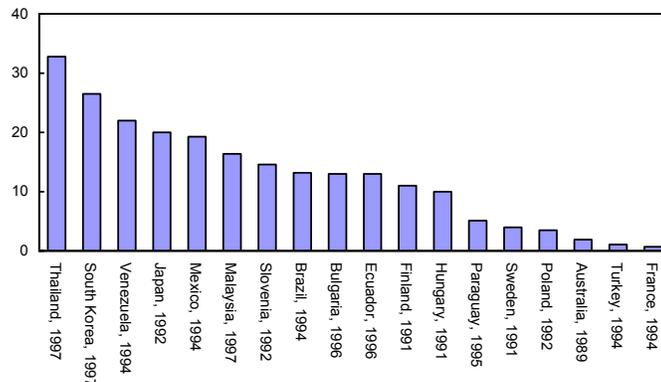
only with controls on capital flows—they do not provide definitive conclusions one way or the other on the implications for spending. Moreover, they are only partial in that they tend to focus on central government expenditure (for data reasons), which is a problem to the extent that globalization leads central governments to make room for new spending by offloading responsibility for some existing programs onto local governments.

12. **The potential expenditure consequences of globalization could add to substantial looming expenditure pressures from other sources.** These include the retirement of the baby boom generation and rising longevity, which call for much higher spending on pensions, health, and long-term care. For example, estimates for the EU25 suggest that the average expenditure increase by 2050 is likely to be around 3½ to 4 percent of GDP (Economic Policy Committee of the European Union, 2006). Climate change could also require increased fiscal outlays to adapt to more frequent destructive weather events and to sea level rise, as well as to mitigate greenhouse gas emissions. The annualized cost of greenhouse gas mitigation consistent with stabilizing the stock of greenhouse gases is estimated at 1 percent of global GDP (IMF, 2007a), part of which will likely have to be borne by the government.

C. Contingent Liabilities

13. **The financial sector has often been a source of contingent liabilities for the government.** These liabilities arise primarily from pressures to bail out financial institutions when they get into difficulties. Government assistance to insolvent financial institutions is typically justified by the need to avoid contagion effects that would result in further insolvencies and to protect depositors. Assistance often takes the form of containment by introducing deposit guarantees and making available low-cost credit to stem runs, followed by restructuring in the form of a write-off of bad loans and recapitalization of banks. The fiscal costs of containment and restructuring have often been large (Figure 7).

Figure 7. Fiscal Cost of Selected Financial Crises in the 1990s
(In percent of GDP)



Source: Honohan and Klingebiel (2003). Expert estimates include both fiscal and quasi-fiscal costs.

14. **Financial crises appear to be more prevalent after periods of rapid financial liberalization and innovation.** This is usually because of excessive credit growth and a deterioration in lending standards (Dell’Ariccia and Marquez, 2006), especially when credit booms are exacerbated by large capital inflows. Moreover, governments often contribute to vulnerabilities when policies increase moral hazard (by creating bailout expectations or one-way bets on the exchange rate). Cross-country analysis confirms that rapid financial liberalization can raise the probability of financial crises in the short term. This is reflected in the fact that 18 out of 26 banking crises in industrial and developing countries during the 1980s and 1990s occurred within five years of substantial financial liberalization (Kaminsky and Reinhart, 1999).

15. **Against this background, globalization and financial deepening clearly have important implications for financial risks.** While these trends should in the long run enhance financial stability through a more efficient allocation of funds, risk diversification, and growth, there has often also been heightened risk due to a rapid expansion of market activity, the introduction of new instruments, increased global liquidity, and higher risk appetite. A rise in risk aversion could entail large corrections in asset classes that have seen rapidly rising valuations, and especially credit derivatives, with systemic implications. A weakening of the macroeconomic environment could then expose vulnerabilities in financial sectors characterized by ineffective prudential regulation, weak risk management, or an inadequate legal and institutional infrastructure.

16. **Recent financial market developments highlight these risks for fiscal policy.** The market turmoil following the repricing of credit risk brought on by the sub-prime problem in the United States has had serious global repercussions, and already led to the bailout of two medium-sized and partly state-owned German banks. Furthermore, the United Kingdom has recently decided to nationalize a troubled mortgage lender, and it has been proposed that the U.S. government should ease the burden on households that cannot make their mortgage payments. Meanwhile, rapid credit growth in many emerging market countries has created concerns about currency mismatches in household and bank balance sheets, especially in some countries in Central and Eastern Europe (IMF, 2007b). In recognition of potential fiscal implications, particularly since the Asian crisis, rating agencies are paying increasing attention to government contingent liabilities in the financial sector. They are focusing in particular on the stock of liabilities and governments’ capacity to absorb the potential fiscal costs arising from them. While contingent liabilities have on the whole declined following the emerging market crises of the 1990s, in some countries—including several large emerging markets—financial sector contingent liabilities under severe stress scenarios are still estimated to be in the range of 30–40 percent of GDP.¹⁰

¹⁰ See Standard and Poor’s (2007), where contingent liabilities are estimated “bottom-up” by stress-testing bank balance sheets when faced with a deep recession. The estimates are available on the internet at www2.standardandpoors.com/spf/pdf/fixedincome/KR_sovereign_2007Outliers.pdf.

D. Responding to Fiscal Pressure

17. **While globalization and financial deepening have the potential to promote growth, a deterioration in the fiscal position could compromise growth prospects.** However, the extent to which the adverse consequences for revenue, expenditure and contingent liabilities will materialize is uncertain and it would be inappropriate to recommend fiscal adjustment to fully accommodate adverse outcomes that are only speculative. Rather, fiscal policy should be prepositioned to ensure that there is the room for fiscal policy to maneuver should it be needed. This entails: (i) developing the capacity to increase revenue, reduce expenditure, and/or borrow more should fiscal pressures emerge; (ii) early fiscal adjustment in countries facing actual or potential debt sustainability difficulties; and (iii) avoiding procyclical fiscal responses, especially during good times. The aim should be that any pressure from globalization does not create concerns about debt sustainability or necessitate harmful ad hoc fiscal adjustment.

III. CONSEQUENCES FOR FISCAL DISCIPLINE

A. Role of Market Discipline

18. **Fiscal discipline requires that governments commit to maintaining sound finances.** Financial markets exercise discipline over government finances primarily through the impact of fiscal deficits on the credit risk premium on government debt. Indeed, deficits and debt are among the key determinants of sovereign ratings (Afonso, Gomes, and Rother, 2007). The actual credit risk premium for highly rated countries tends to respond by around 5 basis points to each 1 percentage point change in deficit or debt ratio (e.g., Bernoth, von Hagen and Schuknecht, 2004; Faini, 2006; Hallerberg and Wolff, 2006).¹¹ Reflecting the generally lower ratings in emerging market countries, a one percentage point of GDP increase in the deficit has been found to raise foreign and domestic currency interest rate spreads by about 20 and 30 basis points respectively in such countries (Hauner, Jonas, and Kumar, 2007), with a stronger response if deficit increases are due to higher government consumption (Akitoby and Stratmann, 2006).

19. **Markets, however, do not respond in a smooth manner.** Ideally, markets would gradually ramp up pressure on profligate governments, by increasing credit spreads and eventually by denying them market access. But it appears that, for a large range of fiscal outcomes, markets typically react only modestly, but then respond strongly once the deficit and/or debt exceed a certain threshold (Bayoumi, Goldstein, and Woglom, 1995; Willett, 2000; and Balassone, Franco and Giordano, 2004).

¹¹ Measuring the risk premium requires it to be separated from exchange rate, inflation, liquidity, maturity, and tax components of the spread over a risk-free asset, usually by comparing bonds in the same currency (controlling for liquidity and maturity) across various issuing countries. However, even borrowing by a risk-free issuer is likely to affect interest rates through the saving-investment balance and possibly via inflation expectations.

20. **Financial globalization could make market discipline more effective.** This would be the case insofar as international financial markets monitor fiscal policies, developments, and prospects more carefully than domestic markets, and in the process focus on aspects of fiscal policy that are critical to government liquidity and solvency. External investors are also likely to be less amenable than domestic investors to moral suasion or other forms of pressure from governments, while governments would have an incentive to pursue sound fiscal policies with a view to sustaining market confidence and maintaining access to external capital. However, international financial markets may also respond sharply to developments that are unrelated to domestic policies, such as reduced investor risk appetite (Kumar and Persaud, 2002).

21. **Financial globalization could at the same time weaken fiscal discipline in the short term.** With more ready access to external financing—including for local governments, many of which may be faced with this option for the first time—the negative effect of government borrowing on credit risk premia may be dampened, reducing the visible cost to government of fiscal slippage. This may tempt governments to postpone fiscal adjustment and put off hard decisions about taxation and spending.

22. **The empirical evidence on the links between financial globalization and fiscal discipline is inconclusive.** While Kim (2003) finds that capital account liberalization (proxying *de jure* financial globalization) is associated with lower fiscal deficits, Tytell and Wei (2004) conclude that *de facto* financial globalization (measured by the ratio of foreign assets and liabilities to GDP) appears to have no significant impact on fiscal deficits. More recently, Abiad and others (2008) find that financial globalization (measured by the size of capital flows) enhances fiscal discipline in countries with good institutions, but that in the absence of such institutions and where the initial government debt stock is low leads to weaker discipline (Appendix I). However, it is generally difficult to disentangle the effects of globalization from shifts in opinion about sustainable fiscal deficits, especially during more recent times.

23. **The uncertain implications of financial globalization for market discipline suggest a dual approach to promoting fiscal discipline.** First, further measures can be taken to strengthen market discipline (Krueger, 2003). These include further moves towards greater market openness, a reduction in domestic captive sources of government financing, and an increase in transparency about government borrowing and public debt. Second, given the increasing recognition that sound fiscal frameworks are essential for a credible commitment to fiscal discipline, fiscal policies and institutions should be strengthened to reinforce market discipline. Section VI highlights some reform options.

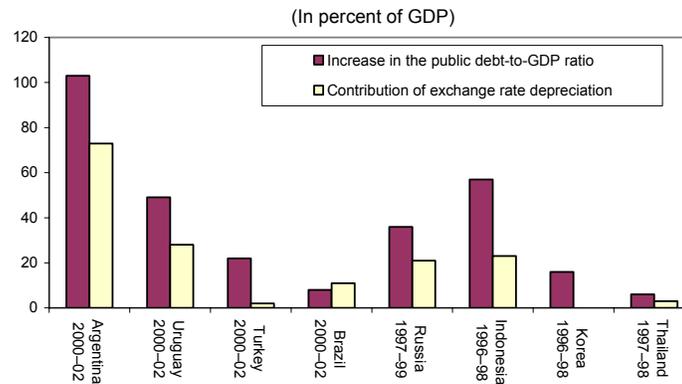
B. Redemption from Original Sin

24. **While financial globalization has increased government access to external financing, there has also been a shift towards borrowing externally in domestic currency.** Until recently, there were doubts about the ability of developing countries to

borrow in international financial markets in their own currency—this has been referred to as original sin.¹² A consequence of original sin has been that a large share of public debt was exposed to currency risk, making public sector balance sheets more vulnerable to external shocks. The fact that currency depreciation has resulted in a significant jump in public debt-to-GDP ratios in a number of crisis countries illustrates this vulnerability (Figure 8).

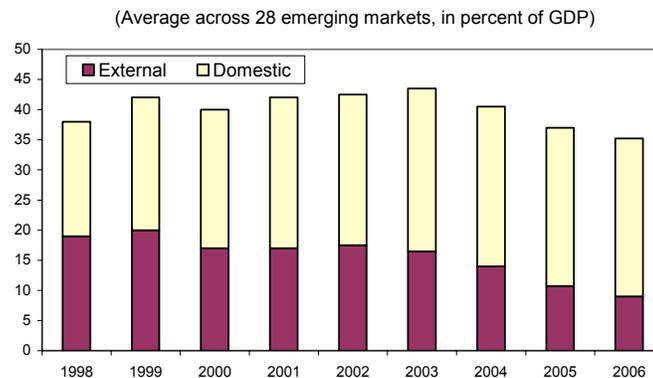
Following the pioneering external issuance of local currency debt pursued by Colombia in 2004, a number of other emerging markets, including Brazil, Mexico, and Uruguay, have followed suit (IMF, 2006). Redemption from original sin is reflected in a falling ratio of external to total public debt across emerging countries (Figure 9)¹³ and a rising share of domestic debt held by nonresidents in a number of these countries (Figure 10).

Figure 8. Recent Crises: Impact of Exchange Rate Depreciations on Public Debt-to-GDP Ratio



Source: Borensztein and others (2005).

Figure 9. Domestic and External Public Debt in Emerging Markets

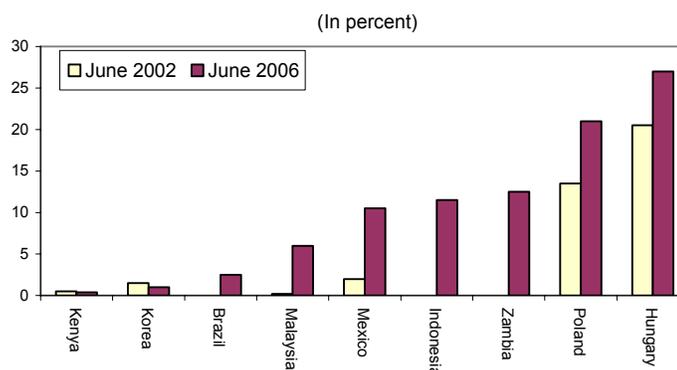


Source: World Bank Global Development Finance.

¹² The original sin notion was originally developed by Eichengreen and Hausman (1999). For empirical evidence on the extent of original sin, see de Bolle, Rother, and Hakobyan (2006).

¹³ It would be more appropriate to examine debt composition by currency rather than by location of the creditor, but such a breakdown is not widely available. However, domestic debt data for 19 emerging markets suggest a high correlation between the two concepts (80 percent of domestically held debt is in domestic currency).

Figure 10. Share of Domestic Debt Held by Nonresidents



Source: World Bank Global Development Indicators.

25. **Emerging market countries have also seen significant improvement in the terms on which they are able to issue debt on domestic markets.** Low policy credibility and underdeveloped domestic financial sectors made it difficult for governments to issue fixed-interest, long-term debt in their own currency. However, there has also been significant improvement in the domestic debt structure in many countries as new domestic currency debt is increasingly being issued with fixed coupons and long maturities.¹⁴ For example, Mexico issued a fixed coupon 30-year bond, and several emerging market countries (including Brazil, Colombia, Indonesia, and Russia) have been able to issue 10-year or longer-dated fixed coupon bonds. As a result, a standardized measure of domestic original sin fell significantly between 1998 and 2004 in most emerging market countries (Table 1). More recent data for countries such as Brazil and Mexico suggest further improvements in this measure.

Table 1. Redemption from Domestic Original Sin 1/

Market	1998	2001	2004
Brazil	1.00	1.00	0.98
Turkey	0.89	0.90	0.66
Mexico	1.00	0.85	0.61
Colombia	...	0.67	0.56
Indonesia	0.80	0.56	0.50
Bulgaria	0.84	0.49	0.35
Hungary	0.64	0.51	0.33
Egypt	0.52	0.24	0.29
Czech Republic	0.59	0.56	0.22
India	0.05	0.05	0.07
Russia	0.07	0.13	0.03

Source: Mehl and Reynaud (2005).

1/ Domestic original sin is measured as: $1 - \frac{\text{Long-term fixed-rate domestic debt}}{\text{Total domestic debt}}$

¹⁴ Also, some low-income countries successfully issued long-term securitized domestic currency debt (e.g. Ghana 2006).

26. **Inherent problems with global financial markets and weak policies were mainly responsible for original sin.** Market problems stemmed from factors such as high transactions costs and informational asymmetries, which meant that optimal investment portfolios of foreign investors were likely to include only a handful of currencies, making it difficult for many governments to issue debt externally in their own currency. Weak policies increased the risk that governments would inflate away debt denominated in local currency (Jeanne, 2003). It was previously argued that these factors would preclude redemption in the near and medium-term, and the emphasis was on ways to circumvent constraints implied by original sin.¹⁵

27. **A number of factors contributed to redemption.** Developments in global financial markets, including ample global liquidity until the first half of 2007, a growing number of dedicated emerging-market investors, and the creation of new instruments, have played a significant role. Improvements in domestic policies and institutions, as well as greater transparency, have also been important in establishing investor confidence (Lipsky, 2007). As a result, debt tolerance has increased because the improved composition of debt means that there is less risk associated with any particular level of debt (Reinhart, Rogoff, and Savastano, 2003), implying that countries can sustain higher debt burdens.

28. **Redemption from original sin is a welcome development.** A large share of debt issued in domestic currency (assuming it is tradable), and more flexibility in using various maturities of instruments, reduce vulnerability to balance sheet risks. They also provide opportunities to lower government financing costs. Moreover, insofar as they contribute to financial development more broadly, for example through improved market infrastructure, there are potential risk-sharing and growth benefits. Finally, government revenue (including seignorage) will respond to higher growth.

29. **However, there are a number of caveats that warrant attention.** First, it is necessary to maintain a balance between local and foreign currency debt to reduce any temptation to build up and then inflate away local currency debt, and to ensure that heavy government borrowing from the domestic banking sector does not negatively affect banking sector efficiency and development (Hauner, 2008). Moreover, spreads on foreign currency debt can provide a useful measure of country risk and a benchmark for corporate bonds in international markets. Second, despite creating a larger market for domestic currency debt, redemption from original sin may increase exchange rate volatility as foreigners tend to trade more actively than local residents. Third, the extent to which redemption is temporary or permanent is unclear, and in particular it is difficult to know whether original sin will reassert itself during a protracted period of limited global liquidity and risk appetite. Against this

¹⁵ One solution proposed to address this problem was to create emerging-market currency baskets and let international institutions or G-10 governments issue debt in the resulting currency units (Goldstein and Turner, 2004).

background, bolstering credibility by committing to fiscal discipline can help to make it more likely that redemption turns out to be permanent.

C. Growth and Debt Tolerance

30. **There can be a virtuous cycle among globalization, financial deepening, growth, and debt tolerance.** On balance, the theoretical and empirical literature suggests a positive relationship between financial development and economic growth (Levine, 1997), albeit with some heightened risk of financial crises in the short term. The evidence points to a positive relationship between trade openness and growth (Lopez, 2005), with the causality appearing to run from openness to growth (Somalis, 2007). Trade openness also tends to reduce the frequency of financial crises (Martin and Rye, 2006), although many low-income countries are yet to see the benefits from greater trade openness (IMF and World Bank, 2007).

31. **Evidence on the impact of financial globalization on growth is mixed.** Although foreign direct investment and other non-debt creating inflows are positively associated with longer-term growth, the impact of debt-creating inflows seems to depend on the strength of a country's policies and institutions. However, several factors may complicate identification of the growth effects of financial globalization: first, removing restrictions on capital outflows could encourage such flows and put upward pressure on interest rates; second, a higher probability of financial crises immediately following financial liberalization may obscure growth benefits which are only revealed in the longer term (Rancière, Tornell and Westermann, 2006); and third, longer-term benefits seem to occur less through direct channels such as capital accumulation and more through indirect channels such as financial development, stronger macroeconomic policies, and better governance (Kose and others, 2006).

32. **Financial globalization could also affect macroeconomic volatility, although the impact is ambiguous.** On the one hand, financial globalization may reduce volatility through increased risk sharing, and this appears to have happened in industrial countries. On the other hand, it could increase volatility through abrupt changes in the direction of capital flows and boom-bust cycles in countries with underdeveloped financial markets. Reflecting these different effects, the empirical evidence so far suggests no significant impact of financial globalization on volatility (IMF, 2007c), although this is more the case for countries with well-developed financial markets and better institutions (Bekaert, Harvey, and Lundblad, 2006; Martin and Rey, 2006).

33. **To the extent that globalization and financial deepening increase growth and lower volatility, they will tend to increase debt tolerance.** Higher growth increases the sustainable debt level directly, and indirectly via the positive effects of growth on non-debt-creating capital inflows. Lower volatility, that is smaller and less frequent shocks, increases debt tolerance by reducing the likelihood that debt will become unsustainable. These benefits are more likely to accrue to countries with relatively well-developed financial systems and

institutions, provided that they are pursuing sound policies. This is another reason for governments to credibly commit to fiscal discipline.

IV. ROLE OF FISCAL POLICY

A. Fiscal Stabilization

34. **While fiscal policy can play a variety of roles in response to globalization and financial deepening, fiscal stabilization warrants attention in the context of sharply increased capital flows.** Clearly, fiscal policy can be used to affect resource allocation in a way that increases the payoff from globalization and financial deepening, and to redistribute the dividends both to compensate those who are adversely affected and out of more general concerns about fairness. Few would question that fiscal policy should be used in these ways, although designing policies to achieve efficient redistribution is challenging. There is less of a consensus on the stabilization role of fiscal policy, both as regards its appropriateness (i.e., whether fiscal policy is the right instrument to use) and its effectiveness (i.e., whether fiscal multipliers are large or small, or indeed whether they are even positive). These issues are worth revisiting because capital flows can have an impact on aggregate demand to which fiscal tightening or loosening may be an appropriate response (this is discussed in Section IV.B), and because globalization and financial deepening could influence the effectiveness of fiscal stabilization.

35. **In theory, globalization and financial deepening could make fiscal multipliers either larger or smaller.** Crowding out through the interest rate channel is reduced as capital mobility increases.¹⁶ However, the link between the output effect of fiscal policy and the degree of capital mobility appears ambiguous. In the Mundell-Fleming model, under a fixed exchange rate regime, fiscal policy becomes more effective as capital mobility increases, because monetary policy must move in a supportive direction to defend the exchange rate. But with flexible exchange rates and unchanged monetary policy, exchange rate movements will offset the demand impact of fiscal policy, with its effectiveness weakening as capital mobility increases and fiscal policy becoming totally ineffective *in the limit*. Of course, with flexible exchange rates, monetary policy could play a role in accommodating fiscal policy. Furthermore, if fiscal policy has credibility effects, this would also influence fiscal multipliers through private sector expectations regarding future interest rate, income and wealth developments. Such effects depend on the initial debt stock, the way deficits are financed, and the nature of revenue and expenditure measures. To get a better understanding

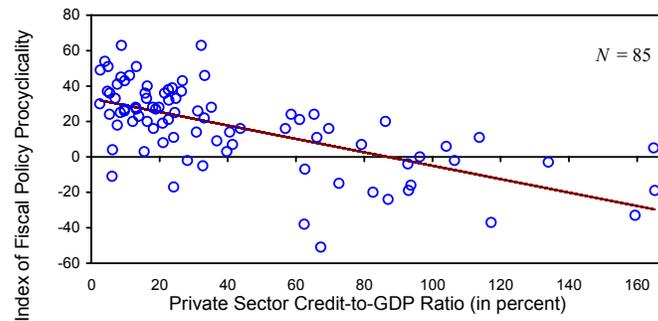
¹⁶ While the evidence on the link between fiscal deficits and interest rates is mixed, the majority of studies reveals a positive effect. For the United States, a permanent one percentage point of GDP increase in the primary deficit tends to be associated with around a 30–60 basis point rise in the long-run nominal interest rate (Gale and Orzag, 2003). The findings for Europe (European Commission, 2004) and the more limited evidence for emerging market countries suggest effects of a similar magnitude (Aisen and Hauner, 2008). However, most of the studies took place before the recent surge in financial globalization.

of how globalization and financial deepening affect fiscal multipliers, it is useful to consider the channels through which they operate.

36. **Trade openness is likely to reduce fiscal multipliers, but only by a small amount.** As trade increases, a larger part of any fiscal stimulus will leak abroad through higher import volumes and/or prices, thus dampening the impact on domestic output. This logic suggests that fiscal policy would directly influence the current account—the twin deficits relationship (assuming that fiscal measures are not completely offset by changes in private saving and investment)—although the impact through this channel, which is short-run in character, is likely to be small. Looking at OECD countries, Bussière, Fratzscher, and Müller (2005) find that less than 10 percent of a change in the fiscal balance feeds through to the current account, and that the relationship is rarely statistically significant. Dellas, Neusser, and Wälti (2006) do not find a statistically significant link between trade openness and fiscal multipliers.

37. **Financial deepening creates an enabling environment for fiscal stabilization, but may also reduce its effectiveness.** With shallow financial markets, the government could be forced to pursue procyclical fiscal policy if it is unable to borrow domestically or abroad. But as financial markets develop, countercyclical fiscal policy becomes more of an option. The empirical evidence is consistent with this (Figure 11). Moreover, deeper financial markets may lessen the effect of government borrowing on domestic interest rates and country risk premia, in which case there will be less crowding out of investment and fiscal stabilization should become more effective. Caballero and Krishnamurthy (2004) find that crowding out of investment is smaller in industrial countries than emerging markets, which they attribute to differences in financial development. However, there are circumstances in which financial deepening might reduce fiscal multipliers. First, as financial repression is lifted, the government loses a captive source of finance as domestic investors begin to have other opportunities, in which case domestic interest rates would become more sensitive to fiscal policy. Second, as access to private credit improves, it should be easier for households to smooth consumption. This would allow them, for example, to offset the effect of a fiscal contraction by increasing borrowing (Ricardian equivalence). The net impact on fiscal multipliers depends on which effects dominate.

Figure 11. Procyclicality of Fiscal Policy and Financial Market Development



Sources: Fund staff calculations based on the data derived from Kaminsky, Reinhart, and Végh (2004) and World Bank, New Database on Financial Development Structure.

38. **In terms of its consequences for fiscal stabilization, financial globalization has much in common with financial deepening.** The ability to borrow on global financial markets clearly dampens the impact of domestic factors—including fiscal policy—on domestic interest rates, and thus reduces crowding out of investment and increases fiscal multipliers. Economic size, however, would matter to the extent that borrowing by larger countries could influence global interest rates. That said, even for the large industrial countries there is evidence that the access to a larger pool of foreign savings has reduced the impact of government deficits on interest rates (Hauner and Kumar, 2006; European Central Bank, 2006). Aisen and Hauner (2008) find in a sample of industrial and emerging market countries that the effect of deficits on interest rates is smaller for financially more open economies, which suggests—in line with theory—that increasing financial globalization should reduce the influence of domestic factors on interest rates.

39. **In some cases, though, financial globalization could reduce the effectiveness of fiscal policy.** In the flexible exchange rate Mundell-Fleming model, even a small increase in the domestic interest rate could lead to a surge of capital inflows, causing the nominal exchange rate to appreciate enough to cancel out the effect of an initial fiscal expansion. Furthermore, for countries where fiscal sustainability is a concern, and financial market reaction to credible fiscal policy would be expected to be larger, this could make interest rates more sensitive to fiscal policy. A fiscal contraction could then lead to a substantial reduction in the risk premium, and economic activity might actually increase (an expansionary fiscal contraction), or a fiscal expansion could increase the risk premium by so much that economic activity decreases.

B. Fiscal Policy Response to Capital Flows

40. **Capital flows raise significant fiscal policy challenges.** To the extent that capital flows cause macroeconomic imbalances, there is an issue as to whether fiscal policy has a role to play in responding to these imbalances. In this connection, it might appear that fiscal tightening is usually the recommended response to both capital inflows and outflows.

However, tightening is not always appropriate. In the case of *outflows* that have neither a fiscal cause nor fiscal consequences, the role of fiscal policy can be to support economic activity as needed through fiscal loosening as long as the fiscal position is viewed as sustainable, and higher spending or lower taxes can be financed (as in the case of Korea in 1997). In the case of *inflows*, the appropriate fiscal policy response depends on a range of factors, including the nature of macroeconomic imbalances, the reason for the inflows, the exchange rate regime, the size and openness of the economy, and the initial fiscal position.¹⁷

41. **A fiscal policy response is often appropriate when inflows are supply determined and temporary.** Inflows that reflect changes in liquidity, investor risk appetite, or market sentiment have those characteristics.¹⁸ In such situations, aggregate demand pressure would manifest itself either through an appreciation of the nominal exchange rate or higher prices. Fiscal tightening can help to relieve demand pressure and lower domestic interest rates, especially if it is accompanied by monetary easing. Fiscal tightening, possibly in conjunction with exchange rate adjustment, may also be appropriate if capital inflows reflect the need to finance a large current account *deficit* and demand restraint is called for to rein it in. Country experience suggests that fiscal tightening is often the response to capital flow surges that lead to overheating, sometimes combined with accelerated debt repayment (Box 1).

42. **However, there are cases where fiscal tightening may be inappropriate.** If there is a large current account *surplus*, fiscal tightening could exacerbate the current account imbalance. It is also possible that fiscal tightening may be appropriate for demand management, but it could at the same time improve credibility, reduce a country's risk premium, and attract even more inflows. If this is the case, fiscal tightening would be counterproductive (Roubini, 2007). Some countries have also found it difficult to tighten fiscal policy in response to capital inflows given an already large fiscal primary surplus (e.g., Estonia and Turkey). Furthermore, a real or nominal appreciation may be a more appropriate response to structurally higher inflows that reflect real investment opportunities (Central and Eastern Europe, emerging Asia). That said, fiscal tightening could still have a role under such circumstances to slow down the speed of real appreciation, as well as to avoid procyclicality and overheating. Of course, there are other options to slow down the rate of appreciation, most notably sterilized exchange market intervention and/or controls on capital inflows and outflows, but these policies have well-known limitations. Finally, implementation lags may mean that fiscal policy simply cannot respond fast enough to a surge of capital inflows.¹⁹

¹⁷ For a full discussion of the fiscal policy response to capital inflows, see Heller (1997) and von Hagen (2005). For a discussion of broader policy responses to capital inflows under various scenarios, see also IMF (2007d).

¹⁸ In addition, high domestic interest rates (suggesting excessively tight monetary policy, or lax fiscal policy) and absence of factors that suggest a structural improvement in the economy's prospects, would reinforce the expectation that the flows are temporary.

¹⁹ Lags are less of a problem insofar as fiscal stabilization is provided mainly through automatic stabilizers rather than discretionary measures, although the latter are unavoidable if fiscal policy is called on to also address equity concerns, in addition to responding to the output consequences of capital flows.

Box 1. Selected Fiscal Policy Responses to Capital Inflows

The surge in capital flows to emerging markets during the first half of the 1990s led a number of countries to undertake fiscal tightening in response to overheating concerns (see the table below). Fiscal adjustment, together with liberalization and other reforms, sometimes preceded capital inflows, and thus may also have constituted continuation of the fiscal consolidation from the pre-inflow period.

<i>Country</i>	<i>Period</i>	<i>Other fiscal measures</i>
Indonesia	1990–94	Accelerated debt repayment, 1994
Korea	1992–94	
Malaysia	1988–94	
Philippines	1990–95	Accelerated debt repayment, 1994–95
Thailand	1988–91	Accelerated debt repayment, 1988–90
Argentina	1991–93	
Chile	1989–95	
Mexico	1989–93	
Czech Rep.	1996–97	

Source: World Bank.

However, not all episodes of capital inflows have been followed by fiscal tightening. In the face of large capital inflows stimulated by EU accession, most countries in Central and Eastern Europe opted not to tighten fiscal policy, the main exceptions being the Baltic countries. Instead, these countries allowed their currencies to appreciate in nominal and real terms, which helped to keep inflation relatively low.

In **Asian countries** in recent years, despite overheating concerns related to the inflows, fiscal tightening has played a relatively small role, although automatic stabilizers have been allowed to operate in some countries. The causes underlying the inflows have been largely structural and the policy discussion has focused on the need for exchange rate flexibility and appreciation of currencies that are perceived to be undervalued.

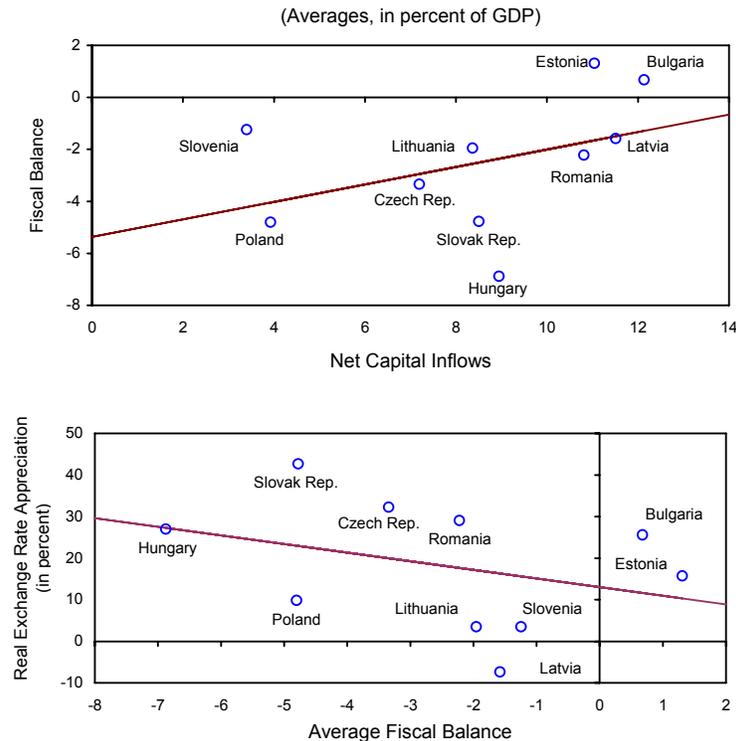
In **Estonia**, large capital inflows have put pressure on the currency board arrangement. While fiscal policy has been the main policy instrument available to deal with overheating pressures, the general government balance is already in surplus, and gross public debt negligible, making it politically difficult to further tighten the fiscal stance. One possibility being considered is to shift public expenditure away from the nontraded sector (construction), which has contributed to inflation.

In **Turkey**, large capital inflows pose a dilemma in the context of a floating currency, resulting in appreciation and concern about competitiveness. While a change in the policy mix would, in theory, reduce pressure to appreciate, because of the already high primary fiscal surplus, a further fiscal tightening is considered by the authorities to be neither desirable nor feasible. Moreover, with inflation still above the target range, monetary easing and fiscal policy will have to be appropriately balanced.

43. **There is some correlation between fiscal positions, capital inflows, and exchange rate appreciation.** For the countries of Central and Eastern Europe, lower fiscal deficits tend to be associated with higher net capital inflows (Figure 12, upper chart). However, it is unclear to what extent lower fiscal deficits in these countries reflect an underlying policy tightening as government revenues have been boosted by a credit-driven consumption boom. Moreover, in those countries where fiscal policy has been tightened, it is difficult to determine whether this has been a response to large capital inflows as opposed to being prompted by them. Lower fiscal deficits are also associated with less real exchange rate appreciation in Central and Eastern Europe (Figure 12, lower chart), despite larger capital inflows. In a broader sample, countries that respond to capital inflows with fiscal tightening experienced a smaller exchange rate appreciation than countries that intervened in the foreign exchange market or tightened controls on capital inflows (IMF, 2007a).²⁰

²⁰ Moreover, sterilization usually entails large quasi-fiscal costs.

Figure 12. Capital Flows and Fiscal Balances in Central Europe, 2000–06



Sources: Fund staff calculations based on the data from the World Economic Outlook.

44. **When fiscal tightening in response to capital flows is appropriate, its composition should depend on country-specific circumstances.** While it may be easier for political economy reasons to raise taxes, well-targeted spending cuts could increase the overall efficiency of expenditure, as well as provide room to reduce excessively high taxes, with beneficial supply-side effects. The structure of the tax system can also have an impact on the effectiveness of the fiscal response to capital inflows. A tax system with greater emphasis on taxation of nontraded goods (e.g. real estate) will raise additional revenue when capital inflows and the subsequent real exchange rate appreciation shift resources into the nontradables sector (Eichengreen and Choudhry, 2005). In addition, tax policies could be used to help reduce the risk of asset price bubbles fuelled by large capital inflows. This approach has been recently applied in China, which introduced a range of tax measures to stabilize the real estate market, including a capital gains tax and value-added tax on land (Asian Development Bank, 2007).

45. **The above conclusions are corroborated by the experience of Asia and Latin America in the first half of the 1990s.** A number of Asian countries (Malaysia, Thailand, Indonesia, Singapore), as well as Chile, applied significant expenditure restraint (Table 2), while most Latin American countries and the Philippines allowed a procyclical increase in spending. Fiscal tightening appears to have reduced pressure on monetary policy, and countries that applied more expenditure restraint experienced substantially lower real

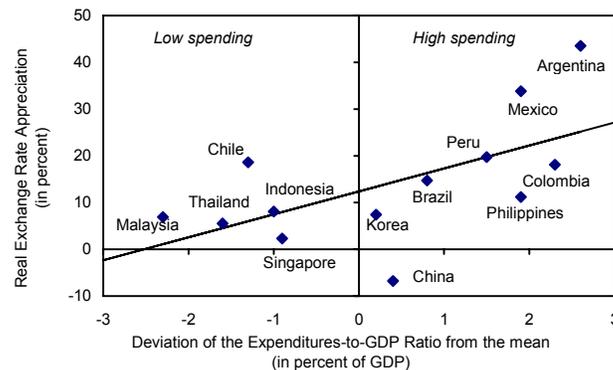
exchange rate appreciation during the period of high inflows (Figure 13). Moreover, tighter fiscal policy during the peak of inflows created more room for cushioning the effects of subsequent capital flow reversals by raising spending (e.g., in Malaysia and Thailand).

Table 2. Fiscal Policy Response to Capital Flows

Episode	Change in Net Capital Inflow	Real Exchange Rate Appreciation	Deviation of Government Expenditure-to-GDP Ratio
	(Average during the episode relative to the average over three preceding years)		(Relative to the 1985–2000 average)
	(In percent of GDP)	(In percent)	(In percent of GDP)
Malaysia, 1989–96	5.7	6.9	-2.3
Thailand, 1987–95	9.1	5.5	-1.6
Chile, 1989–97	5.6	18.6	-1.3
Indonesia, 1990–96	1.6	8.1	-1.0
Singapore, 1987–92	7.1	2.3	-0.9
Korea, 1990–96	5.5	7.4	0.2
China, 1993–96	5.0	-6.8	0.4
Brazil, 1992–96	3.9	14.7	0.8
Peru, 1992–97	9.0	19.7	1.5
Philippines, 1989–96	4.8	11.2	1.9
Mexico, 1989–93	6.9	33.8	1.9
Colombia, 1992–96	3.9	18.1	2.3
Argentina, 1990–93	8.8	43.5	2.6

Sources: International Financial Statistics and Athukorala and Rajapatirana (2003).

Figure 13. Fiscal Policy Response to Capital Flows
and Real Exchange Rate Appreciation in Emerging Market Countries



Sources: Fund staff calculations based on International Financial Statistics and Athukorala and Rajapatirana (2003). See Table 7 for details of the episodes of capital inflows.

V. SPILLOVERS AND POLICY COOPERATION²¹

46. **An important issue arises as to how globalization is likely to affect fiscal policy spillovers, and the desirability and design of international policy cooperation.** The theoretical literature does not provide a clear-cut answer about the sign and magnitude of fiscal policy externalities. Classic analyses of policy coordination (Mundell, 1968; and Hamada, 1985) generally emphasize *positive* spillovers through the demand for imports. In contrast, more recent models focus on predominantly *negative* spillovers originating in large countries.²² First, a fiscal expansion may cause the price of domestically produced goods (including exports) to increase faster than that of imported goods. The corresponding improvement in the terms of trade boosts the country's purchasing power—the same amount of domestic exports can buy a greater volume of foreign goods—at the expense of its trading partners (Turnovsky, 1988; Andersen and Sorensen, 1995; and Jensen, 1996). Second, an accumulation of public debt may reduce the global supply of loanable funds, raising real interest rates for all countries. Within a monetary union, interest rate spillovers are likely to be stronger, owing to the possibly offsetting response of the common central bank to national fiscal policies (Beetsma, Debrun, and Klaassen, 2001). Quantifying these externalities remains difficult because they depend on detailed revenue and spending changes, behavioral responses to tax and spending measures, relative home bias in government and private consumption, and other factors.

47. **Financial globalization is likely to amplify interest rate spillovers, increasing the impact of fiscal developments in one country on the rest of the world.** With more integrated financial markets, changes in government savings in a large economy have a greater impact on global interest rates, and thereby larger effects on economic activity and financing costs for governments abroad. By contrast, deeper trade integration may have increased the influence of fiscal policy on imports, enhancing positive demand spillovers. Establishing the dominance of one type of spillover over another is ultimately an empirical question.

48. **Empirical evidence on fiscal spillovers is mixed.** For example, a recent study by Beetsma, Giuliadori and Klaassen (2005) finds significant positive spillovers within the

²¹ This paper uses the term “cooperation” as referred to in the policy literature (Branson, Frenkel and Goldstein, 1990). Cooperation is a less ambitious form of interaction among policymakers, and includes greater exchange of information about developments and policies, candid discussions about the rationale for the adoption of particular policies, and rigorous technical analysis of spillovers and externalities. It does not entail undertaking policies that may be inimical to a country's national self interest. Policy coordination is considered a more ambitious form of interaction, implying “a significant modification of national policies in recognition of international economic interdependence” (Wallich, 1984). However this definition of “cooperation” is different than the one frequently employed in the game theoretical literature where it means joint action, usually producing outcomes identical to those taken by a single individual.

²² By definition, domestic conditions in small countries have no effect on their terms of trade, or on world interest rates.

European Union.²³ Specifically, a public spending stimulus in Germany of one percent of GDP boosts activity in EU trading partners by almost $\frac{1}{4}$ percent of GDP on average.²⁴ However, the statistical methods used in this and similar studies focus on the impact of temporary fiscal impulses as opposed to permanent shifts in public saving. Moreover, the magnitude of interest rate spillovers in these studies may be underestimated because they use data for time periods when there was much less financial globalization than now (Wieland, 2006). Recent analyses of global interest rate determination point to substantial spillovers arising from fiscal policy (Faini, 2006; Hauner and Kumar, 2006).

49. To assess the potential impact of financial globalization on interest rate spillovers, Fund staff conducted simulations using the Global Integrated Monetary and Fiscal Model (GIMF). In the simulations, the United States is assumed to undertake fiscal consolidation that permanently reduces its public debt-to-GDP ratio by 15 percentage points. To accelerate the decline in public debt, the consolidation is front loaded. Also, as public debt is assumed to stabilize at a lower level, the long-term overall budget balance must remain permanently higher than in the no-consolidation baseline by 0.5 percent of GDP. In a low-integration scenario, the interest rate on a country's debt includes a country-specific premium which increases with the country's external borrowing (Figure 14).²⁵ The long-run response of interest rates is only half as large in the high-integration scenario.

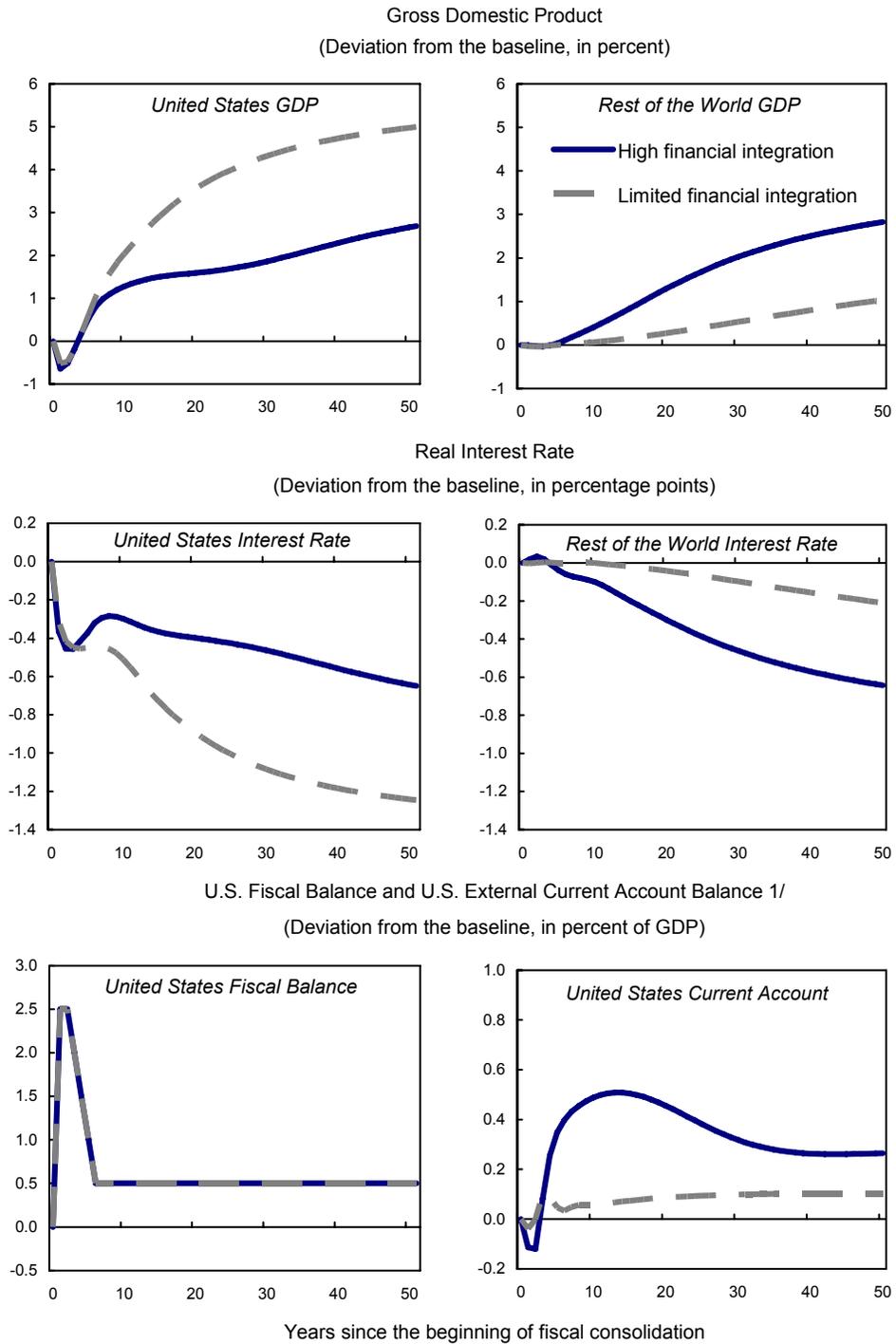
50. The simulations confirm that the longer-term spillover effects of fiscal consolidation increase with the degree of financial integration. When financial integration is limited, the decline in U.S. public debt substantially raises domestic savings, but only a modest part of this increase leaks abroad, and the U.S. current account improves by only 0.1 percent of GDP. Consequently, domestic real interest rates decline six times more than world interest rates, and the crowding-in effect on private investment and consumption is concentrated in the United States, with a permanent output gain of 5 percent. On the other hand, when the degree of financial integration is high, a larger part of additional U.S. saving leaks abroad, and the U.S. current account improves permanently by 0.3 percent of GDP. In the longer term, additional income accruing from the accumulation of net foreign assets leads

²³ Other examples include Marcellino (2002), Canzoneri, Cumby and Diba (2003), Lane and Perotti (1998), and Clarida and Prendergast (1999).

²⁴ The estimate falls to 0.06 percent of GDP if the German fiscal stimulus takes the form of an overall reduction in taxes (net of transfers), supporting the view that short-term spillovers are likely to depend heavily on the supply-side or demand-side nature of the fiscal package. Bénassy-Quéré (2006) finds that a tax cut with strong supply-side effects may have a negative spillover on a country's main competitors.

²⁵ In the low-integration scenario a country-specific interest rate premium is added to the model that increases by 100 basis points for every 0.2 percentage point of GDP increase in the current account deficit. The scenario showing increased integration corresponds to the current state of globalization: in particular the elasticity of global real interest rates to US debt corresponds to the available empirical estimates. The financial market channel is not the only one included in the analysis; there is also the trade and exchange rate channel, but given the limited trade openness of the US economy, the financial channel dominates.

Figure 14. Responses to a Permanent Reduction in U.S. Public Debt



Source: Fund staff estimates.

1/ Fiscal consolidation is assumed to lead to a 15-percent permanent reduction in the U.S. government debt-to-GDP ratio in both scenarios.

to further increases in domestic savings and the current account, contributing to the steady decline in global interest rates. The current account balance then stabilizes at a higher level than under the no-consolidation baseline despite the positive response of private consumption to lower interest rates. World interest rates thus remain permanently lower, and the crowding in is shared evenly, with a permanent output gain of 3 percent in both the United States and in the rest of the world.²⁶

51. In a more integrated world economy, the larger spillover effects of fiscal policy point to potentially important gains from enhanced policy cooperation when countries face a common challenge. Cooperative action allows policymakers to either fully exploit the “economies of scale” stemming from positive spillovers or to avoid mutually detrimental effects due to negative spillovers (Hamada, 1985; Canzoneri and Henderson, 1991). However, in the context of macroeconomic stabilization policies, the estimated gains from coordination tend to be small.²⁷ Moreover, trade and financial integration increases opportunities for smoothing out country-specific shocks (self-insurance), reducing further the potential gains from coordinated actions (Obstfeld and Rogoff, 2001). By contrast, trade and financial openness offer no insurance against global shocks and, in fact, increase the vulnerability of individual countries to shocks. In this case, benefits from policy coordination can be substantial, and they increase with financial integration (Beetsma, 2001).

52. The interest rate externalities associated with longer-term fiscal challenges may be particularly important. Consider, for instance, the need in most industrial and many emerging market countries to address the long-term consequences of aging populations (Botman and Kumar, 2007). In principle, if policymakers were to undertake the required fiscal consolidation on the basis of its long-term merits, all countries would find it in their own interest to do so. In practice, however, policymakers are often reluctant to tighten fiscal policy either because they have relatively short time horizons, or because fiscal adjustments are politically costly to implement. Since these costs are limited to the country that undertakes the adjustment, while the gains are felt by all (through lower interest rates), individual governments may be tempted to “free ride” on one another, unduly delaying adjustment.

53. Countries may not fully internalize or appreciate the spillovers, especially for global real interest rates, of the aging phenomenon, underlining the need for

²⁶ The impact of financial integration on the short-term spillover effects of fiscal policy is less clear than for the longer-term effects, and depends on a number of factors, including model parameterization and the monetary policy response to the fiscal tightening.

²⁷ The pioneering study is by Oudiz and Sachs (1984). Some authors have also pointed out the fact that policy coordination may be counterproductive if it leaves out relevant actors, such as central banks in the case of fiscal coordination (Rogoff, 1985; Beetsma, Debrun, and Klaassen, 2001) or if policymakers are uncertain about (or disagree on) the true underlying model of the economy (Ghosh and Masson, 1991; Frankel and Rockett, 1988).

cooperation. Any fiscal adjustment is likely to be costly in the short-run if taken in isolation. These factors would reinforce the temptation to leave it till later. But if all countries delay the required adjustment, such adjustment will be much greater given the impact of rising aging-related expenditure on global real interest rates. If there is cooperation in the sense that all countries undertake early action, then there are likely to be significantly lower costs for each individual country. The amount of adjustment that has to be undertaken by each country would be much less when undertaken early, because interest rates will be lower and financing will be cheaper for all. Cooperation does not mean that the same action is undertaken—in some cases it would be more appropriate to raise taxes while in others it would be to cut expenditure, or implement further pension reforms. Moreover, the timing does not have to be identical.²⁸ In dealing with these type of challenges, the Fund’s bilateral and multilateral surveillance can play a useful role in fostering cooperation.

VI. POLICY IMPLICATIONS AND WORK AGENDA

A. Policy Implications

54. **Prepositioning fiscal policy.** Globalization and financial deepening hold the potential to raise economic efficiency and growth and improve the overall fiscal position. But they could lead to pressures from lower revenue, higher expenditure, and increased contingent liabilities, adding to those from aging and climate change. Fiscal policy should be prepositioned to respond by increasing the flexibility of revenue and expenditure policies and ensuring borrowing capacity. In countries facing actual or potential debt sustainability difficulties, this will strengthen the case for early fiscal adjustment, especially during good times. However, whether adjustment is required and, if so, by how much, will in part depend on the way globalization and financial deepening affect debt tolerance (via their impact on the structure of debt, growth, and volatility). If debt tolerance increases, this would permit more gradual adjustment.

55. **Tax and expenditure reform.** While there may be room to expand tax bases and strengthen administration, there is likely to be only limited scope for additional taxation of immobile factors, both for efficiency and equity reasons. It may also be administratively difficult, especially for developing countries that have already faced difficulties shifting from “easy to collect” taxes such as tariffs to “hard to collect” income taxes and VAT (Aizerman and Jinjark, 2006).²⁹ This being the case, action on the expenditure side is not just the most likely option, it is also desirable given the well-established link between high-quality spending cuts and successful fiscal adjustment. Expenditure restructuring should be anchored by a thorough review of public expenditure, intended to identify the scope to reduce spending

²⁸ The simulation analysis is explicitly based on different countries initiating adjustment at different times (Botman and Kumar, 2007).

²⁹ This is why many low-income countries are finding it difficult to replace revenue foregone due to trade liberalization (Baunsgaard and Keen, 2005).

and alter its mix. This review should specifically assess the appropriate size and structure of social protection in a more open economy, and in the process, gauge the need for, and identify measures to, mitigating the poverty and social impacts of globalization.

56. **Financial sector contingent liabilities.** More attention should be paid to whether contingent liabilities create problems for government solvency and liquidity. To this end, there should be a greater effort to identify, quantify, and disclose explicit contingent liabilities, which should be formally incorporated into debt sustainability analysis. Greater awareness of implicit contingent liabilities (or stand-behind obligations) is also needed. Timely intervention strategies, with an emphasis on preemptive restructuring of at-risk financial institutions, can reduce the fiscal cost of contingent liabilities. Supervision can play an important role in this regard.

57. **Fiscal policies and institutions.** Globalization and financial deepening will help to ensure redemption from original sin and possibly increase debt tolerance. However, fully reaping these benefits will require credible commitment to sound fiscal policies. To this end, fiscal rules, fiscal responsibility laws (with a heavy emphasis on fiscal transparency), and independent fiscal councils, backed by political commitment, have the potential to enhance the credibility of fiscal policy (Kumar and Ter-Minassian, 2007). The ability to monitor fiscal developments and prospects, and to respond in a timely and appropriate manner, is especially important. Combining measures to enhance market scrutiny with institutional reform to strengthen fiscal frameworks can be mutually reinforcing means of improving fiscal policies and outcomes.

58. **Effectiveness of fiscal stabilization.** Globalization and financial deepening are likely to influence the effectiveness of fiscal stabilization. Theory points toward certain factors to consider—such as the exchange rate regime, sensitivity of capital flows to interest rates, and fiscal policy credibility—when assessing the effectiveness of fiscal stabilization, but the evidence is far from clear. It is nonetheless important to avoid unnecessarily large changes in risk premia and interest rates in response to fiscal expansions and contractions. To this end, financial markets again need to be reassured about the credibility of fiscal policies.

59. **Fiscal response to capital inflows.** Fiscal policy can play a stabilization role in response to capital inflows. If these create or reflect aggregate demand pressure, fiscal stabilization may be an appropriate response. Moreover, when inflows are a consequence of supply factors such as global liquidity conditions or are driven by a current account deficit, a stronger case for letting fiscal policy bear the brunt of the adjustment can be made. When an increase in capital inflows is considered to be permanent, adjustment should occur mainly through the real exchange rate, or by loosening controls on capital outflows. However, fiscal policy can still help to ease the path of exchange rate adjustment.

60. **Policy cooperation.** Globalization magnifies fiscal policy spillovers, strengthening the case for enhanced policy cooperation in a number of areas. This is especially relevant for common and longer-term challenges such as population aging and climate change. Second,

while some degree of tax competition can be beneficial—including for government efficiency (Parry, 2003)—cooperation may be needed to limit harmful tax practices and to recognize that the effects of tax competition can be quite different in industrial countries and developing countries, since the latter often have limited recourse to other sources of financing. The Fund’s multilateral and bilateral surveillance can make a substantial contribution to international policy cooperation, by rigorous technical analysis regarding the spillovers and externalities, establishing a common analytical framework that would promote constructive dialogue, and fostering peer pressure and discouraging deviations from mutually beneficial policies.

B. Work Agenda

61. **There are a number of areas where outcomes are yet to be identified or understood, and appropriate policy responses decided.** There is thus scope for work designed to achieve a better understanding of outcomes and policy options.

- Given that revenue has remained robust, it is not clear to what extent the decline in corporate tax rates in recent years is a reason for concern about the future path of government finances. A future Board paper will examine this and other issues pertaining to tax competition where the policy advice for developing and industrial could be quite different. More work will also be needed on tax policy issues stemming from the growing importance of the financial sector, such as the implications for corporate income tax volatility, the VAT treatment of financial services, and the relative taxation of equity and debt.
- The expenditure implications of globalization are difficult to disentangle from the impact of other trends which themselves have quite complicated effects (e.g., technological change). Since policy responses should to some extent respond to sources of increased demand for spending (e.g., if part of the problem is sluggish labor market adjustment, then this might suggest particular forms of spending), it is important to identify what these are. In any event, ongoing work on approaches to financing infrastructure investment and designing well-targeted social protection will be relevant.
- While considerable effort has been put into refining the Fund’s approach to debt sustainability analysis (DSA), the assessment of the size of contingent liabilities and the likelihood of their realization remains an area for future work. This is necessary to properly account for their potential fiscal impact, including in the DSA, which in turn is a prerequisite for effective debt management.
- It is unclear whether better access to external financing will tend to strengthen or loosen fiscal discipline. In this connection, the role of fiscal institutions, as well as the determinants of redemption from original sin and debt tolerance, and their consequences, need to be investigated more thoroughly. But this is also an area where

there is scope to leverage ongoing work on approaches to promoting fiscal discipline and the characteristics of successful fiscal adjustment.

- Despite considerable work, the role of fiscal policy in responding to large capital inflows still poses many questions, and it remains unclear what determines the appropriate policy mix. Additional work should aim to provide clear guidance on policy choices. The likely impact of globalization and financial deepening on the effectiveness of fiscal stabilization is also uncertain, and there is scope for further study of this issue.
- The general benefits from policy cooperation are recognized, but more analysis needs to be undertaken to investigate the payoff to specific forms of cooperation under well-defined circumstances. In this connection, the benefits of cooperation to deal with the demographic challenges need to be explored further, while a forthcoming project will investigate the advantages of joint action with regard to tax policy measures that encourage firms to reduce greenhouse gas emissions. It will also be important to examine the potential for Fund surveillance to promote cooperation by providing analyses of coordination failures and fostering dialogue in a multilateral context.

This work agenda can be undertaken within the current resource envelope, and it therefore has no direct budgetary implication.

VII. ISSUES FOR DISCUSSION

- Do Directors view it as likely that globalization and financial deepening will tend to reduce government revenue and increase public expenditure? If so, do Directors agree that a cooperative policy response to limit harmful tax practices should be considered, and that fiscal policy should be prepositioned to help countries manage these and other fiscal pressures?
- How do Directors assess the likely consequences of financial globalization for fiscal discipline? Do Directors see redemption from original sin as temporary or permanent?
- In what circumstances do Directors view fiscal tightening as an appropriate and effective response to capital inflows? In this connection, do Directors have an opinion as to whether globalization and financial deepening have made fiscal stabilization more or less effective?
- How do Directors suggest that cross-border spillovers should be taken into account in formulating national fiscal policy? Do Directors see a larger scope for fiscal policy cooperation given increased globalization, and should Fund surveillance play a more forceful role in promoting cooperation?
- Do Directors agree with the work agenda suggested above?

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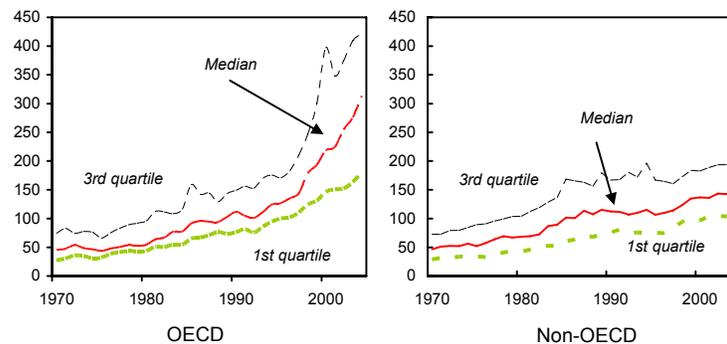
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APPENDIX I. FINANCIAL INTEGRATION AND FISCAL ADJUSTMENT: RECENT EVIDENCE

Against the background of a rapid increase in the degree of financial integration (Figure A1), examine the impact on fiscal deficit in percent of GDP of financial integration, institutional quality, and a range of other conventional explanatory variables for a sample of 29 advanced and emerging market countries over the 1983–2004 period (Abiad and others, 2008). The explanatory variables include the level of the fiscal deficit lagged one year, the level of real GDP per capita, the degree of trade openness, and the level of financial integration (measured as the foreign assets and liabilities-to-GDP ratio). The analysis also considers the contribution of institutional quality and the level of financial sector development. In addition, the regressions examine how the effect of financial integration differs across countries depending on the initial fiscal deficit and institutional quality (using interaction terms). All the regressions include country and year dummies, and the econometric methodology follows Alesina, Ardagna and Trebbi, (2006).

The results indicate that while greater financial integration is associated with fiscal loosening in countries with weaker institutions, it reinforces fiscal consolidation efforts in countries with stronger institutions (Table A1). To investigate which features of institutions are most relevant in this context, the contributions of three of the individual subcomponents of the International Country Risk Guide (ICRG) composite index—bureaucracy quality, government stability, and law and order—were examined (Table A2). The estimation results suggest that efficient bureaucracies play a particularly significant role in avoiding fiscal loosening, and reinforcing adjustment efforts when financial integration increases. Abiad and others (2008) also find that, until the deficit reaches relatively high levels, greater financial integration is associated with fiscal loosening, particularly in countries with low institutional quality.

Figure A1. Financial Integration, 1970–2004
(External assets and liabilities in percent of GDP)



Source: International Financial Statistics.

Adding financial sector development to the analysis does not affect the significance of the results regarding financial integration. But the results suggest that greater financial sector development may be associated with scope to loosen fiscal policy. This finding is consistent with the notion that greater availability of domestic credit allows the financing of larger fiscal deficits. All the above results are robust to the inclusion of per-capita GDP and trade openness in the regression specification (Table A1).

Table A1. Fiscal Adjustment and Financial Integration

	<i>Dependent variable: change in fiscal deficit after one year, in percent of GDP (ΔDEF) 1/</i>							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Central government deficit in percent of GDP (<i>DEF</i>)	-0.33 [8.24]***	-0.32 [7.95]***	-0.33 [8.25]***	-0.33 [8.14]***	-0.32 [7.95]***	-0.33 [8.17]***	-0.32 [7.84]***	-0.32 [7.84]***
Index of institutional quality (<i>INS</i>) 2/	-0.13 [4.40]***	-0.13 [4.36]***	-0.12 [4.19]***	-0.13 [4.37]***	-0.12 [4.13]***	-0.12 [4.15]***	-0.13 [4.34]***	-0.12 [4.11]***
Log financial integration (<i>FI</i>) 3/	16.91 [4.76]***	15.89 [4.42]***	18.14 [4.98]***	16.99 [4.72]***	17.16 [4.68]***	18.19 [4.94]***	16.01 [4.41]***	17.24 [4.66]***
<i>FI</i> × <i>DEF</i>	-0.12 [1.87]*	-0.11 [1.74]*	-0.12 [1.89]*	-0.12 [1.83]*	-0.11 [1.75]*	-0.12 [1.85]*	-0.11 [1.69]*	-0.11 [1.71]*
<i>FI</i> × <i>INS</i>	-0.20 [4.94]***	-0.19 [4.54]***	-0.22 [5.15]***	-0.21 [4.90]***	-0.20 [4.78]***	-0.22 [5.10]***	-0.19 [4.52]***	-0.20 [4.75]***
Log private credit-to-GDP (<i>FD</i>)		0.77 [1.77]*			0.82 [1.89]*		0.77 [1.77]*	0.83 [1.89]*
Trade openness 4/ in initial year (<i>TO</i>)			-1.65 [1.49]		-1.81 [1.63]	-1.65 [1.49]		-1.80 [1.62]
Log real GDP per capita in initial year (<i>GDPPC</i>)				0.25 [0.16]		0.17 [0.10]	0.38 [0.24]	0.30 [0.18]
Observations	436	436	436	436	436	436	436	436
Number of countries	29	29	29	29	29	29	29	29
R ²	0.31	0.31	0.31	0.31	0.32	0.31	0.31	0.32

Sources: International Financial Statistics, Lane and Milesi-Ferretti (2006), International Country Risk Guide, and IMF staff estimates.

1/ Absolute values of t statistics are in brackets. Values significant at the 10 percent level are denoted with *; at the 5 percent level, with **; at the 1 percent level, with ***. All regressions include country and year fixed effects. All regressors, except for *INS*, are measured in the initial year.

2/ International Country Risk Guide, 0 to 100 scale.

3/ Foreign assets and liabilities-to-GDP ratio.

4/ Imports and exports-to-GDP ratio.

Table A2. Extension: Relevant Features of Institutions

<i>Dependent variable:</i>		
<i>Change in fiscal deficit after one year, in percent of GDP (ΔDEF) 1/</i>		
	(1)	(2)
Central government deficit in percent of GDP (<i>DEF</i>)	-0.32 [7.95]***	-0.30 [7.46]***
Log financial integration (Foreign assets and liabilities-to-GDP ratio, <i>FI</i>)	15.89 [4.42]***	8.09 [3.16]***
<i>FI</i> × <i>DEF</i>	-0.11 [1.74]*	-0.09 [1.34]
Log private credit-to-GDP (<i>FD</i>)	0.77 [1.77]*	0.80 [1.78]*
Index of institutional quality (<i>INS</i> , 0–100 scale)	-0.13 [4.36]***	
<i>FI</i> × <i>INS</i>	-0.19 [4.54]***	
Government Stability Index (<i>GOVSTAB</i> , 0–12 scale)		-0.10 [0.87]
Bureaucracy Quality Index (<i>BUREAU</i> , 0–4 scale)		-1.71 [3.76]***
Law and Order Index (<i>LAWORDER</i> , 0–6 scale)		0.13 [0.56]
<i>FI</i> × <i>GOVSTAB</i>		-0.19 [1.59]
<i>FI</i> × <i>BUREAU</i>		-1.94 [2.38]**
<i>FI</i> × <i>LAWORDER</i>		0.10 [0.31]
Observations	436	436
Number of countries	29	29
R ²	0.31	0.30

Sources: International Financial Statistics, Lane and Milesi-Ferretti (2006), International Country Risk Guide, and IMF staff estimates.

1/ Absolute values of t statistics are in brackets. Values significant at the 10 percent level are denoted with *; at the 5 percent level, with **; at the 1 percent level, with ***. All regressions include country and year fixed effects. All regressors, except for institutional indices, are measured in the initial year.

As an additional robustness check, the baseline specification for fiscal adjustments is reestimated with fiscal adjustment measured over longer time horizons. In particular, Table A3 reports the results of reestimating the baseline specification (Table A1, column 2) with the average change in the fiscal deficit-to-GDP ratio measured over one, two, three, and four years. The results indicate that the contributions of financial integration remain statistically significant at all four horizons, consistent with the notion that the effects of financial integration are persistent.

Table A3. Robustness: Fiscal Adjustment over Different Horizons

<i>Dependent variable: change in fiscal deficit (in percent of GDP) after:</i>				
	<i>1 year</i>	<i>2 years</i>	<i>3 years</i>	<i>4 years</i>
Central government deficit in percent of GDP (<i>DEF</i>) 1/	-0.32 [7.95]***	-0.28 [10.69]***	-0.26 [13.65]***	-0.25 [16.50]***
Index of institutional quality (<i>INS</i> , 0–100 scale)	15.89 [4.42]***	11.43 [4.77]***	9.52 [5.02]***	7.33 [4.70]***
Log financial integration (Foreign assets and liabilities-to-GDP ratio, <i>FI</i>)	-0.13 [4.36]***	-0.10 [4.99]***	-0.08 [5.07]***	-0.07 [4.82]***
Log private credit-to-GDP (<i>FD</i>)	0.77 [1.77]*	0.47 [1.73]*	0.37 [1.76]*	0.28 [1.62]
<i>FI</i> × <i>DEF</i>	-0.11 [1.74]*	-0.11 [2.86]***	-0.09 [2.94]***	-0.07 [2.85]***
<i>FI</i> × <i>INS</i>	-0.19 [4.54]***	-0.14 [4.84]***	-0.11 [5.10]***	-0.09 [4.84]***
Observations	436	421	391	362
Number of countries	29	29	29	29
R ²	0.31	0.44	0.57	0.67

Sources: International Financial Statistics, Lane and Milesi-Ferretti (2006), International Country Risk Guide, and IMF staff estimates.

1/ Absolute values of t statistics are in brackets. Values significant at the 10 percent level are denoted with *; at the 5 percent level, with **; at the 1 percent level, with ***.

All regressions include country and year fixed effects.

All regressors, except for institutional indices, are measured in the initial year.