# SECURING FINANCIAL STABILITY:
# PROBLEMS AND PROSPECTS
# FOR NEW EU MEMBERS

*Three Papers by*

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**Introduction**
*by Morten Balling*

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# TABLE OF CONTENTS

# Introduction

**by Morten Balling**

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Safeguarding financial stability is a main task for central bankers and regulators. The world in which monetary authorities fulfil this task is changing rapidly. A change in the environment with truly long-term implications for monetary policy is the enlargement of the European Union. The authorities of the EU-accession countries must in the year 2003 and in the years to come assess their institutional and policy frameworks in order to determine if they are able to meet the challenges in a large and competitive financial market environment characterised by free capital movements and an increasing importance of multinational financial institutions.

The three papers in this SUERF Study were presented in March 2003 at a SUERF seminar in Malta: *Securing Financial Stability: Problems and Prospects for New EU Members*. The authors of the papers analyse the conditions under which the monetary authorities of the EU-accession countries can expect to operate in the future and they give a series of policy recommendations.

*Michael C. Bonello* (Governor, Central Bank of Malta) gives an overview of current issues in financial stability policy. Short-term capital movements and asset price bubbles are potential threats to stability. Risks to stability need not originate within the financial system itself. A healthy macroeconomic environment is necessary. The confidence of market participants relies on a prudent fiscal policy and a stability-oriented exchange rate policy. The efficiency of monetary policy depends on the effectiveness of the transmission channels in the financial system. Policy transparency and good governance are also important. The likelihood of disturbances to the financial system can be greatly diminished if the authorities are transparent and state their policy intentions clearly. If they do that, investors and creditors become better informed. This aspect is especially relevant in exchange rate policy. Transparency and good governance also apply at corporate level. Disclosure

requirements and market discipline play an important supplementary role to prudential controls of the well-being of the financial system.

EU financial market integration presents both new opportunities and some risks. Accession countries will, by participating in the single currency area, become immune to currency misalignment episodes that disturb trade and currency risk premiums will disappear from interest rates. Deeper and more liquid financial markets offer risk diversification opportunities. Entry of competitive foreign banks can be expected to improve the efficiency and functioning of indigenous banks. During the integration process, the distinction between different types of financial institutions and markets will become increasingly blurred. This means an increasing need for all institutions with financial stability responsibilities to co-ordinate their efforts. At EU level, co-operation between national supervisory authorities is strongly needed. In his conclusion, the Governor underlines the special interest of accession countries in keeping at bay forces which are known to be inimical to financial stability and in adopting structures and practices which have proved effective in countries which have already completed their journey to EMU.

In the introduction of his paper, *Fabrizio Saccomanni* (Vice President, European Bank for Reconstruction and Development) distinguishes between ensuring financial stability at the EU level and at the level of the international monetary and financial system respectively. Episodes of instability have not been exclusively in emerging and transition countries. They have also occurred in mature economies such as Japan and the United States. There are "systemic" shortcomings in global financial markets. From time to time financial intermediaries demonstrate "herd behaviour" which may contribute to financial contagion. Financial flows to emerging markets have shown considerable volatility. The issue of capital flows volatility is a concern for all regions of emerging markets. The EU accession countries have received very large foreign direct investment (FDI) flows over the last ten years. This must be understood in the context of a relatively strong economic performance and the ongoing convergence process.

The size and volatility of capital flows represent a potential risk to financial stability in the accession countries. Portfolio investors may speculate on interest rate convergence and exchange rate appreciation, but flows driven by speculative considerations can be quickly reversed with damaging consequences to the health of individual financial institutions. Increased integration of financial markets after accession may intensify the risk of

contagion. The accession countries made remarkable progress in transforming their financial sectors in the 1990s. Due to privatisation and an obliging policy with respect to entrance of foreign investors and banks, there have been dramatic changes in the structure of ownership. Today, the banking sector in the region is characterised by a high degree of foreign ownership. Banking efficiency is improving, but remains lower than in the EU countries.

On the agenda for financial stability, the first item is improvement of the risk management of individual intermediaries. Next, financial authorities must strengthen prudential supervisory techniques and procedures to prevent crisis situations or to manage them. Under the present configuration of the international monetary and financial system there is a risk that financial instability could have systemic implications. Supervisory authorities have traditionally followed a "microprudential" approach while the problem they have to deal with is of a "macroprudential" nature. By referring to recent analytical contributions from the BIS and ECB, the author recommends a strengthening of the co-operation among central banks and supervisory authorities on a macroprudential approach to ensuring financial stability. He recommends a certain degree of policy activism. The risk perception of market participants should be affected in a stabilising way. Securing financial stability in a globalised international economy will be quite challenging for national monetary authorities and for the institutions of international cooperation.

*Claudia M. Buch* and *Jörn Kleinert* (Kiel Institute of World Economics) and *Peter Zajc* (University of Ljubljana) analyse the link between financial integration and the stability of financial markets in Central and Eastern European Countries (CEECs) that arises through the diversification of national liquidity shocks in their paper. The authors distinguish between cross-border lending and FDI in financial services. While FDI involves higher fixed costs than cross-border lending, it also provides banks with better access to local lending markets. The strong financial integration of CEECs with EU countries has implications for financial stability. Liquidity risks can be diversified. By drawing on a model developed by Allen and Gale, the authors explain that the impact of financial integration on financial stability in the accession countries depends on the regional structure of financial integration, the correlation of liquidity shocks between regions and the depth of integration. Data show that German, Austrian and Scandinavian banks are very important lenders to CEECs. They are also deeply involved in FDIs in the region. The correlations of liquidity shocks between the CEECs and the Western European countries are relatively low. The implication is that the

CEECs can profit from further financial integration with the EU. Due regard should be taken, however, to the large difference in size of the two regions and the relatively large market shares of foreign banks in the CEECs. The authors conclude that FDIs in banking have important stabilising features.

Together, the three papers provide the reader with a solid background for understanding the challenges that face the monetary and supervisory authorities in the EU accession countries in the years to come.

Morten Balling

# Stability Oriented Monetary and
# Prudential Policies in EU Accession Countries

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In today's globalized world where private financial flows, facilitated by market deregulation and electronic trading, have become a substantial multiple of merchandise trade, safeguarding financial stability represents an increasingly complex policy challenge. For the central banking community in the accession countries, the wider scope of liberalisation implied by the rules of the Single Market and, in particular, by the EU Financial Services Action Plan, adds a further dimension to this challenge. Of particular relevance in this regard are the liberalisation of capital flows and the free movement of services, processes which are already well underway in our countries. It is, therefore, particularly appropriate that central bankers, regulators and others having an interest in financial stability should come together on the eve of EU enlargement to assess the adequacy of the institutional and policy frameworks within which they operate.

## 1. Current issues in financial stability

Today, it is generally accepted that a well-developed and healthy financial system is a prerequisite for sustained growth, not least because of its intermediary role between savers and borrowers and its ability to diversify risks. A sound financial system also contributes to exchange rate stability by way of its stabilising effects on external trade and financial flows and is, of course, necessary for the effective transmission of monetary policy.

As the size and importance of financial systems have grown, so have the sources of potential threats to their stability. Apart from the magnitude of short-term private funds which move across the globe daily, financial stability stands to be undermined by the emergence of such factors as asset price bubbles and by the blurring of the erstwhile distinction between financial markets and institutions, developments which complicate the task of the authorities charged with overseeing the financial system.

Clearly, "financial stability" has assumed a much broader meaning than that implied by the terms "financial supervision" and "banking stability", with which it used to be associated in the past. These wider ramifications of the concept are well captured, I believe, by the definition proposed by Mr Malcolm Knight, the Senior Deputy Governor of the Bank of Canada who

is soon to take over as General Manager of the Bank for International Settlements. He defines a stable financial system as one in which *all* economic agents – households, business firms, financial services firms and government – can confidently hold and transfer financial assets without experiencing serious risks of disturbances that undermine financial values or repayment prospects.[1]

The notion which this definition conveys very clearly is that risks to stability need not originate within the financial system itself. In particular, while a sound clearing and payment system and regulatory framework remain vital prerequisites, a healthy macroeconomic environment characterised by stable prices, interest rates and exchange rates is equally necessary for financial stability. These variables also affect the exposures of different entities to various categories of risk. This is very much what we observe in practice, where even imbalances arising in some other sector often create ripple effects throughout the financial system and, where this is not robust enough, in the rest of the economy.

Consistent with this view, it can be argued that financial stability is best pursued by implementing a coherent set of policies which respond to the underlying macroeconomic fundamentals. Recent episodes of financial crisis, for example, have shown that through their effects on expectations and on asset prices more generally, unchecked variations in property prices can contribute to precipitating a crisis. Similarly, it is often forgotten that a combination of excessive public deficits with an over reliance on short-term capital flows and an overvalued currency is the perfect recipe for a turnaround in market confidence, and consequently for sudden reversals in capital flows.

Nonetheless, of all the possible links between financial stability and the other objectives of macroeconomic policy, it is the one between the two key functions of central banks – price stability and financial stability – which has received most attention – and this for very good reasons. For a start, we know from experience that inflation brings about distortions in the allocation of resources, and such misallocation is incompatible with the achievement of financial stability on a sustainable basis. We have also learnt that the efficiency of monetary policy depends on the effectiveness of the transmission channels. Central banks can only influence short-term interest

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[1] Knight., M. 2002. "The Central Bank's Role in Fostering Financial System Stability: A Canadian Perspective", in *Financial Risks, Stability and Globalization;* ed. O.E.G. Johnson. Washington, D.C.: International Monetary Fund. p. 314.

rates. The ultimate impact upon prices of monetary policy decisions travels over time through various channels in the financial system, and uncertainty could ensue if these channels do not function efficiently. Another reason for this focus of attention could be that while the supervisory function has been relocated outside central banks in many countries, responsibility for the maintenance of systemic stability remains with central banks.

The relationship between financial and monetary stability is not, however, necessarily limited to complementarities. In a situation characterised by both rising inflationary pressures and tight liquidity conditions, for example, a decision to raise interest rates would be consistent with the central bank's price stability objective, but could also affect the profitability of credit institutions. It is thus hardly surprising that one of the topical issues facing central banks today concerns the appropriate weight that should be given to financial stability considerations in the formulation of monetary policy. From a broader policymaking perspective, moreover, there is also the question about the role that financial stability concerns should play in the formulation of macroeconomic policy more generally. I am sure that the second seminar session will provide further insights in this regard, when the interrelationship between fiscal policy, monetary policy and financial stability will be considered.

## 2.    Policy transparency, good governance and market discipline

The relationship between macroeconomic policy and financial stability also serves to highlight the importance of policy transparency and good governance, both at the national and corporate level. In fact, it is generally agreed that the likelihood of disturbances to the financial system can be greatly diminished if the authorities manifest their policy intentions clearly, and explain the rationale behind policy measures once decisions have been taken. This helps to reduce the chances of investors and creditors making uninformed decisions, only to reverse them later. This aspect has become especially relevant in the context of capital account liberalisation, particularly in those countries that operate variants of fixed exchange rate regimes. It is even more so in countries which are simultaneously engaged in efforts to place public finances on a stable footing and to gain credibility for the central bank's monetary policy. Here, a sudden shift in investor confidence could have serious repercussions, not only for financial stability, but also for the conduct of monetary and fiscal policy. Within this context it is relevant to note that while in general accession countries have made significant progress towards achieving macroeconomic stability, this progress has been far from uniform and challenges remain in this respect too.

The relevance of transparency and good governance also applies at the corporate level, not least because financial difficulties in large corporations could undermine the well-being of individual financial institutions and markets. This is especially the case in small jurisdictions. Now it is a fact that corporations will always know a lot more about their financial position than any outside entity charged with monitoring them, and financial intermediaries are no exception in this regard. This is particularly true at a time when the complexity of financial products and the intensity of cross-market risks are stretching the capacity of central bankers and supervisors to remain fully in control. Several recent episodes in the financial world indeed confirm that the innate human predisposition to maximise self-interest can induce behaviour that is not in harmony with the public interest.

The implications of this are two-fold. While rules and regulations continue to play an important role in preventing systemic shocks, they will increasingly have to incorporate incentives and credible deterrents to discourage excessive

risk-taking and moral hazard. Second, the efforts of central bankers and supervisors need to be supplemented with direct oversight by the stakeholders of financial institutions themselves, be they shareholders, creditors or customers. Stated otherwise, good governance and market discipline are becoming at least as important as prudential controls for the well-being of the financial system. That, in turn, calls for a host of other measures ranging from the regular disclosure by the institutions of detailed information about their performance and the adoption of international accounting standards to the enforcement of shareholder rights, the creation of deposit insurance and investor protection schemes and the simplification of judicial procedures.

## 3. EU financial market integration presents new opportunities but also some risks

While it is recognised that the well-being of the financial system has come to depend on a host of factors, the regulatory and institutional framework in place continues to play an important role both in crisis prevention and management. The prospect of EU membership has already contributed significantly in this regard, spurring accession countries to evaluate the adequacy of the framework governing the financial sector. Perhaps more important is the fact that the on-going harmonisation of rules and practices with EU standards in the area of financial stability will provide market players with an added assurance that this framework will continue to evolve in line with international best practice.

This assurance should also facilitate the further development of the financial sector in these countries, as foreign banks and other financial services providers seek to tap what is soon to become an enlarged market of almost 500 million people, either directly by setting up shop in these countries or indirectly through the cross-border provision of financial services. The advantages for financial stability of a diversified financial structure are well-documented. Suffice it to recall that because different financial market segments react differently to economic shocks, the presence of different types of intermediaries and markets functioning alongside each other should strengthen the financial system's capacity to absorb liquidity shocks emanating from specific institutions or market segments. For accession countries, the scope for diversification presented by EU membership is significant, not only because the financial sector tends to be small relative to their economic size, but more so because intermediation in these countries is dominated by the banks. In fact, a recent ECB report concludes that the financial sectors of accession countries could assimilate a fifteen-fold increase in absolute terms.[2]

Financial integration in the euro area, moreover, may also promote financial stability in the accession countries through the advantages inherent in a single

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[2] Caviglia., G., G. Krause and C. Thimann. 2002. Key Features of the financial sectors in EU accession countries, in C. Thimann (ed.) *Financial Sectors in EU Accession Countries*, Frankfurt: European Central Bank.

currency area. For a start, the disruption arising from currency risk is eliminated, domestic economies become immune to currency misalignment episodes that disturb trade and currency risk premiums disappear from interest rates. A large currency area, furthermore, means deeper and more liquid financial markets, which allow participants to diversify their risks and, in the absence of currency risk, to focus more on credit risk.

Another contribution which EU membership should make to financial stability in accession countries stems from the increased competition which will result from the entry of foreign service providers, particularly if this induces indigenous institutions to find innovative ways to hedge risks and diversify asset portfolios, and to adopt international best practices generally. While cross-country studies on this aspect remain sparse, a recent World Bank study[3] reveals instances where foreign bank entry did lead to improved operations and to greater access to foreign capital. Drawing on data for 80 countries, this study also shows that foreign bank entry does tend to reduce domestic bank profitability, non-interest income and, to some extent, overall expenses. Coupled with the finding that the presence of foreign banks contributes to a higher level of loan-loss provisioning, this leads the authors to conclude that, through its effects on competition, foreign bank entry improves the efficiency and functioning of indigenous banks. While there is nothing automatic about the realisation of such benefits, one might reasonably expect that in the long run the completion of the Single Market in financial services should contribute to the emergence of a healthier financial system in the accession countries.

Now it could of course also be argued that the extension of the "single passport" to most aspects of the provision of financial services foreseen by the Financial Services Action Plan could well expose the accession countries to new risks, particularly those emanating from within the EU itself, with which these countries are already closely integrated. Indeed, the ECB has itself recently stated that the integration of financial markets in the region could increase the chances of systemic disturbances affecting more than one Member State.[4] In this regard, Dr Buch's paper on the implications for

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[3] Claessens., S., A. Demirguc-Kunt and H. Huizinga. 1998 (rev 2000). *How does Foreign Entry Affect the Domestic Banking Market?* World Bank Working Paper No. 1918. Washington: World Bank.

[4] European Central Bank. 2003. Press Release on the Memorandum of Understanding on high-level principles of co-operation between the banking supervisors and central banks of the European Union in crisis management situations. Frankfurt, *10 March*.

financial stability of foreign bank entry should help to place the discussion in an empirical context.

Another important aspect of financial market integration relates to regulation and supervision. As the process intensifies, the distinction between different types of financial institutions and markets will become increasingly blurred. In such a scenario, it will be even more important for all institutions with financial stability responsibilities – be it the central bank, supervisory authority or other government agency – to co-ordinate their efforts in the area of system oversight and to share any information which could be relevant to the proper fulfilment of their respective functions. Indeed, whereas until recently the prevailing concern related to the choice of institutional arrangement for the supervision of the financial sector, it is now sometimes argued that it is not the institutional framework which matters most, but rather the existence of adequate mechanisms guaranteeing the exchange of information and policy co-ordination between the entities responsible for overseeing systemic stability and those that monitor the health of individual financial institutions. Beyond that, it is claimed, any institutional set-up can work. Likewise, any one can fail.

While this conclusion might be valid from a national point of view, it does little to address the question of whether information exchange and policy co-ordination relating to financial sector developments affecting the EU as a whole would be more appropriately addressed by a supranational EU institution with supervisory responsibilities, or whether such tasks are best handled by the national authorities of member countries. This issue has certainly gained in importance in recent years with the increased recognition of the links between supervision and monetary policy. It has served to highlight the anomaly between, on the one hand, the institutional framework governing monetary policy in the region, which is centralised in the ECB, and, on the other hand, the framework governing financial sector supervision, which is largely decentralised. The signing earlier this year of a Memorandum of Understanding on co-operation in the area of crisis management between the supervisory authorities and the central banks of the 15 Member States has underlined the links between these two functions even more.

Now some might conclude that if it has been possible to devise a mechanism for crisis management in the EU without the need to create a supranational supervisory body, it should be equally possible to develop a similar co-operative arrangement for crisis prevention. On the other hand, it could also be argued that, not having had the experience of a financial crisis in the

region, it is still too early to say whether such an arrangement would work in practice. Accession countries have a special interest in this matter, not only because their central banks and supervisory authorities will be invited to sign this accord, but because they will in time also have to adhere to whatever institutional arrangements are adopted by the EU in this area.

## 4.    Conclusion

The issues being discussed during this seminar are wide-ranging indeed. And though they are not of interest exclusively to policy makers in accession countries, financial stability issues are especially pertinent for these countries, since they aim to meet the requirements for adopting the single currency as soon as possible after joining the EU in May 2004. First, because the existence of a positive link between financial system stability and economic growth means that anything that harms stability would slow down the pace of real convergence with the EU economy. Second, because the break out of a systemic crisis has immediate effects on asset prices and other price variables, it could also imperil the nominal convergence process and, with that, an early entry in Economic and Monetary Union (EMU).

Accession countries, therefore, have a specific interest in keeping at bay forces which are known to be inimical to financial stability and in adopting structures and practices which have proved effective in countries which have already completed their journey to EMU. It is thus appropriate that the seminar should be brought to an end with presentations on the experiences of three euro area member countries.

# BIBLIOGRAPHY

**Caviglia, G., G. Krause and C. Thimann.** (2002) Key Features of the financial sectors in EU accession countries, in Thimann, C., (ed.), *Financial Sectors in EU Accession Countries*, Frankfurt: European Central Bank.

**Claessens, S., A. Demirguc-Kunt and H. Huizinga.** (1998 rev 2000). How does Foreign Entry Affect the Domestic Banking Market? World Bank Working Paper No. 1918, Washington, World Bank

**European Central Bank.** (2003) *Press Release on the Memorandum of Understanding on high-level principles of co-operation between the banking supervisors and central banks of the European Union in crisis management situations*, Frankfurt, 10 March

**Knight., M.,** (2002) The Central Bank's Role in Fostering Financial System Stability: A Canadian Perspective", in Johnson, O. E. G., (ed.) *Financial Risks, Stability, and Globalization,* Washington, D.C.: International Monetary Fund. p. 314

# Ensuring Financial Stability:
# Global and European Perspectives

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# 1.    Introduction

Financial stability is a pre-requisite for the optimal allocation of resources. Consumer and investment decisions are misguided by the distorted asset prices, which characteristically precede a financial crisis. The ability of the financial sector to attract savings and channel them to the productive economy is eroded during a period of financial instability. Inevitably, this leads to output losses, the size and duration of which can eventually have an impact on the ability of traditional economic policy instruments to reverse the crisis.

Ensuring financial stability in an enlarged European Union (EU) – the subject of this highly topical SUERF seminar – is an issue that can be addressed at two distinct levels. At the level of the EU, it means that individual member states, both "old" and "new", must endeavour to ensure that their banking and financial systems are sound, efficient, competitive and well regulated, consistent with the objective of full financial integration in Europe. These are challenging tasks, but at least they are sufficiently clear in terms of their policy implications. But in the context of globalisation, ensuring financing stability is a task that must be addressed also at the level of the international monetary and financial system. Here the policy implications are much less clear, since, with the process of globalisation the very nature of the "system" has been undergoing major changes in its institutional foundations and in its "rules of the game". Despite these difficulties I will try to address the seminar topic from both viewpoints.

This paper is organised as follows: in section 2, I will briefly review the recent evolution of the international monetary and financial system in the context of globalisation and examine current trends in international capital flows. Section 3 will survey the process of reform in the banking and financial sectors in the prospective new member countries of the EU and will identify potential risks to financial stability. In Section 4, I will raise some outstanding analytical and policy issues that will have to be tackled in the fora of international economic cooperation in order to achieve lasting conditions of monetary and financial stability.

## 2.    Recent evolution of the international monetary and financial system

The gradual establishment of conditions of financial globalisation in the 1980's has coincided with the intensification of episodes of instability, with significant international repercussions. These episodes have been associated with large unidirectional movements in the price of assets, such as real estate, bonds, shares, currencies, followed by sharp reversals leading to significant disruptions in the orderly functioning of financial markets, the bankruptcy of intermediaries or, in some cases, to the suspension of the debt servicing obligations of major sovereign borrowers. Contrary to popular belief, these episodes have not occurred only in emerging or transition countries, but have involved also mature economies, like Japan, or affected efficient markets like the New York Stock Exchange, NASDAQ or the international bond market. Currency misalignments have not been concentrated in Latin America or South East Asia, but have at one time or another affected the three key currencies of the world monetary system: the dollar, the euro and the yen.

Although the triggering factors for the outburst of crises have been closely connected with specific imbalances in individual countries or markets, the alternation of situations of excessive credit expansion with phases of sudden credit contraction, typical of such crises, has been increasingly linked to "systemic" shortcomings of global financial markets.[2] These include the tendency by global players to underestimate and, therefore, to "underprice" the risk of financial operations and the tendency to overestimate the degree of liquidity of markets; moreover, competitive pressures lead to "herd behaviour" of intermediaries which may result in phenomena of financial contagion. In turn, the tendency of markets to generate "boom and bust" cycles has been associated with the monetary policy stances adopted by the major key currency countries (i.e. the US, the Eurozone and Japan) whose

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[2] Padoa-Schioppa and Saccomanni (1994) have suggested that with the generalised move to floating exchange rates and the progress in financial liberalisation, a "market-led international monetary system" has emerged from the ashes of the old "government-led system" of Bretton Woods. Under such new system, global financial markets determine the creation and distribution of international liquidity and the level of exchange rates. Following the Asian crisis of 1997, these questions have been the subject of in depth analysis by the International Monetary Fund (IMF) in its periodical World Economic Outlook reports and in the Annual Reports of the Bank for International Settlements (BIS).

influences have been amplified and propagated by financial intermediaries, thus influencing the direction of international capital flows (Saccomanni, 2002).

Under these circumstances, financial flows to emerging markets have shown considerable volatility, as is clearly visible in Figure 1. These developments are well known, and I would like to highlight just a few aspects which may be relevant for the issue under discussion in this Seminar.

**Figure 1**

**Private Capital Flows to Emerging Markets (billions of US Dollars)**
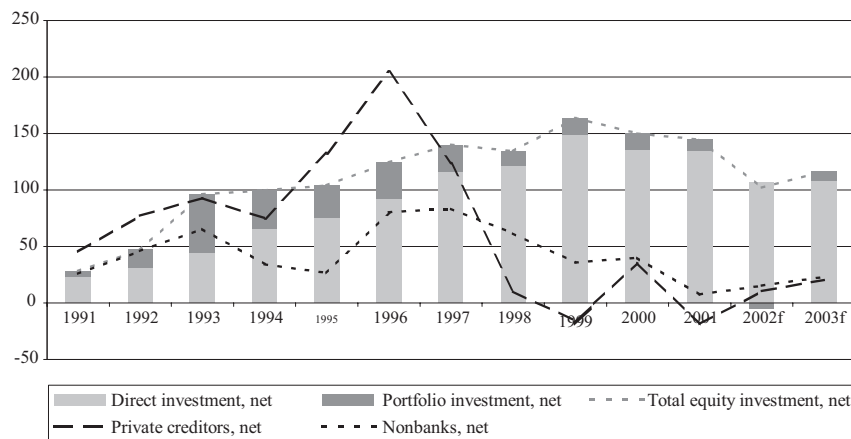


Source: Institute of International Finance, 2003.

A first aspect is that since the Asian-Russian crisis of 1997–98, there has been a drastic decline of private financial flows to emerging markets, signalling a generalised phenomenon of risk aversion, in particular with regard to banking flows. This is quite different from the situation prevailing after the Mexican crisis of 1994, when private flows to emerging countries recorded only a temporary decline and resumed a strong growing pattern in 1995–96. Such a risk aversion attitude towards emerging markets is all the more significant in the present circumstances of abundant liquidity in international capital markets and historically low interest rates in major industrial countries.

A second notable aspect is that since 1999 even the more stable component of capital flows, foreign direct investment (FDI), has shown a moderately declining pattern. This development is probably a consequence of the way in which the debt crisis has been managed in Argentina: the disregard of investors' rights and the vicissitudes of the negotiations on debt restructuring have increased the long-term risk perception of investors and contributed to a sharp decline in foreign direct investments in Argentina. In 2001 the FDI flows in Argentina declined to around a quarter of 2000 levels (from $11.2 billion in 2000 to $3.2 billion in 2001).

Although the experience has differed at the regional level, the issue of capital flows volatility is a concern for all regions of emerging markets. Political and economic turbulence in Latin America, accompanied by weak equity market performance and increased bond spreads, led to a sharp decline (by half) of total net capital flows of that region over the past year (in all its components). In emerging Asia, a significant economic performance has attracted larger capital inflows. However, if one deducts FDI to China, which accounts for about 85 per cent of the total, very little new direct investment flows have gone to the rest of the region.

In transition countries, macroeconomic stability and reform progress have attracted private investment, including a growing proportion of portfolio flows which are more prone to volatility. Among transition economies, accession countries received 60 per cent of FDI flows to the region, as they are considered an attractive risk in view of the institutional linkages with the EU and the prospect of continuing strong economic performances in the context of the convergence process.

Even among accession countries, a significant episode of FDI volatility has been recorded. In Hungary, after a decade of significant foreign direct investment inflows (an average of 4.5 per cent of GDP over the 1991–2001 period), the absence of new privatization deals, combined with the protracted exclusion of foreign investors from large public sector investments in infrastructure and a lack of transparency in public procurement practices led to a drastic drop in FDI to 1 per cent of GDP in 2002.

The conclusion I would like to draw from these considerations is that volatility of financial flows to emerging markets is likely to stay, at least for the foreseeable future, and will continue to affect, albeit in differing degrees, all components of international capital movements.

## 3. Financial sector developments and challenges in the new EU member countries

In this Section, I would like to review the status of financial sector reform in the new EU members, the potential sources of instability and the remaining policy agenda after accession. Many of the issues raised here affect in particular the transition economies among the accession countries, as Malta and Cyprus have fairly advanced financial sectors. Some of the challenges, however, are common to all EU members, both new and old.

### 3.1 Overview of financial sector reform and development

The accession countries have made remarkable progress in transforming their financial sectors in the 1990's. There have been significant achievements in the privatization and restructuring of state banks in most of these countries; there has been the exit of failing institutions and entry and development of new domestic and foreign banks; there has been improvement in the legal, supervisory and regulatory framework, which has supported enhanced competition in the provision of banking services.

Despite this significant progress, the financial sector still lags behind in terms of the scale and scope of their provision of financial services. Financial systems have developed more as 'bank-based' systems than as 'market-based' systems, with the banking sector being the major provider of financial services. Nonetheless, the size of the banking sector is still generally small, both in relative and in absolute terms, in comparison with the current EU member countries. The ratio of banking assets to GDP ranges between 32 per cent (Lithuania) and 130 per cent (Czech Republic) compared to 240 per cent in the euro area. Only in Malta and Cyprus, where this ratio stands at about 230 and 250 per cent of GDP respectively, is it comparable to the euro area average.

The banking sector in the region is characterised by a high degree of foreign ownership (on average 71 per cent of assets in the accession countries of Central and Eastern Europe, and ranging from 16 per cent in Slovenia to about 98 per cent in Estonia). This is a significant difference with the euro area banking sector, where, for historical and cultural factors, foreign ownership accounts, on average, for only 20% of assets. Foreign ownership has the advantage of bringing in needed capital, know-how and best practices

in banking and corporate governance; over the past decade it has introduced competition in state controlled sectors and significantly strengthened the banking system against spill-over of crises in other emerging markets.

However, foreign-ownership has not been necessarily conducive to a more active role in lending to the real economy. The degree of bank intermediation in all accession countries has in fact contracted since restructuring and privatization took place, albeit to a different extent among countries, and only in very recent years has it again risen. The low level of bank intermediation is explained primarily by the prudent behaviour of banks vis-à-vis clients lacking the appropriate risk-return profile; however, the lack of long-term funding, poor credit skills and weak enforcement of the legal framework for creditor protection also played a role. Moreover, the large presence of foreign banks has not reduced the relatively high proportion of non-performing loans (ranging from 1.5 per cent in Estonia to 24 per cent of total loans in Slovakia).

The range of financial services provided by the banking sector in accession countries (except for Cyprus where banks provide the full range of financial services) is also very limited compared to that of developed market economies. The degree of availability and terms of mortgage finance and other consumer finance (credit card, electronic banking, etc.) make these services accessible only to a very small fraction of the population. Leasing, a suitable financing tool for small and medium-sized enterprises (SMEs), has not really taken off in some countries (e.g. Bulgaria and Romania), and in others it is available only on a short-term basis.

Furthermore, even in the most advanced countries of the region, banking efficiency remains lower than that in the EU countries despite some progress. A significant indicator is the spread between lending and deposit rates which at the end of 2001, ranged from 4.1 per cent in the Czech Republic to 17 per cent in Romania, compared to an average of 3.3 per cent for the euro area. Only in Malta and Hungary has banking efficiency improved considerably and the lending deposits spreads are also below the euro area average (2.0 and 2.9 per cent respectively).

The relative underdevelopment of the banking sector in accession countries is not compensated for by a strong non-bank financial sector or by thriving capital markets. If anything, the degree of underdevelopment of capital markets and non-bank financial institutions is greater than that of the banking system. Stock markets exist in all the accession countries, as does the relevant legal and regulatory framework to support them. However, their growth has

not been comparable to the growth experienced by their respective economies, and in some cases they have actually shrunk in recent years. Moreover, they are dominated mainly by large companies and do not manage to offer a meaningful opportunity for allocation of savings, nor provide a reliable source of finance for local companies or an exit route for foreign investors. The dominance of foreign investors constitutes an element of volatility as they are highly exposed to global market sentiment. Domestic players are few, both institutional and individual. Reform of the pension systems in these countries has only recently started and pension funds are generally reluctant to take risks, having been scarred by poor performing stock investments in the first half of the 1990s. Because of the thinness of these markets, the best firms opt to be listed abroad rather than domestically. Moreover, the legal and regulatory environment still needs to be further developed in order to lower barriers to both entry and exit.

### 3.2 Potential sources of financial sector instability

From the short overview of financial sector development in accession countries it is possible to conclude that the goal of becoming EU members has accelerated the reform process of the financial sector in these countries in an unprecedented way. However, additional challenges may arise as a result of the process of financial integration in the EU.

A first potential risk to financial stability in accession countries relates to the size and volatility of capital flows which is expected to increase, with the prospect of total liberalisation of capital account and the eventual adoption of the single currency in the context of EMU membership. Large capital flows may have a negative effect on the financial sector of accession countries, especially on the banking sector which is the major channel for their intermediation (Buiter and Taci, 2003). Capital inflows into the banking sector may fuel rapid credit expansion, with banks being increasingly exposed to credit and foreign exchange risks and to maturity mismatches in foreign currencies. Heavy inflows can also lead to excessive real exchange rate appreciation, potentially eroding competitiveness and resulting in deterioration in performance of some of the banks' clients, with possible negative repercussions on debt repayments, with more bad loans there appearing on the banks' balance sheet. More generally, rapid growth of assets strains banks' capacity to assess risk adequately.

The perceived sustainability of policies in the prospect of the EU/EMU accession, may also affect the composition of capital inflows. In particular,

speculation on interest rate convergence as well as on improved economic conditions and currency appreciation may attract an increasing flow of short-term and portfolio capital. For at least a year now, the accession countries have been the subject of 'convergence plays' by external portfolio investors and domestic borrowers, especially local banks.[3] Short-term inflows driven by speculative considerations can be quickly reversed once the arbitrage opportunity ceases to exist. With a build-up of cross-border and foreign currency transactions, sudden and large reversals of capital flows or large currency movements can have damaging consequences on the health of individual financial institutions. Moreover, shifts in sentiment, leverage, and liquidity problems can multiply and transmit shocks throughout the financial system. The re-emergence of twin fiscal and current account deficits in some accession countries (as in the Slovak Republic and in Hungary) points to the risk of a sudden reversal in investor confidence. Local banks with hard currency liabilities and local currency assets will be highly vulnerable to a sudden depreciation of the exchange rate due to reversal of capital flows.

The increased integration of financial markets after accession also intensifies the risk of contagion through financial channels. In a more financially integrated market, events in other EU countries may have a destabilising impact on countries with relatively underdeveloped banking and financial systems. Given the relative low level of intermediation in the accession countries as well as the limited range of financial services currently provided by the financial sector, the integration in the EU markets will be inevitably associated with a further expansion of banks' balance sheets and loan portfolios. EU accession will increase the competition not only within the banking sector, but also through the pressure of increased provision of services from non-bank financial institutions; this may induce banks to take excessive risks and expand further in the new activities and markets in an attempt to survive in a more competitive and complex market place. These market segments, such as retail loans, SME lending and financial derivatives, are, however, particularly prone to problems of asymmetric information rendering the risk assessment from banks more difficult. Indeed, higher risk-taking behaviour by financial institutions in EU accession countries, has

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[3] One recent example of such transactions is provided by Hungary. At the beginning of this year, despite a series of poor economic data, significant speculative portfolio inflows were recorded based on an anticipated revaluation of the currency. Portfolio and other investments flows jumped to a net inflow of Euro 4.7 billion in January 2003 from Euro 0.7 billion in December 2002. It required very heavy central bank intervention on the foreign exchange market coupled with interest rate cuts and unorthodox administrative measures to successfully fend off the attack.

already been recorded as blue chip corporate clients are increasingly borrowing directly from international markets.

### 3.3  The agenda for financial stability

In view of the potential increase in the threats to financial stability, the new EU members face the challenge to continue to strengthen their financial systems. Conceptually, the agenda to achieve this objective is relatively simple. On the level of individual intermediaries, the key issue is to strengthen and improve the ability to identify and effectively manage risks incurred in their activity: i.e. credit, interest, foreign exchange and operational risks. The presence of foreign intermediaries can be of help in this respect, but the rapid pace of financial innovation in fully integrated capital markets poses a challenge to every market participant to continuously reassess the adequacy of its own capital and risk management techniques.

On the level of financial authorities, the top priority is to strengthen prudential supervision techniques and procedures in order to prevent the emergence of crisis situations or to manage them in such a way as to forestall systemic repercussions. There again, the presence of foreign intermediaries may appear to facilitate the tasks of the local authorities. But, in fact, it requires increased cooperation with the home country authorities, and does not lessen the risk of repercussions on the domestically-owned banks, should a foreign-owned bank become insolvent.

From a structural point of view, it is also important that the authorities promote the development of a deep and mature non-bank financial sector. The level of development and the structure of the financial sector are important sources of strength in the presence of more intense competitive pressures and more volatile cross-border capital flows. By providing risk-sharing opportunities and a range of instruments to manage financial risks, a deep and mature financial market can play an important role in safeguarding financial stability. Well-developed capital markets can also help to fill the funding gap and dampen the destructive impact of a banking crisis on the real economy. At the same time, effective legal and institutional arrangements must be strengthened with a focus on improving the implementation of the legal framework, especially with regard to effective bankruptcy laws and procedures of recovery of collateral. Further improvement in corporate governance, in both financial and enterprise sectors, is essential for ensuring financial sector soundness.

## 4.    Securing financial stability: the systemic implications

The analysis conducted so far points to the need for strengthening banking and financial sectors in the accession countries as a prerequisite for financial stability. In my view this is a necessary condition, but may not be a sufficient one, not only for the accession countries, but also in general terms. As indicated in Section 2, in the present configuration of the international monetary and financial system, with freely floating exchange rates and full capital mobility, there is the risk that situations of financial instability may materialise even in countries with sound financial systems in connection with excessive credit expansion induced by international capital flows. This could result in significant departures from equilibrium levels of crucial variables like the exchange rate, the money supply, the price-earning ratio on stocks, or property prices. In turn, in such circumstances the likelihood of overshootings and bandwagon increases, with the risk of generating a speculative bubble. Moreover, the capacity of financial markets to exert discipline on intermediaries and borrowers has been generally inadequate and the "disciplinary" actions imparted have often turned out to be "too much, too late".

In these circumstances financial instability could have systemic implications, in the sense that might result in the illiquidity of markets, in the interruption of normal financing and borrowing operations and in the bankruptcy of a large number of intermediaries.

If having a sound and well managed financial system is no guarantee for financial stability, then, what are the policy options available to the monetary and financial authorities of individual countries to counter emerging financial imbalances at an early stage? Until recently the answer to this question coming from both academic economists and policy-makers was rather disappointing, for a variety of reasons. A broad consensus supported the thesis that monetary policy cannot be used to pursue financial stability as it is already assigned to pursue price stability: if you have two objectives, you need two instruments. This view has received strong support by such an authority in the field as Alan Greenspan (2002), who has recently reiterated the arguments against the recourse to interest rate hikes to counter the formation of bubbles. Rather – Greenspan maintains – monetary policy should be used promptly and aggressively to limit the deflationary impact of the bursting of the bubble, after it has occurred.

If an instrument, other than monetary policy, is required to pursue financial stability, it is widely recognised that the instruments available to the regulatory authorities of financial markets are not really suitable to cope with the situations of systemic instability such as those generated by excessive credit creation. Typically these authorities are equipped to deal with the instability of individual market participants, be they banks or other financial intermediaries, and their primary concern is to ensure that market participants have a capital base adequate with respect to the risks they incur and that their operations are transparent. The approach followed by supervisory authorities is, in other words, "microprudential" while the problem they have to deal with is of a "macroprudential" nature.

In these circumstances, one would have to conclude that there is not much that the authorities can do to prevent systemic financial instability or the emergence of bubbles. To take such a resigned attitude, however, could be seriously counterproductive, as it might convince citizens and their elected representatives that the only way to cope with financial instability is to introduce restrictions to capital movements or to "throw sand in the wheels" of international financial markets. Protectionism is not a viable strategy to deal with international financial instability, as it would distort the flow of international trade and investment with negative repercussions for growth and employment on a global scale. Fortunately, the importance of devising a policy framework that would allow the normal operation of global financial markets while promoting conditions of financial stability is being increasingly recognised, mostly within the central banking community.

A first call for a thorough re-examination of the issues raised for monetary authorities by financial instability came from Andrew Crockett with his seminal paper for the 22nd SUERF Colloquium (Crockett, 2000), in which he identified two areas for further research and analysis: firstly, how to deal with the systemic risks associated with the financial cycle; and secondly, the relationship between monetary and financial stability. This latter question, Crockett advised, should be explored with a "critical but open mind". Not surprisingly, Crockett's suggestion has been heeded primarily within the BIS, where a number of very stimulating papers have been produced by Claudio Borio and his associates. In a first paper (Borio and Lowe, 2002), empirical evidence is presented that it is possible to identify *ex ante* financial imbalances and that sustained credit growth, combined with large upward movements in asset prices, increases the probability of an episode of financial instability. The paper also argues that while low inflation promotes financial stability, it also increases the likelihood that excess demand pressures show

up first in credit aggregates and asset prices rather than in goods and services prices. In subsequent papers (Borio, 2002 and Borio, English and Filardo, 2002) the policy implications of these empirical findings are analysed. As regards the framework for monetary policy, it is argued that no change would be required in the objectives of monetary policy, but in the way they are pursued: basically, greater weight should be given "to signs of the build up of financial imbalances in deciding when and how far to tighten policy". As regards the framework for financial supervision and regulation, it is argued that a macro-prudential approach would be required in which the main concern would be "the disruption of economic life [...] brought about by generalised financial distress" rather than "the pursuit of narrowly interpreted depositor protection objectives". In practice, the macro-prudential approach would rely to a large extent on the cooperation among central banks and supervisory authorities.

Similar conclusions are reached by Tommaso Padoa-Schioppa (2002) of the ECB in a recent paper in which he looks for the "the land in between" monetary policy and prudential supervision; he discovers that that land indeed does exist and that in it there are instruments that can be used to pursue financial stability at the system's level: management of the payments system, emergency liquidity support, crisis management coordination, public and private comments (sometimes defined by market participants as "oral interventions"). As these instruments are available to central banks or to supervisory authorities or to both, it follows that their efficient use depends crucially on the coordination of interventions by the authorities involved.

I have briefly summarised these analytical contributions simply to underline the point that the pursuit of financial stability requires indeed going beyond the purely structural reforms necessary to strengthen the foundations of the banking and financial sectors. No doubt further analytical work would be required to identify the appropriate policy stance to tackle at an early stage emerging threats to financial stability. I would venture, however, to make a few general comments of a preliminary nature.

Irrespective of the precise content of the strategy, it is quite likely that a certain degree of policy activism would be required on the part of monetary and financial authorities. In a regime of global finance, there are no "automatic pilot" devices in the framework for monetary and exchange rate policies or in the prudential regulatory system to which one can safely relinquish the responsibility of ensuring financial stability. Nor is it advisable to adopt a policy of benign neglect and rely on market discipline. Policy

activism does not necessarily mean to adopt new measures or to change policy at every sign of turbulence; it means to be ready to broadcast appropriate policy signals whenever there appear to be evidence of unsustainable trends in relevant financial variables such as credit aggregates, asset prices, exchange rates. The "signal" should make clear to market participants that the authorities consider current trends as unsustainable and likely to lead to severe financial imbalances. The nature of the signal may be appropriately differentiated in light of circumstances: it may take the form of an oral warning, or might involve monetary policy measures, exchange market interventions, tax or regulatory changes.

It may be argued that such policy activism may be in itself destabilising and give rise to greater market volatility. Moreover, if the activism included a pre-emptive monetary tightening by the central bank, without clear evidence of an inflationary threat, this may be criticised as damaging to the economy and the legitimate interests of, say, private investors in the stock market. These arguments are understandable, but are not really convincing. Any policy action is bound to change financial market expectations and the evaluation of risks and return by intermediaries and investors. The volatility in financial markets that normally accompanies policy changes reflects precisely the adjustment process carried out by the market as intermediaries re-arrange their positions in light of the new expectations about risks and return on their investment. In this process, inevitably, some people gain and some people lose. But what it important is that the volatility implies an enhanced perception of risk by market participants, which may be the crucial ingredient for deflating a potential financial bubble. Indeed bubbles are generated when markets lose the perception of a two-way risk; it is one-way markets that generate overshootings, bandwagons and bubbles.

Thus, in my view, the key question is not if policy activism is justifiable or not; the key question is whether a potential financial imbalance can be safely identified at an early stage. Here again, I would tend to discount the usual arguments that monetary authorities are not endowed with perfect foresight, that they should not presume to know better than the collective wisdom of millions of market participants, etc. What is required in this case is not the crystal ball, but a considerate judgement on the sustainability of economic trends that are relevant for financial stability. I believe that economic theory, empirical analysis of historical data, careful monitoring of market dynamics and plain common sense are in most cases quite sufficient for passing such a judgement. In fact, the experience gained in the management of unsustainable trends in exchange rates shows that when the authorities have

been explicit in advocating a reversal of the trend and have supported their words with consistent policy actions, the market sentiment has generally turned around, in many cases quite rapidly.

In a regime of globalisation, however, it may be difficult for the monetary authorities of any individual country, large or small, to have all the information needed to assess the impact on financial conditions of international capital flows and of the operation of global financial markets. It is only in the fora of international consultation and cooperation that the full picture of the trends and the vulnerabilities of the international financial system can be seen. Indeed, also at the international level, there is a need for reconsidering how best to implement a macro-prudential approach to financial instability, bringing together the expertise of national finance ministries, central banks and supervisory agencies. Steps in this direction have been made in the EU with the reform of the architecture of financial supervision advocated by the Lamfalussy Committee report; on a broader international scale, the creation of the Financial Stability Forum has allowed the development of important synergies of analysis and in the policy debate. Still, more formal and explicit procedures could be devised to link the review of macroeconomic policies, with the analysis of financial market trends and of financial vulnerabilities. A more central role could be envisaged in these procedures for international institutions like the IMF and the BIS, who have accumulated an invaluable expertise in the identification of unsustainable financial trends. To call for strengthened international cooperation in this tense moment for international relations may sound naïve and unrealistic, but the fact remains that international financial stability is a public good that can only be produced by international institutions.

In conclusion, securing financial stability in a globalised international economy is going to be quite challenging for national monetary authorities and for the institutions of international cooperation.

As a former central banker, I think the chances of success will depend crucially on the role that central banking will be allowed to play in this difficult game. To confine central banks in the role of guardians of price stability, without fully using their expertise in dealing with banking systems and financial markets would be a serious misallocation of resources. At the same time central bankers should not be overcautious and refrain from giving stability-oriented policy signals to the markets for fear of criticism. As a great American central banker, William McChesney Martin, famously said, "The central banker is the guy that takes away the punch bowl when the party gets

going". And I cannot forget that Guido Carli, Governor of the Bank of Italy when I joined it in the mid 1960's, had wanted in his office a large painting of Saint Sebastian, looking calm and determined, despite being pierced by several painful arrows. The painting is still there.

# BIBLIOGRAPHY

**Borio C.** (2002), *Towards a macro-prudential framework for financial supervision and regulation?*, Lecture for the CESifo Summer Institute 2002 on "Banking Regulation and Financial Stability" in Venice, 17–18 July, Basle, Bank for International Settlements.

**Borio C., B. English and A. Filardo** (2002), *A tale of two perspectives: old or new challenges for monetary policy?*, Background Paper for the Autumn 2002 Central Bank Economists' Meeting on "Monetary Policy in a Changing Environment", 4–16 October, Basle, Bank for International Settlements.

**Borio C. and P. Lowe** (2002), Asset prices, financial and monetary stability: exploring the nexus, in *BIS Working Papers*, no. 114, Monetary and Economic Department, July, Basle, Bank for International Settlements.

**Buiter W. and A. Taci** (2003), Capital account liberalization and financial sector development in transition countries, in Age F.P. Bakker and Bryan Chaple, (eds), *Capital Liberalization in Transition Countries: Lessons from the Past and for the Future*, Edward Elgar Press, Cheltenham UK, pp. 105–141.

**Crockett A.** (2000), *In Search of Anchors for Financial and Monetary Stability*, Paper presented at 22nd SUERF Colloquium, Vienna, 27–29 April.

**Greenspan A.** (2002), *Economic Volatility*, Federal Reserve Bank of Kansas City, 30 August.

**Institute of International Finance** (2003), *Capital Flows to Emerging Market Economies*, 16 January, Washington DC.

**Padoa-Schioppa T. and F. Saccomanni** (1994), Managing a market-led global financial system, in Peter B. Kenen (ed.), *Managing the world economy. Fifty years after Bretton Woods*, Institute for International Economics (IIE), Washington.

**Padoa-Schioppa T.** (2002), *Central Banks and Financial Stability: Exploring an Intermediate Land*, Policy Panel Introductory Paper at the Second ECB Central Banking Conference on "The Transformation of the European Financial System", 24–25 October, Frankfurt am Main.

**Saccomanni, Fabrizio** (2002), *Tigri globali, domatori nazionali – Il difficile rapporto tra finanza globale e autorità monetarie nazionali*, Bologna, Il Mulino.

# Foreign Bank Ownership:
# A Bonus or Threat for Financial Stability?[*]

by

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# Abstract

In this paper, we analyse the link between financial integration and the stability of financial markets in CEECs that arises through the diversification of national liquidity shocks. We focus in particular on the form of entry that foreign financial institutions choose. We distinguish cross-border lending from FDI in financial services. We extend the model by Allen and Gale (2000) in two ways. Our first extension acknowledges the fact that CEECs are financially integrated mainly with EU countries. We argue that exposure to a large neighbouring region is beneficial for CEECs since it allows the diversification of liquidity risk through the large EU interbank market. Our second extension to the baseline model addresses the implications of FDI in banking for financial stability. Our analysis suggests the improved sharing of liquidity risk as a third reason why FDI in banking can be stabilising.

# 1 Motivation

Financial integration and the deregulation of foreign bank entry remain hotly debated issues in many emerging markets, yet they are often also controversial in developed market economies.[1] One concern often voiced is that growing cross-border flows of capital might increase the vulnerability of countries to exogenous shocks. Common lender effects, i.e. an exposure to large foreign counterparts, are one channel through which these contagion effects can emerge (Van Rijckeghem and Weder, 2000). Risks of financial contagion seem particularly relevant for the countries of Central and Eastern Europe (CEECs). Not only have these countries integrated rapidly into international capital flows, but their own financial systems might also be relatively prone to financial crises and to financial shocks from abroad.

In this paper, we analyse the link between financial integration and the stability of financial markets in CEECs that arises through the diversification of national liquidity shocks. We focus on the form of entry that foreign financial institutions choose. We distinguish cross-border lending from FDI in financial services, with the choice between these two forms of entry being determined by fixed and variable costs. In order to engage in cross-border lending, banks do not need to establish a presence in a foreign market. Hence, they save on the fixed costs of entry. However, without having established a foreign presence they are also restricted in serving the retail banking market of the host country because access to local information and to the local customer base is limited. The relative importance of fixed and variable costs differs for foreign direct investment (FDI). While FDI involves higher fixed costs than cross-border lending, it also provides banks with better access to local lending markets. This holds in particular since FDI in banking mainly takes place through mergers and acquisitions with local financial institutions.

These trade-offs suggest that cross-border lending and FDI in banking have different implications for the integration of financial market segments (retail

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[1] See, e.g., IMF (2000). As regards the role of foreign banks, Claessens *et al.* (2001), Clarke *et al.* (2001), or Mathieson and Roldo (2001) provide general cross-country evidence, and Crystal *et al.* (2001, 2002) or Clarke *et al.* (2000) provide evidence for Latin America. The Asian experience is reviewed in Abidin (1986), Lardy (2001), Pigott (1986), and Terrell (1986). Bonin and Abel (2000), Bonin and Leven (1996), Konopielko (1999), and Wachtel (1995) discuss foreign entry to the banking systems of Central and Eastern Europe. Finally, Bonin *et al.* (1998) or Fries and Taci (2002) discuss the experience of the transition economies in reforming their banking systems in general.

versus wholesale markets) into global capital flows. At the same time, the form of entry that foreign banks choose also affects the stability of financial systems as the diversification of regional liquidity shocks is one motive behind the international expansion of banks (Allen and Gale, 2000). Through this channel, international financial integration can have stabilising features. However, Allen and Gale also show that there are non-linear effects between financial integration and the risk of financial contagion: if integration is limited, the risks of financial contagion are limited as well. As the degree of integration increases, so does the risk of financial contagion. Eventually, though, in highly integrated financial markets the risk of contagion diminishes again.

Based on a presentation of the model by Allen and Gale (2000), we present stylised facts for the transition economies and discuss the implications of specific features of the integration process for financial stability. Our empirical analysis shows that CEECs are mainly financially integrated with EU countries. We argue that exposure to a large neighbouring region is beneficial for CEECs since it allows the diversification of liquidity risk through the large EU interbank market. Presently, however, the relatively small shares of interbanking activities in cross-border lending suggest that this potential may not yet be fully utilised. Also, exposure to a large region has the potential downside that a liquidity crisis in the EU could spill over into CEECs.

In addition, we discuss the implications for financial stability of the significant foreign direct investment in banking that the transition economies have received. Essentially, diversification of liquidity risks can be achieved through cross-border lending and borrowing, and does not necessarily require FDI in banking. Yet, we argue that the FDI of banks has an additional stabilising feature since it allows banks in CEECs to draw on the liquidity buffer of their headquarters abroad. This can be done at lower variable costs than borrowing on the interbank market. Hence, local liquidity shocks originating in CEECs would have smaller effects on local banking markets than in a system with just local banks. This argument is relevant for the transition economies since they have not only been the destination of foreign bank loans. Rather, there has been foreign entry into their banking sectors to quite a significant degree. Incidentally, the transition economies are now among those emerging markets that have the highest penetration of foreign banks, and the market shares of foreign financial institutions are decidedly higher than in the current EU member-countries (Graph 1). This potentially reduces the risk of financial crises.

Hence, our analysis suggests an additional motive to promote foreign entry into the financial sector. *A priori*, one might expect that FDI in banking has stabilising features for two reasons. Firstly, FDI flows are typically less volatile than other forms of capital flows such as international portfolio investments and international bank lending. Secondly, because FDI provides banks with superior information on host markets and requires a stronger commitment to servicing the foreign market it may be less destabilising than other forms of entry. Our analysis suggests the improved sharing of liquidity risk as a third reason why FDI in banking can be stabilising.

This paper is divided into five main parts. In the following second section, we review the argument by Allen and Gale (2000) that the international diversification of banks affects financial stability. In section three, we present empirical evidence on the globalisation of Eastern Europe's banking system. We focus on regional patterns of integration, the importance of bilateral financial linkages for the transition economies, and the correlation of liquidity shocks. The two distinguishing features that emerge from this section are the high share of foreign bank ownership in CEECs and the dominance of the EU for cross-border financial linkages. These two stylised facts motivate the extensions of the baseline model by Allen and Gale that account for differences in market size and entry through FDI, which are presented in section four. Section five sets out some conclusions.

# 2 Liquidity Risk and Financial Integration: The Model by Allen and Gale

In this section, we review the logic of a recent model by Allen and Gale (2000) which allows the study of the international diversification of liquidity shocks. Focusing on the impact of financial integration on liquidity risk is interesting for two reasons. Firstly, one main beneficial effect of international financial integration comes through the possibility to diversify risks. Secondly, recent models of the banking firm stress the role of banks as providers of liquidity services (Hellwig, 1998, Kashyap, Rajan, and Stein, 2002).

Allen and Gale (2000) show that regional liquidity shocks can have spillover effects for other markets. The model focuses on the interaction between the regional diversification of banks' portfolios and regional liquidity shocks. It assumes that all countries or regions have the same currency, i.e. exchange rate risk does not exist. The model's main message is that international portfolio diversification allows banks to better diversify risks but, at the same time, also exposes them to the spillover of foreign shocks. In addition, the link between financial integration and the transmission of shocks might be non-linear.

Allen and Gale (2000) consider a model with four regions ($A$, $B$, $C$, $D$), each being home to a number of identical banks. Hence, one representative bank in each market is studied. Banks have the option to invest in short and long-term domestic loans. They do not grant loans to non-bank customers abroad, but there is a network of interregional interbank assets and liabilities since each bank can hold interbank deposits abroad. The balance sheet of a representative bank in region A, for instance, looks as follows:

| Assets | Liabilities |
| --- | --- |
| Domestic long-term assets | Domestic deposits from non-banks |
| Domestic short-term assets | |
| Interbank deposits with banks in regions $B$, $C$, and/or $D$ | Interbank deposits from banks in regions $B$, $C$, and/or $D$ |

The role of the banks is to make investments on behalf of their customers and provide them with liquidity. Customers in each region are assumed to be identical *ex ante*, and they are each endowed with one unit of a consumption good in $t = 0$. However, they are split into two groups regarding their consumption preferences. One fraction *(ω)* prefers to consume early (in $t = 1$), the other fraction *(1-ω)* consumes late (in $t = 2$). When banks decide about their investments in long-term and short-term assets in $t = 0$ the individual consumption pattern of each customer is not known, neither to the customer nor the bank. The customer's stochastic liquidity needs may differ according to the state of nature $S$. The state $S$ is revealed only after investment decisions have been made. The preferences of a representative consumer are given by:

$$U(c_1, c_2) = \begin{cases} u(c_1) & \text{with prob.} \quad \omega \\ u(c_2) & \text{with prob.} \quad 1\text{-}\omega \end{cases}$$

Hence, with probability $\omega$ (1-$\omega$), they are early (late) consumers. These shares of early and late consumers differ across markets and states of nature $S$. The probability of being an early consumer in a market can be high ($\omega_H$) or low ($\omega_L$), with $0 < \omega_L < \omega_H < 1$. Agents have complete information about their environment. There are no asymmetries in information, and all investment decisions – including the allocation of interbank deposits – must be made before the actual state of nature is revealed.

Consumers can deposit their endowments with one of the regional banks. Banks can invest in short-term domestic assets, which yield a return of one in $t = 1$ or into a long-term domestic asset which yields R > 1 in $t = 2$ or $r$ if liquidated prematurely in period one. Banks can hold (interbank) bank deposits with all or only some of the other regional banks. The time structure of the model looks as follows:

| date 0 | date 1 | date 2 |
|---|---|---|
| Investment decisions are made | State of nature and type of consumers are revealed | Long-term investments yield a return of $R > 1$ |
| Complete uncertainty about the type of consumers, but knowledge about their average behaviour | Short-term investments yield a return of 1 | Late consumers consume |
| | Long-term investments yield a liquidation value of $r < 1$ | |
| | Early consumers consume | |

In $t = 1$ the state of the nature $S$ is revealed. Allen and Gale distinguish two states ($S_1$ and $S_2$) concerning the distribution of liquidity shocks in their four-region model (Table 1). All four regions are the same size. Liquidity shocks in regions $A$ and $C$ ($B$ and $D$) are perfectly positively correlated, but are perfectly negatively correlated with those in regions $B$ and $D$ ($A$ and $C$). Hence, $\rho(\omega_H, \omega_L) = -1$. Note that, since two of the symmetric regions have a high liquidity preference and two have a low liquidity preference, there is no aggregate shortage of liquidity in the aggregate. Also, the aggregate demand for liquidity is the same in each state as half of the regions have a high (low) demand for liquidity. *Ex ante*, each region has the same probability of having high (low) demand for liquidity.

## 2.1  Optimal Risk-sharing

As long as there is no aggregate liquidity shortage, optimal risk-sharing can be assured by a central planner or by a decentralised solution of banks using the interbank market to shield themselves against regional liquidity shocks. This optimal risk-sharing solution can be implemented by a central planner and will be taken as a benchmark in the discussion below. The central planner maximises the unweighted sum of consumers' expected utilities since consumers are identical *ex ante*. All early consumers receive $c_1$ and all late consumers receive $c_2$, independent of the state of nature. The planner chooses a portfolio $(x,y) \geq 0$ which satisfies the feasibility constraint:

(1)      $x + y \leq 1,$

where $x$ and $y$ denote the *per capita* amounts invested in long-term and short-term assets, respectively, and 1 is the total endowment per person. It is optimal to provide consumption in the first period by holding short-term assets and in the second by holding long-term assets. As the average fraction of early consumers is given by $\gamma = (\omega_H + \omega_L)/2$, the feasibility constraint at date 1 is:

(2)      $\gamma c_1 \leq y,$

and the feasibility constraint at date 2 is:

(3)      $(1 - \gamma)c_2 \leq Rx.$

Prior to making investments, consumers do not know which type they are, and the expected *ex ante* utility at date 0 is

(4) $\qquad \frac{1}{2}u(c_1)+\frac{1}{2}u(c_2)$

Maximising the expected *ex ante* utility at date 0 under these feasibility constraints gives the first-best allocation of financial assets as $u'(c_1) \geq u'(c_2)$. Otherwise, utility can be increased by using the short-term asset to shift consumption from early to late consumers. This first-best allocation also satisfies the incentive constraint:

(5) $\qquad c_1 \leq c_2,$

i.e. late consumers find it weakly optimal to reveal their true type. Notice that $c_1 > c_2$ is not a feasible outcome since the storage technology would allow late consumers to increase their consumption by mimicking early consumers, retrieving deposits in the first period, and storing their return until the second period. Hence, the incentive-efficient allocation of assets needs to maximise the objective function (4) subject to the feasibility constraints (1), (2), and (3) and the incentive constraint (5). The incentive-efficient allocation is also the first-best allocation. Thus, the first-best allocation can be achieved even if the planner cannot observe consumer types.

## 2.2 Decentralised Solutions

Optimal risk-sharing may not be obtained in a decentralised market without an interbank market. In this situation, the representative bank in each region invests in a portfolio $(x^i, y^i) \geq 0$ and offers a deposit contract $(c_1^i, c_2^i)$. However, the bank cannot offer the same payments as the central planner. While $x+y \leq 1$ would meet its budget constraint at date *0*, the short-term investment of $y$ does not equal the liquidity needs in $t = 1$ since these are stochastic and unknown at $t = 0$. In contrast to the central planner, the bank cannot average over regions, and liquidity needs in each region must be met by using the deposits of this region only. Although there is no aggregate shortage of liquidity, liquidity is inefficiently distributed. A bank located in a region with a high-liquidity need, for instance, faces withdrawals of deposits of $\omega_H > \gamma$ in the first period. Since the liquidation value of the long-term asset is low, the bank might not be able to satisfy this demand for deposits. The opposite would hold in a region with low liquidity needs in the first period.

A first-best allocation of resources can be achieved though through interbank deposit holdings. Assume that financial markets are completely integrated and that banks are allowed to exchange their deposits at date *0* (Case 1 in

Graph 2). In order to cover a potential shortfall of returns in the first period, every bank $i$ needs to hold $z^i = (\omega_H - \gamma)/2 > 0$ in every other region. Because of the complete uncertainty that prevails at date $0$, banks will hold interbank deposits in all of the three other regions. This yields a first-best allocation of financial resources if banks 'swap' liquidity from regions with low liquidity needs with those with high liquidity needs in $t = 1$ (and vice versa in $t = 2$). Essentially, the interbank market helps to average out liquidity needs just like the central planner would do. By swapping liquidity needs through interbank deposit holdings, it is thus possible that: (i) banks satisfy their budget constraints in each period; and (ii) consumers achieve first-best consumption levels.

Interestingly, for the interbank market to perform its role of distributing liquidity efficiently complete financial integration is not required. Essentially, the issue is whether there are bilateral financial linkages between all regions or whether some regions are financially isolated from others. Three cases need to be distinguished (Graph 2). Financial markets are completely integrated if all bilateral linkages exist (Case 1). Due to transaction and information costs, some regional financial markets may not be connected at all. This may lead to incomplete financial integration (Case 2), in which all markets are linked, albeit only indirectly in some cases. There may also be a disconnected market structure in which markets create clusters of integration but these regional clusters are not interlinked (Case 3).

Allen and Gale show that the first-best allocation of resources can also be achieved when financial markets are only incompletely integrated (Cases 2 and 3). The only condition that needs to be met is that regions with high and low liquidity needs are not completely disconnected. Thus, financial integration has positive welfare implications because it allows banks and consumers to average out stochastic regional liquidity needs. Hence, the degree of integration does not affect optimal investment and consumption patterns. However, it has very different effects on the fragility of the financial system, to which we now turn.

## 2.3  Excess Liquidity Shocks and Financial Fragility

An interbank market achieves a first-best allocation of liquidity only as long as there is no aggregate shortage of liquidity. If aggregate demand for liquidity is greater than the system's ability to supply liquidity, the existence of an (interregional) interbank market does not suffice to prevent liquidity crises.

To show this, let $\bar{S}$ denote the state in which region $A$ might be hit by an excess liquidity shock which puts total liquidity needs above the average liquidity needs $\gamma = (\omega_H + \omega_L)/2$. More precisely, let all regions have the previous average demand for liquidity $\gamma$, except for region $A$ which has slightly higher demand $\gamma + \varepsilon$. In this case, banks in region $A$ have to liquidate part of their long-term assets at the lower rate of return $r$ ($r < 1 < R$) in order to meet their depositors' liquidity needs in $t = 1$. Their short-term assets plus interbank deposits held in other regions are not enough to meet the liquidity demand in $t = 1$. The bank is thus illiquid.

The bank can at most liquidate that fraction of long-term assets that leaves late consumers with $c_1$ at date $2$, since late consumers would otherwise withdraw their deposits in $t = 1$ and store them. Thus, a bank with a fraction $\omega$ of early consumers must at least keep $(1-\omega)c_1/R$ units of long-term assets to be able to pay out late consumers at $t = 2$. The bank therefore has a buffer of long-term assets which it can liquidate without triggering a bank run of $b(\omega) \equiv r[x-(1-\omega)c_1/R]$. If the excess liquidity shock $\varepsilon$ is larger than the buffer

$$(6) \qquad \varepsilon c_1 \geq b(\gamma + \varepsilon),$$

the bank in region $A$ cannot avoid a bank run without the help of banks from other regions. In this case, the bank is insolvent. The liquidation value $q^A$ (all depositors being treated equally) is given by the following ratio of assets and liabilities:

$$(7) \qquad q^A = \frac{y + rx + zq^B}{1 + z}$$

where $q_i$ denotes the liquidation value of deposits in region $i$, and $z$ are the deposits held in adjacent regions. While $q^B$ might equal $c_1$, $q^A$ is definitely smaller. Yet, $q^B$ being smaller than $c_1$ indicates the insolvency of bank $B$. This bank is unable to meet all liquidity needs in $t=1$ either. The reason is that its liquidity buffer $b(\omega)$ is smaller than the losses due to the devalued deposits held in bank $A$ (the liquidation value $q^B$ includes $q^A$). Then, the liquidity crisis in one region becomes contagious, and the liquidity shock spills over into region $B$.

The probability that the illiquidity and insolvency of banks spill over into other regions depends on the pattern of financial integration (Graph 2). In the case of financial autarky the excess liquidity shock affects region $A$ only. A similar result would occur in the case of disconnected financial markets (Case 3) as the liquidity shocks would be contained in two regions ($A$ and $B$).

In incompletely integrated but interconnected financial markets (Case 2), however, the shock first spills over into region $D$. If in this region the spillover effect is also large relative to bank $D$'s buffer, a bank run would occur as well and this effect would make its way through all the remaining regional markets. Hence, under these assumptions (the shock being large relative to the liquidity buffers in regions $A$ and $D$) it can be shown that a non-zero probability of state $\bar{S}$ would result in the complete contagion of financial shocks (see Allen and Gale, 2000). In completely integrated financial markets (Case 1), there is a lower likelihood of financial contagion because the initial excess liquidity shock is distributed over more regions, and each region is hit by a relatively small shock only. Thus, it is less likely that the shock would exceed the liquidity buffer in each region.

Hence, there is a non-monotonic relationship between financial integration and the probability of contagion. As regions move from complete financial isolation to greater but yet incomplete integration, the risk of financial contagion increases. The risk falls again, however, as markets tend towards full integration because greater integration implies greater insurance against regional liquidity shocks. As in standard portfolio models, the benefits of diversification increase as the number of regions held in the portfolio of banks increases and as the correlation between liquidity shocks differs among regions.

While the model by Allen and Gale was not developed with CEECs in mind, it still can be used to derive implications for the link between financial integration and financial stability in these countries. More specifically, this section has shown that financial integration can be beneficial for CEECs because it allows them to diversify stochastic liquidity shocks. The extent to which these benefits materialise depends on three factors: (i) the regional structure of financial integration; (ii) the correlation of liquidity shocks between regions; and (iii) the depth of integration. Hence, the following section presents stylised facts on the integration process of CEECs.

# 3 Financial Integration and Liquidity Shocks: Empirical Evidence from CEECs

The transition economies of Central and Eastern Europe have become integrated into international capital markets at an impressive speed over the past decade. The market shares of foreign banks are far above the averages for the typical EU country, cross-border capital flows have grown, and the countries rely on international bank lending to a substantial degree.

Apart from the beneficial effects of this integration process for investment and economic growth, increased financial integration may, as the above discussion has shown, affect the stability of banking systems in CEECs. Below, we present a number of indicators which assess the potential impact of foreign banking on the stability of banking systems in the transition economies. First of all, we study the regional pattern of cross-border bank lending and FDI. We then ask how important bilateral financial linkages for the countries under study are, by looking at the ratio between cross-border lending and domestic credit. Finally, we look at the significance of the interbank market and the correlation of liquidity shocks between Eastern and Western Europe.

## 3.1 The Regional Structure of International Banking

If the diversification of liquidity shocks was a primary motive behind the international expansion of banks, regional proximity should play a relatively limited role in explaining international lending patterns. However, a large body of empirical evidence has shown that geographical distance does help to explain international asset-allocation decisions. This can be taken as evidence that banks are not fully diversified internationally and that, therefore, according to the above theoretical framework, regional liquidity shocks might spill over into nearby regions. In the following section, we essentially confirm the importance of regional lending and FDI patterns for CEECs.

### 3.1.1 Cross-border Lending and Borrowing

Table 3 gives a regional breakdown of the foreign assets of BIS-reporting banks. It is based on data on the aggregated claims of banks on all borrowers in a given recipient country. Regional patterns in cross-border lending are

clearly evident in the data. Generally, EU countries have been the most important lenders to CEECs. Lending by German and Austrian banks, for instance, has above-average importance for CEECs in general, with a clear focus on neighbouring countries like Poland, Czech Republic, Hungary, Slovak Republic, or Slovenia. There is also a clear tendency of Scandinavian banks to lend to the Baltic countries. The Baltic countries receive, for instance, 86.3% of all Finnish, and 91.8% of Swedish lending to CEECs. Sweden and Finland are also the source of 85.4% of Estonian, 77% of Latvian, and 59.8% of Lithuanian cross-border borrowing. The concentration of French and Dutch lending on Romania, however, contradicts regional lending patterns.

The diversification of local liquidity needs requires not only imports but also exports of financial funds. However, the BIS, from whom the data underlying Table 3 has been obtained, does not provide a regional breakdown of the foreign assets of CEECs. Hence, we do not know how important the asset holdings of CEECs in the EU are. Moreover, we do not know to what extent banks hold assets in international interbank markets. However, aggregated data on the foreign assets and liabilities of banks in CEECs tell us that banks do indeed hold quite large foreign assets. To the extent that these assets are invested in international interbank markets, they contribute to the diversification of liquidity shocks.

### 3.1.2 Cross-border Borrowing versus Domestic Credit

Table 3 shows that lending to CEECs is relatively unimportant from the point of view of Western European countries. Yet, the reverse does not hold true. Rather, countries like Austria, Germany, Finland or Sweden are important lenders in Eastern Europe. This potentially enhances the transition countries' exposure to liquidity shocks originating in these countries.

Table 4 compares the cross-border assets of BIS-reporting banks to domestic credit in the EU countries and in CEECs. These data are not fully comparable for two reasons. First, cross-border banking assets comprise cross-border claims *and* local claims in foreign currency. Thus, to the extent that foreign currency loans are important, cross-border lending is biased upward. Second, cross-border assets comprise cross-border lending as well as FDI and portfolio investment. Again, this biases our measure of cross-border lending upward.

Despite these shortcomings, Table 4 quite clearly shows the importance of the cross-border finance of CEECs. Whereas cross-border foreign assets are 47.5% relative to domestic credit in the EU countries, they reach a similar order of magnitude as domestic credit in CEECs. (However, they are less important relative to GDP because of the smaller relative size of Eastern Europe's banking system). Moreover, the bulk of this foreign lending (about three-quarters) originates in EU countries.

Although, for the current EU members, international liabilities are likewise concentrated in the EU, *bilateral* financial linkages are quite unimportant relative to the total size of their financial markets. Comparing the cross-border assets of German commercial banks to domestic credit in the EU countries shows that most bilateral financial linkages are only a relatively small fraction of total domestic credit. The most important cross-border linkages are German banks' assets in the relatively small economies of Luxembourg and Austria with 45.8% and 37.5% of domestic claims, respectively. Cross-border asset holdings of German commercial banks also achieve shares of 10 percent or more of domestic credit in a number of EU countries (Austria, Denmark, Finland, Greece, Italy, Ireland, Netherlands, United Kingdom).

The picture looks quite different for CEECs. Here, some countries have relatively significant bilateral exposures to EU countries. German banks' foreign assets, for instance, account for 22% – 46% of domestic credit in the Czech Republic, Hungary, Lithuania, Poland, or Slovenia. Finnish banks have assets in Estonia and Latvia that represent 22% of the domestic credit market. Similarly, all Baltic countries have quite a significant exposure to Swedish banks' foreign assets. Interestingly, there are also some quite strong financial linkages between Belgium and the Czech Republic.

### 3.1.3 FDI in Banking

The above data have shown that CEECs not only have relatively large shares of cross-border liabilities, but that these liabilities are also heavily concentrated in Western European countries. Some bilateral financial linkages are particularly close. This might be taken as evidence of the high risk of financial contagion. Yet, as will be explored in more detail in Section 4 below, the foreign ownership of banks could limit the risk of contagion. This is because foreign direct investment creates an international intrabank market for liquidity which makes it easier for banks to absorb liquidity shocks.

Unfortunately, the data on the regional pattern of FDI in banking are much more patchy than the data on the regional pattern of cross-border banking assets as a whole. Hence, we primarily draw on two main data sources.

First, the Deutsche Bundesbank, which publishes data on the stocks of FDI of German banks abroad. For reasons of data protection, such information is available for a significantly smaller number of countries than data on total FDI. For the stock of FDI of banks abroad in 2000, data are available for 20 countries. Regionally disaggregated FDI data of the financial sector are also available from the Austrian National Bank. In its annual FDI survey, data are given for four country groups (EU-15, NAFTA, OECD, and CEEC-5). The CEEC-5 includes the Czech Republic, Hungary, Poland, Slovak Republic, and Slovenia. Furthermore, data on the 10 main partner countries of Austrian companies are given, including the Czech Republic, Hungary and Poland.

Second, since mergers and acquisitions are an important channel through which FDI in the banking industry occurs we use information on cross-border mergers that were announced and completed between 1985 and 2001 where at least one of the partners was a commercial bank and the other partner was any type of firm. Usually, the other partner was in financial services, that is to say, commercial banking, securities, or insurance. We define a cross-border merger as any merger where the headquarters of the target are not located in the same country as the ultimate parent of the acquirer. For example, when the US subsidiary of a German bank acquires a US bank, the deal is considered to be cross-border. We only include completed mergers. We obtained the names of merger partners from Thomson Financial Securities Data, which relies on more than 200 news sources, regulatory filings, trade publications as well as surveys of investment banks, law firms and other advisors to create its database. The database includes international mergers and acquisitions starting in 1985. Up to 1992, the database includes all deals with a value of at least USD 1 million and, after 1992, deals of any value are covered. Also included are transactions with undisclosed values as well as public and private transactions.

The extent of German and Austrian FDI in the financial sector in the EU and in CEECs is shown in Table 6. These two countries were responsible for about one-half of FDI inflows into CEECs in the 1990s (European Integration Consortium, 2001). German financial institutions are strongly integrated into the world economy in general and into the European economy in particular. Yet, relative to their deep integration into EU markets, the FDI activities of German banks in CEECs are relatively modest from the point of view of the

German investor. Only 5% of German banks' FDI stocks are invested in transition economies. The FDI stocks of German banks are only as high as the FDI stocks of the much smaller Austrian banks in CEECs. However, measured as a share in total inward FDI stocks of the transition countries, the activities of German banks are quite significant. German banks hold a share of 15.5%, 40.5% and 23.1% in total inward FDI stocks in the financial sector in the Czech Republic, Hungary, and Poland, respectively. Austrian financial institutions' share stands at 22.4%, 40.3%, and 8.6%, respectively (Table 7).

Further, Table 6 shows that, for CEECs, FDI in the financial sector is more important than for EU countries. This is true when the importance of FDI is measured relative to domestic credit, interbank deposits, or cross-border claims. Two factors are responsible for this. First, the financial sector was fairly underdeveloped under the central planning system, and efficiency gains to be realised have thus potentially been greater than in the EU. Second, the entry of foreign banks was particularly encouraged through the privatisation of formerly state-owned banks during the 1990s (see for example Bonin and Wachtel, 1999).

Mergers and acquisitions are a form of FDI that has been used very intensively by European financial institutions in CEECs. Table 7 contains the shares of completed mergers in the financial sector of a CEEC by the country of the acquiring financial institution. The emerging picture is similar to the FDI patterns and to those of total claims. German and Austrian financial institutions have been the most active players in CEECs. In particular, their shares are very high in their neighbouring countries. German financial institutions, for instance, account for a third of all purchases of Polish and Hungarian financial institutions. Austrian financial institutions have been especially active in the Slovak Republic and Slovenia, with shares in all deals of 43% and 33%, respectively. The Baltic/Scandinavian cluster is again apparent, consisting of Sweden, Finland and the three Baltic States. In the south, the Greek engagement in Romania and Bulgaria is worth noting.

## 3.2  The Importance of Interbanking Activities

If diversification of liquidity risk was the main factor driving the international activities of commercial banks, interbank lending and borrowing should be the main channel through which banks internationalise themselves. We would also expect a relatively high share of short-term, liquid assets and liabilities. Retail banking and long-term investment financing, since it usually requires a physical presence in the host country, would be a much more costly way of

achieving diversification. Hence, the share of interbanking activities in total foreign assets can be taken as an indication of the extent to which the diversification motive has been behind the expansion of foreign banks into the transition economies.

When comparing the structure of international bank assets, there are some striking differences between CEECs and the rest of the sample, in particular the EU. On average, long-term banking assets accounted for one-half of the foreign liabilities of CEECs compared to only 23% for the current EU members in March 2002 (Table 2). This discrepancy is also evident for most individual CEECs (Table 5). These differences are a mirror-image of the below-average importance of the interbanking business for CEECs. In contrast to current EU members, for which interbanking activities constitute more than one-half of foreign liabilities vis-à-vis banks, the comparable ratio for CEECs is only 28%. Consequently, long-term lending to the non-bank private sector is much more important for CEECs.

## 3.3  Correlation of Liquidity Shocks

Assessing the diversification effects of financial integration requires not only information about the magnitude of cross-border financial linkages but also on the magnitude and correlation of liquidity shocks. We have therefore calculated the volatility in the deposit rates of 13 EU countries and 9 CEECs as well as the correlation between changes in deposit interest rates between these two groups of countries. Monthly interest rates are taken from the IMF (2002) for the period January 1990 to December 2001.

Table 8 shows average deposit rates as well as standard deviations and coefficients of variations as measures of volatility for the two groups of countries. As far as the level of interest rates is concerned, deposit rates in CEECs have – as expected – been above those in the EU. Higher inflation and greater scarcity of capital can explain these differences. At the same time, deposit rates in CEECs have also been more volatile than those seen in the EU. On average, the coefficient of variation for current EU members has only been one-half of that for CEECs (0.44 versus 0.83). The exceptions are the Czech Republic, Hungary and the Slovak Republic, which might partly be due to the shorter time series that are available. For the Czech and Slovak republics, data do not cover the – more volatile – early transition period. Generally, the data show quite significant heterogeneity not only between CEECs and EU countries, but also within the group of the transition economies.

The relatively large differences in the volatility of deposit rates and thus in the size of liquidity shocks that Table 8 reveals suggests that CEECs could benefit from integrating with the larger and less volatile markets of Western Europe. For diversification to be beneficial, however, the correlation of liquidity shocks between Eastern and Western Europe should also be relatively small.

Therefore, Table 9 shows bilateral correlation coefficients for deposit rates in the EU and in CEECs. The last two rows of this table show that, on average, correlations of deposit rates of CEECs with the EU are smaller than those among the EU countries themselves. Hence, European financial integration would bring greater diversification benefits to CEECs than to the current EU members. At the same time, diversification benefits are quite unevenly distributed across CEECs. While for some, such as the Baltic States, Poland, and Slovenia, the correlations are fairly high or even above the EU average, others have low or even negative correlations (Bulgaria, Czech Republic, Hungary, Slovakia). Particularly for this last group of countries, financial integration can provide a shield against national liquidity shocks.

Interestingly, when studying the correlations of interest rates within the two groups of countries, the current EU members appear much more homogenous than CEECs. Within the group of CEECs, correlations between deposit rates are often negative. In contrast, correlations among EU countries are always positive, with Ireland and the UK being the main exceptions. One key reason behind these differences is, of course, that the EU countries have made substantial efforts to harmonise interest rate developments in the run up to the euro. The CEECs have, during the same period, gone through quite severe transition crises and pursued different adjustment policies. In addition, the greater correlation of interest rate developments within the EU can also be taken as evidence of the greater financial integration of these countries compared to CEECs.

In summary, this section has shown that the relatively small financial markets of CEECs can potentially gain from financial integration with Western European markets. They are not only exposed to greater liquidity shocks, but the correlations of liquidity shocks with the EU are also fairly low. Shocks in EU countries, which might have a substantial effect on CEECs, in contrast, seem to be rare and small.

# 4 Financial Integration and Stability: Implications for the Accession States

Potentially, the transition economies of Central and Eastern Europe could profit tremendously from financial integration with Western European financial markets because the correlations of liquidity shocks between the two regions are relatively low. Since liquidity shocks in Western Europe are relatively small and can, moreover, be cushioned through a well-established EU-wide and global capital market, the risk of financial contagion might also appear relatively limited.

However, at least two peculiarities need to be taken into account when discussing the welfare implications of financial integration between Eastern and Western Europe. The first of these is the large difference between the size of these two regions. The aggregated GDP of CEECs accounts for less than 10% of the GDP of an enlarged Europe. Differences in the size of financial markets are of a similar order of magnitude (on differences in the size and structure of financial markets in Eastern and Western Europe, see for example Thimann, 2002, Reininger *et al*., 2002, Rieß *et al*., 2002, or Wagner and Iakova, 2001). This might raise the concern that financial shocks originating in Western Europe could have adverse effects on Eastern financial markets.

The second feature of accession states are the relatively large market shares of foreign banks that these countries have attracted. In contrast to the effects of differences in market size, large FDI in the financial services sector can be expected to stabilise rather than destabilise the financial system in CEECs.

In the remainder of this section we discuss how and through which channels country size and the form of entry of foreign banks affect the link between financial integration and the risk of contagion.

## *4.1 The Impact of Size*

Although the model in Section 2 assumed the four regions are equal in size, another underlying implication is that exposure to a relatively large region does matter. Integrating with larger markets particularly enables banks from smaller regions to diversify consumers' stochastic liquidity needs. In contrast, larger regions such as the EU cannot shield themselves by integrating with

a smaller region. Instead, they must integrate with regions of a similar size in order to ensure that sufficient liquidity is available.

More specifically, it has been shown in the analysis of equally sized regions in Section 2 that a first-best allocation of assets can be achieved independently of the degree of integration. That does not apply to regions which differ in size. Let us assume that there are only two regions, which are large (EU) and small (CEECs). Even if we do not assume that an excess liquidity shock occurs, an optimal allocation of interbank assets and liabilities cannot be achieved because the liquidity buffer that banks from the large region can hold in the small region would be insufficient to meet the liquidity needs of early consumers in the large region.

In contrast to the scenario involving regions of the same size, averaging over all consumers in both regions does not give the optimal investment in long-term and short-term assets by a representative bank in one of the two regions since the aggregate liquidity requirements differ in both periods depending on the state. For investment to be optimal, the distribution of early and late consumers in both regions would have to be known *ex ante*. An interbank market does not guarantee a first-best allocation if the regions are asymmetrical in size and if, therefore, the stochastic effects do not cancel out.

Although the smaller region could shield itself completely against consumers' stochastic liquidity needs by integrating with the larger region and investing according to the optimality conditions, the integrated market system cannot be stable since banks in the large region would lose their resources. Hence, the large region – the EU – would need to integrate with regions other than the accession states to ensure the optimal consumption level to its consumers.

Asymmetries in country size not only imply that an optimal allocation of liquidity can be achieved but also affect the probability that banking crises become contagious. If an excess liquidity shock hits one region (state $\bar{S}$), the size of this region defines the size of the required liquidity buffer and therefore the likelihood of spillovers to other regions.

Therefore, the above analysis shows that financial integration between two regions that differ in size has implications for the optimal allocation of liquidity and for financial stability. As regards the optimal allocation of liquidity, integration has beneficial effects for banks in CEECs. For these countries, integration with the EU interbank market can shield them from stochastic liquidity needs in their countries. The deposits they swap with EU

banks are large enough to guarantee a sufficient supply of liquidity, and for a first-best allocation of financial assets to be achieved. In contrast, EU banks cannot shield themselves completely against consumers' stochastic liquidity needs by swapping deposits only with banks from CEECs. They need to integrate into larger markets to achieve a first-best allocation.

While integration with the EU is thus beneficial for CEECs in terms of diversification, it might not be optimal in terms of financial stability. If the EU is hit by an excess liquidity shock, the risk of contagion is large for CEECs if EU banks become insolvent because of the large claims that CEECs have in EU banks relative to the size of CEEC banks (and therefore to their buffer). However, in developed and liquid markets like the EU's financial market, a liquidity shock must be very large to lead to the insolvency of the 'representative' bank.

Integration with CEECs can also have effects on banking system stability in EU countries. If a Central or Eastern European country is hit by a large excess liquidity shock, the probability of a crisis in this country is high. The financial system in the country that is hit cannot provide enough liquidity. A banking crisis might result. The contagion of EU countries is less likely since the swapped deposits account for only a small part of their global interbank market claims. Deposits swapped with CEECs are small relative to their liquidity buffer. In contrast, the risk of contagion of other CEECs is relatively large if they are integrated with the defaulting country.

## 4.2  The Impact of FDI

Whereas deeper integration through the interbank market ensures a first-best allocation of financial assets, it might not always increase the stability of a financial system. Yet, lending and borrowing through the interbank market is not the only form of entering a CEEC. FDI in the financial sector of CEECs from banks and other financial institutions of EU countries also increased quite rapidly during the 1990s.

In this section, we argue that the quite substantial increase in foreign ownership of their banking systems that CEECs have been experiencing in the past decade can be a factor enhancing the stability of the integration process. This is because a multinational bank, with affiliates in two regions, can use its liquidity buffers in both regions to help itself in the case of an excessive liquidity shock. If, for instance, a transition economy is hit by an excess liquidity shock and if a multinational bank is active through both an

affiliate in the CEEC and through the parent company in an EU country the affiliate's buffer is enlarged by the financial means of the parent bank (for a similar argument addressing the use of an intra-firm market for liquidity as a motivation for bank mergers, see Carletti *et al*., 2001).

Prior to showing the stability-enhancing features of FDI in banking, we must demonstrate that FDI can also be a way of achieving the optimal asset allocation. Therefore, we again assume a situation in which no excess liquidity shock occurs. In this situation, a first-best allocation of financial assets can either be achieved through FDI or through the interbank market (or through a combination of both). The difference between FDI and cross-border lending and borrowing is that FDI generates an intrabank market for liquidity. Profits are maximised jointly over both markets, which implies that each bank averages over both regions in the same way as the interbank market or the central planner do. For a two-region structure with symmetrical regions and negatively correlated shocks, FDI is thus sufficient to shield against stochastic liquidity needs.

FDI in banking also increases banking system stability if we allow for the possibility that aggregate liquidity shortages can occur. In this case, FDI in banking fails to provide enough liquidity (as does the integration through the interbank market, or the social planner). However, FDI can offer a more stable mechanism of risk sharing if the system is under distress. The reason for this stabilising feature of FDI is that the liquidity buffer of the foreign headquarters can also be used. The banking system with multinational banks can thus absorb larger liquidity shocks than a system relying solely on the interbank market.

# 5    Summary

Does foreign entry increase or reduce the stability of banking systems in the transition economies of Central and Eastern Europe? Apart from the effects that foreign entry has for the efficiency of resource allocation in these countries, this is perhaps the most pressing policy issue. This is particularly relevant since the upcoming EU membership of the accession states will require the tearing down of all remaining barriers to the free flow of capital and to the market entry of foreign financial institutions.

In this paper, we have employed the theoretical framework by Allen and Gale (2000) to discuss the financial stability implications of financial integration for CEECs. The baseline model suggests that financial integration can be beneficial since it allows a country to better diversify its stochastic liquidity needs. However, increased financial integration also increases the risk that foreign financial crises spill over to the home economy, and the link between financial integration and the risk of contagion may be non-linear. Countries at intermediate levels of financial development might be particularly prone to contagion effects since they are already exposed to foreign markets but have not yet developed a full-fledged system of international financial relations.

Have the countries of Central and Eastern Europe already moved beyond the point at which further financial integration increases rather than decreases the risk of financial contagion? The analysis of this paper has shown both positive and negative developments. On the positive side, the paper has shown that capital flows have increased significantly over the past decade, which suggests that the degree of integration is already quite large. Also, integration is strongest with EU countries which, judged by their low liquidity shocks and low correlations of shocks with those occurring in CEECs, appear to be quite 'ideal' partners. On the negative side, however, the importance of interbanking activities in cross-border capital flows is still relatively small for CEECs compared to other industrialised countries. This suggests that access to international interbank markets is still limited and that further integration is needed to fully reap the fruits of diversification.

Apart from the degree of integration as such, the paper has also addressed the question of to what extent the form of entry of foreign banks matters for stability. This question is particularly relevant for CEECs since they have experienced the entry of foreign banks on a relatively unprecedented scale.

We find that FDI in banking does indeed have stabilising features. In contrast to cross-border lending and borrowing, FDI creates an intrabank market for liquidity and thus allows affiliates in CEECs to use the liquidity buffers of their parent banks abroad. Hence, FDI can offer a more stable mechanism of risk-sharing than cross-border lending and borrowing if the system is under distress.

If FDI enhances the stability (and thus the sustainability of the integration process), how can countries promote FDI? The answer to this question lies beyond the scope of this paper. Explaining FDI in banking would require a richer model than the one used here. Necessary ingredients for such a model would be modelling of the retail banking market and of the fixed costs of entry. Although being preferable to integration solely through the interbank market concerning the stability of the financial system, FDI is more costly from the point of view of the foreign bank. Also, the improved diversification of liquidity shocks is an externality that an individual bank would not necessarily take into account. Hence, increased financial stability would be a positive by-product of promoting the entry of foreign banks through, for instance, privatisation programmes.

With regard to the empirical work presented in this paper, the analysis has revealed some striking and potentially interesting differences between CEECs and the current EU members. This applies in particular to the proxies of liquidity shocks that we have presented. Of course, these calculations should be taken as a fairly rough indicator of liquidity shocks since correlations of interest rates are strongly influenced by factors that we do not take into account here. The choice of exchange rate regime is one obvious variable that future work should control for.

# BIBLIOGRAPHY

**Abidin, A. Z.** (1986): Financial Sector Reform and the Role of Foreign Banks in Malaysia. In Cheng, H.-S. (ed.): *Financial Policy and Reform in Pacific Basin Countries*, Lexington, Massachusetts: Lexington Books, pp. 305–309.

**Allen, F., and D. Gale** (2000): *Financial Contagion*, Journal of Political Economy 108(1): 1–33.

**Bank for International Settlements** (BIS) (2002): *BIS Consolidated Banking Statistics for the Second Quarter of 2002*. Online. Available HTTP: <http://www.bis.org>

**Berger, A.N., Q. Dai, S. Ongena, and D.C. Smith** (2002): *To What Extent Will the Banking Industry Be Globalized? A Study of Bank Nationality and Reach in 20 European Nations*, Federal Reserve Board, Finance and Economic Discussion Series 25, Washington DC.

**Berger, A.N., R. DeYoung, H. Genay and G.F. Udell** (2000): *Globalisation of Financial Institutions: Evidence from Cross-Border Banking Performance*. Brookings-Wharton Papers on Financial Services 3: 23–158.

**Bonin, J. and P. Wachtel** (1999): *Lessons from Bank Privatisation in Central Europe*. Working Paper No. 245. Federal Reserve Bank of Dallas.

**Bonin, J. P. and I. Abel** (2000): *Retail Banking in Hungary: A Foreign Affair?* William Davidson Institute Working Paper No. 356.

**Bonin, J. P. and B. Leven** (1996): "Polish Bank Consolidation and Foreign Competition: Creating a Market-Oriented Banking Sector", Journal of Comparative Economics 23: 52–72.

**Bonin, J., K. Mizsei, I. Szekely and P. Wachtel** (1998): *Banking in Transition Economies: Developing Market Oriented Banking Sectors in Eastern Europe*, Cheltenham: Edward Elgar.

**Carletti, E., P. Hartmann and G. Spagnolo** (2001): *Bank Mergers, Competition, and Financial Stability*, University of Mannheim and European Central Bank, Mimeo.

**Claessens, S., A. Demirguc-Kunt and H. Huizinga** (2001): How does foreign entry affect domestic banking markets? in *Journal of Banking and Finance* 25: 891–911.

**Clarke, G., R. Cull, L. D'Amato and A. Molinari** (2000): On the Kindness of Strangers? The Impact of Foreign Entry on Domestic Banks in Argentina, in Claessens, S. and M. Jansen (eds): *The Internationalisation of Financial Services*, The Hague: Kluwer Law International, pp. 331–353.

**Clarke, G., R. Cull, M. S. M. Peria and S. M. Sanchez** (2001): *Foreign Bank Entry: Experience, Implications for Developing Countries, and Agenda for Further Research*, Working Paper No. 2698, World Bank.

**Crystal, J. S., B. G. Dages and L. S. Goldberg** (2001): Does Foreign Ownership Contribute to Sounder Banks? The Latin American Experience, in Litan, R. E., P. Masson and M. Pomerleano (eds): *Open Doors – Foreign Participation in Financial Systems in Developing Countries*, Washington DC: Brookings Institution Press, pp. 217–265.

**Crystal, J. S., Dages, B. G. and Goldberg, L. S.** (2002): "Has Foreign Bank Entry Led to Sounder Banks in Latin America?", Current Issues in Economics and Finance 8(1): 1–6.

**European Central Bank** (ECB) (1999): *Possible Effects of EMU on the EU Banking Systems in the Medium to Long Term*, Frankfurt.

**European Central Bank** (ECB) (2000): *Mergers and Acquisitions Involving the EU Banking Industry – Facts and Implications*, Frankfurt.

**European Integration Consortium** (2001): *The Impact of Eastern Enlargement on Employment and Labour Markets in the EU Member States*, Final Report, European Commission, Employment & Social Affairs.

**Focarelli, D., and A.F. Pozzolo** (2001): The patterns of cross-border bank mergers and shareholdings in OECD countries, in *Journal of Banking and Finance* 25: 2305–2337.

**Freixas, X., and J.-C. Rochet** (1998): *Microeconomics of Banking*, Cambridge, MIT Press.

**Fries, S. and A. Taci** (2002): *Banking reform and development in transition economies*, EBRD Working Paper No. 71.

**Hellwig, M.** (1998): Banks, Markets, and the Allocation of Risks, in *Journal of Institutional and Theoretical Economics* 154: 328–351.

**IMF** (2000): *International Capital Markets 2000*, Washington DC: IMF.

**IMF** (2002): *International Financial Statistics*, CD-ROM.

**Kashyap, A.K., R. Rajan and J.C. Stein** (2002): Banks as liquidity providers: an explanation for the coexistence of lending and deposit-taking, in *The Journal of Finance* 57(1): 33–73.

**Konopielko, L.** (1999): Foreign Banks' Entry into Central and East European Markets: Motives and Activities, in *Post-Communist Economies* 11(4): 463–485.

**Lardy, N. R.** (2001): Foreign Financial Firms in Asia, in Litan, R. E., P. Masson and M. Pomerleano (eds): *Open Doors – Foreign Participation in Financial Systems in Developing Countries*, Washington DC: Brookings Institution Press, pp. 267–286.

**Mathieson, D. J. and J. Roldos** (2001): Foreign Banks in Emerging Markets, in Litan, R. E., P. Masson and M. Pomerleano (eds): *Open Doors – Foreign Participation in Financial Systems in Developing Countries*, Washington DC: Brookings Institution Press, pp. 15–55.

**OECD** (2002): *International Direct Investment*, MAXDATA OECD Statistical Compendium. CD-ROM.

**Pigott, C. A.** (1986): Financial Reform and the Role of Foreign Banks in Pacific Basin Nations, in Cheng, H.-S. (ed.): *Financial Policy and Reform in Pacific Basin Countries*, Lexington, Massachusetts: Lexington Books, pp. 265–295.

**Reininger, T., F. Schardax and M. Summer,** (2002): *Financial system in transition in Central Europe: The first decade*, SUERF Studies No. 16. SUERF, Vienna.

**Rieß, A., R. Wagenvoort and P. Zajc,** (2002): *Practice makes perfect: A review of banking in Central and Eastern Europe*, EIB Papers 7(1): 31–53.

**Sagari, S.B.** (1992): United States Foreign Direct Investment in the Banking Industry, in *Transnational Corporations 1(3)*: 93–123.

**Terrell, H. S.** (1986): The Role of Foreign Banks in Domestic Banking Markets, in Cheng, H.-S. (ed.) *Financial Policy and Reform in Pacific Basin Countries*, Lexington, Massachusetts: Lexington Books, pp. 297–304

**Thimann, C.** (2002): *Financial Sectors in EU Accession Countries*, Frankfurt: ECB.

**Thomson Financial Securities Data** (2002): Mergers and Acquisitions. on-line Database.

**Van Rijckeghem, C. and B. Weder** (2000): *Spillovers Through Banking Centers: A Panel Data Analysis*, IMF Working Paper 00/88, International Monetary Fund, Washington, D.C.

**Wachtel, P.** (1995): *Foreign Banking in the Central European Economies in Transition*, Issue Paper, Institute for EastWest Studies

**Wagner, N. and D. Iakova** (2001): *Financial Sector Evolution in Central European Economies: Challenges in Supporting Macroeconomic Stability and Sustainable Growth*, IMF Working Paper No. 141.

**Williams, B.** (1997): *Positive theories of multinational banking: eclectic theory versus internalisation theory*, Journal of Economic Surveys 11(1): 71–100.

*Graph 1 – Market Shares of Foreign Banks in Europe*

Market shares of foreign banks for the current EU members are for total foreign branches and subsidiaries from third countries for 1997. Data for the accession states are for the end of 2000. Concentration ratios are the assets of the five largest credit institutions as a percentage of total assets for 1999.
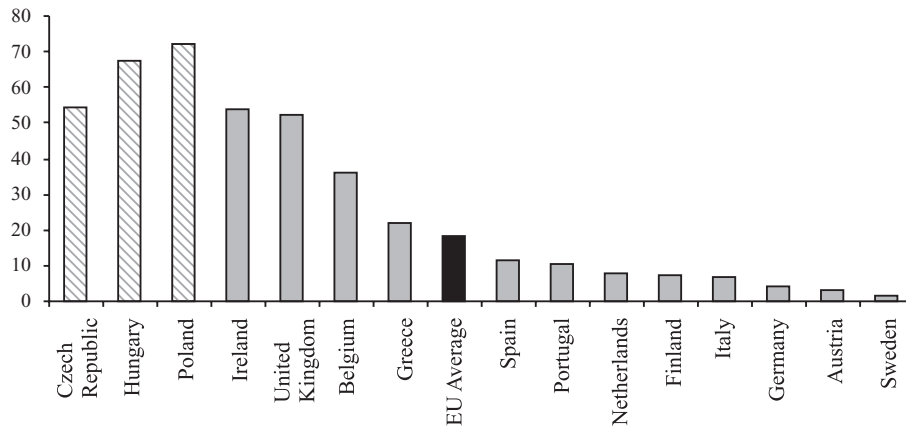


Source: ECB (1999, 2000). National Central Banks and Supervision Agencies.

*Graph 2 – Financial Integration versus Connectedness*

Case 1 – Complete Financial Integration
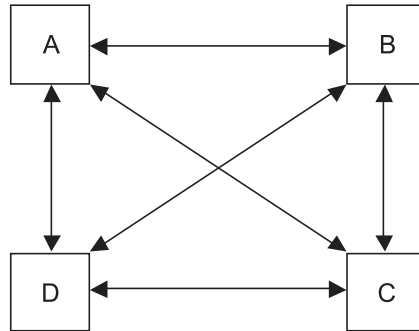


Case 2 – Incomplete Financial Integration
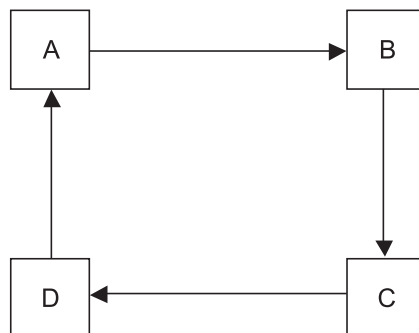


Case 3 – Disconnected Financial Markets
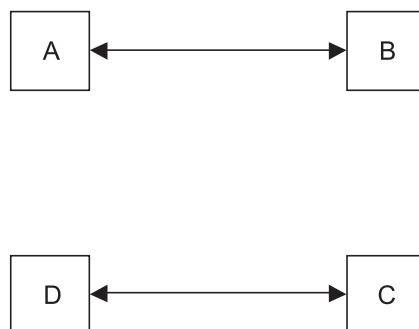


Source: Allen and Gale (2000)

*Table 1 – Regional Liquidity Shocks*

| State of nature | A | B | C | D |
|---|---|---|---|---|
| $S_1$ | $\omega_H$ | $\omega_L$ | $\omega_H$ | $\omega_L$ |
| $S_2$ | $\omega_L$ | $\omega_H$ | $\omega_L$ | $\omega_H$ |

Source: Allen and Gale (2000).

*Table 2 – Structure of Cross-Border Bank Claims (March 2002)*

| % of international claims | Total international claims | Maturity | | Sector | | |
|---|---|---|---|---|---|---|
| | | Short-term | Long-term | Banks | Public sector | Non-bank private sector |
| EU-15 | 52.5 | 57.0 | 23.2 | 52.3 | 13.4 | 32.6 |
| CEEC-10 | 1.0 | 35.8 | 48.7 | 27.7 | 20.5 | 50.9 |
| Japan | 4.0 | 53.9 | 10.7 | 63.4 | 7.0 | 22.9 |
| United States | 16.2 | 41.8 | 33.8 | 28.2 | 12.2 | 58.4 |
| Asia and Pacific | 3.2 | 48.0 | 37.3 | 34.2 | 14.7 | 49.4 |
| Latin Am., Caribbean | 3.1 | 46.5 | 45.6 | 16.3 | 17.6 | 65.7 |
| Offshore centres | 8.3 | 45.3 | 35.8 | 32.4 | 1.0 | 65.8 |
| Africa + Middle East | 1.4 | 50.4 | 44.0 | 34.6 | 16.4 | 48.9 |
| All countries | 100.0 | 53.0 | 26.9 | 45.9 | 11.7 | 40.5 |

Source: BIS (2002), authors' calculations.

*Table 3 – Regional Structure of Banks' Foreign Assets (% of Total)*

The table reports the consolidated foreign claims of BIS-reporting banks on individual recipient countries. Data are taken from Table 9 of the BIS Consolidated International Banking Statistics of July 2002. 'Total' for the source countries denotes the sum of all international banking assets of the BIS-reporting countries. 'Total' for the destination countries denotes the sum of all recipients countries included in the BIS statistics.

| Source / Destination | Total | AT | BE | DK | FI | FR | DE | IE | IT | NL | PT | ES | SE | UK | EU-13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Austria | 1.3 | ... | 0.6 | 0.5 | 0.8 | 0.6 | 4.6 | 0.4 | ... | 0.9 | 1.4 | 0.3 | 0.3 | 0.4 | 1.9 |
| Belgium | 1.8 | 1.4 | ... | 1.8 | 0.1 | 4.1 | 2.0 | 0.7 | 0.2 | 5.1 | 2.4 | 2.1 | 0.7 | 1.3 | 2.1 |
| Denmark | 0.8 | 0.5 | 0.8 | ... | 26.4 | 0.3 | 0.9 | 0.5 | 0.1 | 1.1 | 0.3 | 0.1 | 10.9 | 0.4 | 1.1 |
| Finland | 0.4 | 0.7 | 0.3 | 2.5 | ... | 0.4 | 0.6 | 0.3 | 0.1 | 0.5 | 0.1 | 0.2 | 7.7 | 0.2 | 0.6 |
| France | 4.7 | 2.4 | 10.0 | 1.6 | 1.3 | ... | 5.3 | 1.4 | 9.5 | 3.9 | 8.7 | 3.5 | 0.9 | 6.1 | 4.8 |
| Germany | 7.0 | 19.7 | 7.5 | 11.0 | 3.5 | 9.4 | ... | 4.3 | 7.2 | 11.5 | 4.5 | 5.6 | 26.8 | 4.5 | 5.3 |
| Greece | 0.6 | 1.2 | 0.8 | 0.0 | 0.4 | 1.1 | 1.0 | ... | ... | 1.3 | 1.0 | 0.4 | 0.1 | 0.4 | 0.8 |
| Ireland | 1.4 | 3.3 | 3.6 | 1.0 | 0.5 | 1.3 | 1.9 | 2.2 | 1.8 | 0.9 | 2.8 | 0.7 | 0.5 | 2.3 | 1.8 |
| Italy | 4.3 | 4.8 | 9.2 | 0.1 | 0.4 | 8.6 | 5.7 | 0.5 | 7.0 | 7.5 | 2.4 | 5.4 | 0.4 | 3.6 | 5.5 |
| Luxembourg | 1.7 | 2.9 | 5.4 | 6.4 | 0.2 | 1.5 | 2.9 | 1.6 | ... | 2.4 | 4.0 | 0.8 | 1.1 | 0.6 | 2.4 |
| Netherlands | 3.4 | 3.0 | 15.2 | 2.0 | 0.5 | 4.2 | 4.1 | ... | ... | ... | 4.7 | 2.7 | 1.2 | 2.5 | 3.9 |
| Portugal | 0.8 | 0.6 | 1.0 | 0.3 | 0.1 | 0.5 | 0.9 | 1.1 | ... | 0.6 | ... | 7.3 | 0.0 | 0.6 | 1.0 |
| Spain | 1.8 | 0.5 | 2.9 | 0.3 | 0.1 | 2.8 | 2.9 | ... | 2.5 | 2.6 | 10.3 | ... | 0.2 | 1.5 | 2.3 |
| Sweden | 1.1 | 0.6 | 0.5 | 26.3 | 22.1 | 0.6 | 1.0 | 0.6 | 0.5 | 1.6 | 1.1 | 0.2 | ... | 0.8 | 1.2 |
| UK | 12.9 | 9.9 | 14.9 | 23.1 | 6.2 | 9.9 | 20.9 | 48.8 | 14.4 | 17.6 | 14.9 | 6.9 | 12.3 | ... | 13.5 |
| **EU-15** | **43.9** | **51.5** | **72.7** | **76.8** | **62.6** | **45.3** | **54.6** | **62.6** | **43.2** | **57.4** | **58.7** | **36.1** | **63.2** | **25.1** | **48.2** |
| Bulgaria | 0.0 | 0.1 | 0.0 | ... | 0.0 | 0.0 | 0.0 | ... | ... | 0.1 | ... | 0.0 | 0.0 | 0.0 | 0.0 |
| Czech R | 0.3 | 2.5 | 2.8 | ... | 0.0 | 0.7 | 0.4 | ... | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.1 | 0.5 |
| Estonia | 0.0 | 0.1 | 0.0 | ... | 1.0 | 0.0 | 0.0 | ... | 0.0 | 0.0 | ... | ... | 1.8 | 0.1 | 0.1 |
| Hungary | 0.2 | 2.5 | 0.8 | ... | 0.1 | 0.1 | 0.6 | ... | ... | 0.3 | 0.0 | 0.1 | 0.0 | 0.0 | 0.3 |
| Latvia | 0.0 | 0.0 | 0.0 | ... | 0.9 | 0.0 | 0.0 | ... | 0.0 | 0.0 | ... | ... | 0.9 | 0.0 | 0.0 |
| Lithuania | 0.0 | 0.0 | 0.0 | ... | 0.4 | 0.0 | 0.0 | ... | ... | 0.0 | 0.0; 0.0 | 0.8 | 0.0 | 0.0 | |
| Poland | 0.6 | 5.1 | 1.6 | ... | 0.2 | 0.3 | 0.9 | ... | ... | 1.4 | 0.1 | 0.1 | 0.2 | 0.1 | 0.6 |
| Romania | 0.0 | 0.4 | 0.0 | ... | 0.0 | 0.1 | 0.0 | ... | 0.1 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 |
| Slovakia | 0.1 | 1.2 | 0.3 | ... | 0.0 | 0.0 | 0.1 | ... | ... | 0.1 | ... | 0.0 | 0.1 | 0.0 | 0.1 |
| Slovenia | 0.0 | 1.0 | 0.0 | ... | 0.0 | 0.1 | 0.1 | ... | ... | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 |
| **CEEC-10** | **1.4** | **13.1** | **5.6** | **0.0** | **2.6** | **1.4** | **2.2** | **0.0** | **0.2** | **2.5** | **0.2** | **0.2** | **3.9** | **0.2** | **1.9** |

*Table 4 – Importance of Bilateral Financial Linkages*

This table gives cross-border banking assets: claims of country *A* banks on country *B* (in % of country B's domestic credit). Data are for 2001. IFS: Domestic credit from Banking Survey (EU Wide Residency) for all euro-zone countries. Domestic credit from Monetary Survey for Denmark (1999), Sweden (2000), UK and all CEEC.BIS: Consolidated foreign claims of reporting banks on individual countries. * Total claims of all BIS-reporting banks. ** EU-15 excluding Greece and Luxembourg. Blank cell if data not available.

| Country B | Total claims* | AT | BE | DK | FI | FR | DE | IE | IT | NL | PT | ES | SE | UK | EU-13** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Austria | 58.7 | ... | 1.1 | 0.1 | 0.2 | 2.1 | 37.5 | 0.2 | | 1.5 | 0.2 | 0.4 | 0.2 | 2.0 | 45.4 |
| Belgium | 55.2 | 0.2 | ... | 0.3 | 0.0 | 9.6 | 11.1 | 0.2 | | 6.2 | 0.2 | 1.9 | 0.3 | 4.3 | 34.4 |
| Denmark | 109.2 | 0.3 | 4.3 | ... | 17.5 | 3.3 | 22.3 | 0.6 | 0.7 | 6.0 | 0.1 | 0.6 | 18.1 | 5.5 | 79.3 |
| Finland | 57.9 | 0.5 | 2.0 | 1.8 | ... | 3.9 | 15.4 | 0.4 | 0.5 | 2.8 | 0.0 | 0.8 | 13.4 | 2.9 | 44.4 |
| France | 35.0 | 0.1 | 3.1 | 0.1 | 0.0 | ... | 7.2 | 0.1 | 1.7 | 1.1 | 0.2 | 0.8 | 0.1 | 4.8 | 19.3 |
| Germany | 27.3 | 0.4 | 1.2 | 0.2 | 0.1 | 2.8 | ... | 0.1 | 0.7 | 1.7 | 0.1 | 0.6 | 1.3 | 1.8 | 11.1 |
| Greece | 53.1 | 0.6 | 2.8 | 0.0 | 0.2 | 7.6 | 16.0 | ... | | 4.4 | 0.3 | 1.0 | 0.1 | 3.7 | 36.6 |
| Ireland | 91.3 | 1.1 | 9.9 | 0.3 | 0.2 | 6.3 | 22.5 | ... | 2.8 | 2.3 | 0.6 | 1.3 | 0.4 | 15.5 | 63.3 |
| Italy | 44.0 | 0.3 | 3.9 | 0.0 | 0.0 | 6.8 | 10.8 | 0.2 | ... | 3.0 | 0.1 | 1.6 | 0.1 | 3.8 | 30.5 |
| Luxembourg | 149.1 | 1.3 | 19.5 | 2.7 | 0.1 | 10.0 | 45.8 | 0.3 | 14.6 | 8.0 | 1.2 | 2.0 | 1.1 | 5.6 | 112.2 |
| Netherlands | 58.7 | 0.3 | 10.9 | 0.2 | 0.0 | 5.6 | 12.9 | 0.2 | ... | ... | 0.3 | 1.4 | 0.3 | 4.6 | 36.6 |
| Portugal | 51.9 | 0.2 | 2.8 | 0.1 | 0.0 | 2.6 | 10.4 | ... | ... | 1.6 | ... | 14.3 | 0.0 | 3.9 | 36.0 |
| Spain | 26.5 | 0.0 | 1.8 | 0.0 | 0.0 | 3.2 | 7.9 | 0.1 | 0.9 | 1.5 | 0.5 | ... | 0.0 | 2.3 | 18.4 |
| Sweden | 76.2 | 0.2 | 1.6 | 9.2 | 7.7 | 3.4 | 13.5 | 0.3 | 0.8 | 4.5 | 0.3 | 0.5 | ... | 6.0 | 48.1 |
| UK | 73.7 | 0.3 | 3.5 | 0.6 | 0.2 | 4.4 | 21.9 | 2.3 | 2.0 | 3.9 | 0.3 | 1.2 | 0.9 | ... | 41.4 |
| **EU-15** | **47.5** | **0.3** | **3.3** | **0.4** | **0.3** | **3.8** | **10.8** | **0.6** | **1.1** | **2.4** | **0.2** | **1.2** | **0.8** | **2.8** | **8.1** |
| Bulgaria | 79.2 | 1.8 | 0.9 | ... | 0.0 | 7.0 | 16.3 | ... | ... | 9.9 | | 0.3 | 0.0 | 0.1 | 36.5 |
| Czech R | 125.3 | 5.5 | 47.7 | ... | 0.0 | 22.3 | 31.6 | ... | 0.3 | 6.3 | 0.0 | .3 | 0.0 | 2.3 | 116.4 |
| Estonia | 149.4 | 2.4 | 0.7 | ... | 22.2 | 0.0 | 10.0 | ... | 2.2 | 0.2 | | | 105.3 | 0.3 | 143.5 |
| Hungary | 103.4 | 5.9 | 15.2 | ... | 0.2 | 3.4 | 45.6 | ... | | 4.4 | 0.0 | 0.7 | 0.1 | 3.3 | 78.8 |
| Latvia | 100.5 | 0.4 | 0.1 | ... | 22.0 | 0.4 | 18.6 | ... | 0.4 | 0.4 | | 0.1 | 55.4 | 0.2 | 97.8 |
| Lithuania | 116.7 | 1.2 | 0.6 | ... | 10.5 | 3.6 | 23.2 | ... | 1.2 | 2.2 | 0.8 | 0.1 | 59.3 | 1.2 | 103.8 |
| Poland | 103.3 | 4.6 | 11.5 | ... | 0.2 | 3.9 | 28.7 | ... | | 9.3 | 0.1 | 0.4 | 0.5 | 1.0 | 60.3 |
| Romania | 102.1 | 5.5 | 1.6 | ... | 0.4 | 24.5 | 16.9 | ... | 5.7 | 24.8 | 0.1 | 0.2 | 0.1 | 1.9 | 81.7 |
| Slovakia | 57.0 | 5.8 | 10.8 | ... | 0.0 | 2.3 | 15.1 | ... | ... | 3.6 | | 0.0 | 0.6 | 0.2 | 38.3 |
| Slovenia | 53.9 | 6.8 | 1.2 | ... | | 11.9 | 22.0 | ... | ... | 0.6 | 0.1 | 0.2 | 0.0 | 0.0 | 42.7 |
| **CEEC-10** | **101.0** | **5.1** | **17.0** | **...** | **0.9** | **8.1** | **29.5** | **...** | **0.3** | **7.1** | **0.1** | **0.4** | **3.5** | **1.5** | **73.3** |

Sources: BIS (2002), IMF (2002), Eurostat, authors' calculations.

*Table 5 – Maturity and Borrower Structure of Cross-border Claims*

This table reports the percentage of consolidated cross-border claims in all currencies and local claims in non-local currencies. Data are for March 2002.

| | % of region's total | Maturity | | | Sectors | | | |
|---|---|---|---|---|---|---|---|---|
| | | Short-term | Long-term | Unallocated | Banks | Public sector | Non-banks | Unallocated |
| Austria | 0.02 | 0.41 | 0.26 | 0.33 | 0.54 | 0.21 | 0.24 | 0.00 |
| Belgium | 0.05 | 0.68 | 0.18 | 0.13 | 0.57 | 0.18 | 0.25 | 0.00 |
| Denmark | 0.02 | 0.64 | 0.26 | 0.10 | 0.65 | 0.07 | 0.28 | 0.00 |
| Finland | 0.01 | 0.45 | 0.27 | 0.29 | 0.31 | 0.22 | 0.46 | 0.01 |
| France | 0.11 | 0.58 | 0.25 | 0.18 | 0.54 | 0.09 | 0.31 | 0.06 |
| Germany | 0.17 | 0.56 | 0.32 | 0.12 | 0.58 | 0.17 | 0.24 | 0.02 |
| Greece | 0.02 | 0.27 | 0.37 | 0.36 | 0.10 | 0.53 | 0.36 | 0.00 |
| Ireland | 0.03 | 0.65 | 0.19 | 0.16 | 0.64 | 0.02 | 0.34 | 0.00 |
| Italy | 0.10 | 0.36 | 0.27 | 0.37 | 0.34 | 0.41 | 0.24 | 0.01 |
| Luxembourg | 0.04 | 0.59 | 0.17 | 0.24 | 0.53 | 0.01 | 0.46 | 0.00 |
| Netherlands | 0.08 | 0.40 | 0.28 | 0.32 | 0.38 | 0.07 | 0.51 | 0.03 |
| Portugal | 0.01 | 0.49 | 0.27 | 0.25 | 0.57 | 0.23 | 0.20 | 0.00 |
| Spain | 0.04 | 0.39 | 0.32 | 0.30 | 0.42 | 0.29 | 0.29 | 0.01 |
| Sweden | 0.03 | 0.61 | 0.24 | 0.16 | 0.55 | 0.14 | 0.31 | 0.00 |
| UK | 0.27 | 0.73 | 0.13 | 0.13 | 0.59 | 0.01 | 0.38 | 0.01 |
| **EU-15** | **1.00** | **0.57** | **0.23** | **0.20** | **0.52** | **0.13** | **0.33** | **0.02** |
| Bulgaria | 0.02 | 0.27 | 0.57 | 0.15 | 0.18 | 0.53 | 0.29 | |
| Czech R | 0.13 | 0.44 | 0.49 | 0.07 | 0.29 | 0.04 | 0.62 | 0.05 |
| Estonia | 0.04 | 0.34 | 0.62 | 0.04 | 0.25 | 0.03 | 0.69 | 0.03 |
| Hungary | 0.23 | 0.27 | 0.44 | 0.28 | 0.33 | 0.28 | 0.39 | |
| Latvia | 0.02 | 0.35 | 0.28 | 0.37 | 0.38 | 0.21 | 0.41 | 0.00 |
| Lithuania | 0.03 | 0.44 | 0.39 | 0.18 | 0.25 | 0.17 | 0.58 | 0.00 |
| Poland | 0.37 | 0.39 | 0.50 | 0.11 | 0.26 | 0.21 | 0.53 | 0.00 |
| Romania | 0.05 | 0.41 | 0.56 | 0.03 | 0.14 | 0.18 | 0.67 | 0.00 |
| Slovakia | 0.05 | 0.37 | 0.38 | 0.25 | 0.26 | 0.25 | 0.49 | 0.00 |
| Slovenia | 0.05 | 0.21 | 0.62 | 0.17 | 0.32 | 0.24 | 0.43 | 0.00 |
| **CEEC-10** | **1.00** | **0.36** | **0.49** | **0.15** | **0.28** | **0.20** | **0.51** | **0.01** |

Source: BIS (2002), authors' calculations.

*Table 6 - Foreign Direct Investment in the Financial Sector of Central and Eastern European Countries by Austrian and German Financial Institutions (%, Euro million)*

Inward FDI / Domestic credit gives the ratio of total inward FDI stock in the reporting country over the domestic credit in this country
FDI / Interbank deposits gives the ratio of FDI stock held by Austrian and German financial institutions in the reporting country over total interbank market deposits in the reporting country, respectively.
FDI / Cross-border claims gives the ratio of FDI stock held by Austrian and German financial institutions in the reporting country over total Austrian and German claims in the reporting country.

| | Total | Austrian Financial Institutions | | | | | German Financial Institutions | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Inward FDI / Domestic credit | FDI stock (€ million) | FDI / Interbank deposits | FDI / Cross-border claims | Share in inward FDI stock | Share in Austrian outward FDI stock | FDI stock (€ million) | FDI / Interbank | FDI / Cross-border claims | Share in inward FDI stock | Share in German outward FDI stock |
| EU | 2.95 | 893 | 0.02 | 2.86 | ... | 16.02 | 35 806 | 0.95 | 3.13 | ... | 35.46 |
| Transition Countries | ... | ... | ... | ... | ... | ... | 2 916 | ... | 6.31 | ... | 2.89 |
| CEEC-5 | ... | 2 144 | 6.22 | 28.55 | ... | 38.45 | ... | ... | ... | ... | ... |
| Czech Republic | 10.48 | 740 | 3.72 | 48.01 | 22.37 | 13.27 | 514 | 2.59 | 5.75 | 15.54 | 0.51 |
| Hungary | 4.24 | 496 | 17.13 | 32.43 | 40.34 | 8.89 | 498 | 17.22 | 4.21 | 40.54 | 0.49 |
| Poland | 7.42 | 471 | 4.93 | 15.29 | 8.56 | 8.44 | 1 270 | 13.3 | 6.66 | 23.09 | 1.26 |

[a] Czech Republic, Hungary, Poland, Slovak Republic, Slovenia

Sources: OECD (2002), Deutsche Bundesbank (2002), Österreichische Nationalbank (2002), authors' calculations.

*Table 7 – Regional Structure of Cross-border Bank Mergers*

This table gives the regional structure of cross-border mergers and acquisitions. We report those cases where CEECs have been the targets of international bank mergers. The data show the percentage of total merger cases in the financial sector of the CEEC.

| Acquirer | BG | CZ | EE | HU | LV | LT | PL | RO | SK | SI |
|---|---|---|---|---|---|---|---|---|---|---|
| Austria | 10.0 | 16.7 | 0.0 | 14.6 | 0.0 | 0.0 | 5.5 | 0.0 | 42.9 | 33.3 |
| Belgium | 0.0 | 13.3 | 0.0 | 4.2 | 0.0 | 0.0 | 9.9 | 0.0 | 28.6 | 0.0 |
| Denmark | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.2 | 0.0 | 0.0 | 0.0 |
| Finland | 0.0 | 0.0 | 18.2 | 0.0 | 8.7 | 18.2 | 2.2 | 0.0 | 0.0 | 0.0 |
| France | 20.0 | 3.3 | 0.0 | 8.3 | 0.0 | 0.0 | 7.7 | 16.7 | 0.0 | 0.0 |
| Germany | 0.0 | 13.3 | 0.0 | 31.3 | 4.3 | 0.0 | 33.0 | 0.0 | 0.0 | 33.3 |
| Greece | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 33.3 | 0.0 | 0.0 |
| Ireland | 0.0 | 0.0 | 0.0 | 2.1 | 0.0 | 0.0 | 6.6 | 0.0 | 0.0 | 0.0 |
| Italy | 10.0 | 3.3 | 4.5 | 8.3 | 0.0 | 0.0 | 1.1 | 0.0 | 14.3 | 0.0 |
| Luxembourg | 0.0 | 3.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Netherlands | 0.0 | 6.7 | 4.5 | 8.3 | 0.0 | 0.0 | 8.8 | 0.0 | 0.0 | 0.0 |
| Portugal | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.4 | 0.0 | 0.0 | 0.0 |
| Spain | 0.0 | 0.0 | 0.0 | 2.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Sweden | 0.0 | 0.0 | 50.0 | 0.0 | 30.4 | 18.2 | 1.1 | 0.0 | 0.0 | 0.0 |
| UK | 0.0 | 10.0 | 4.5 | 4.2 | 13.0 | 9.1 | 4.4 | 16.7 | 0.0 | 33.3 |

Source: Thompson Financial Securities (2002), authors' calculations.

*Table 8 – Monthly Deposit Rates 1990-2001*

Bulgaria 1991:1-2001:12, Czech Republic 1993:1-2001:12, Estonia 1993:2-2001:12, Latvia 1993:7-2001, Lithuania 1992:12-2001:12, Slovak Republic 1993:1-2001:12, Slovenia 1991:12-2001:12

| Levels | Standard Deviation in Interest Rates | Mean | Coefficient of Variation |
|---|---|---|---|
| Austria | 0.71 | 2.67 | 0.27 |
| Belgium | 1.62 | 4.53 | 0.36 |
| Finland | 2.39 | 4.18 | 0.57 |
| France | 0.75 | 3.93 | 0.19 |
| Germany | 2.01 | 4.75 | 0.42 |
| Greece | 4.89 | 15.03 | 0.33 |
| Ireland | 2.50 | 2.16 | 1.16 |
| Italy | 2.12 | 5.53 | 0.38 |
| Luxembourg | 1.06 | 4.82 | 0.22 |
| Netherlands | 0.59 | 3.42 | 0.17 |
| Portugal | 4.51 | 9.02 | 0.50 |
| Spain | 3.22 | 6.91 | 0.47 |
| Sweden | 3.08 | 5.63 | 0.55 |
| UK | 3.56 | 6.44 | 0.55 |
| **EU average (unweighted)** | **2.54** | **6.08** | **0.47** |
| Bulgaria | 34.71 | 34.50 | 1.01 |
| Czech Republic | 1.60 | 6.44 | 0.25 |
| Estonia | 4.16 | 7.98 | 0.52 |
| Hungary | 6.70 | 19.23 | 0.35 |
| Latvia | 11.52 | 12.69 | 0.91 |
| Lithuania | 29.99 | 24.92 | 1.20 |
| Poland | 17.09 | 28.97 | 0.59 |
| Slovak Republic | 3.19 | 11.02 | 0.29 |
| Slovenia | 87.99 | 37.71 | 2.33 |
| **CEEC average (unweighted)** | **21.88** | **20.38** | **0.83** |

Source:    IMF (2002), authors' calculations.

*Table 9 – Correlation of Deposit Rates 1990 – 2001*

| | AT | BE | ES | FI | FR | DE | IE | IT | LU | NL | PT | GR | SE | UK | BG | CZ | EE | HU | LV | LT | PL | SK | SI |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AT | 1.00 | | | | | | | | | | | | | | | | | | | | | | |
| BE | 0.71 | 1.00 | | | | | | | | | | | | | | | | | | | | | |
| ES | 0.36 | 0.66 | 1.00 | | | | | | | | | | | | | | | | | | | | |
| FI | 0.54 | 0.85 | 0.91 | 1.00 | | | | | | | | | | | | | | | | | | | |
| FR | 0.49 | 0.73 | 0.84 | 0.93 | 1.00 | | | | | | | | | | | | | | | | | | |
| DE | 0.74 | 0.96 | 0.72 | 0.90 | 0.83 | 1.00 | | | | | | | | | | | | | | | | | |
| IE | 0.38 | 0.64 | 0.32 | 0.41 | 0.26 | 0.47 | 1.00 | | | | | | | | | | | | | | | | |
| IT | 0.04 | 0.46 | 0.90 | 0.75 | 0.65 | 0.51 | 0.26 | 1.00 | | | | | | | | | | | | | | | |
| LU | 0.56 | 0.74 | 0.81 | 0.91 | 0.99 | 0.85 | 0.24 | 0.58 | 1.00 | | | | | | | | | | | | | | |
| NL | 0.38 | 0.48 | 0.62 | 0.70 | 0.80 | 0.67 | -0.18 | 0.43 | 0.81 | 1.00 | | | | | | | | | | | | | |
| PT | 0.44 | 0.75 | 0.97 | 0.96 | 0.93 | 0.83 | 0.28 | 0.83 | 0.91 | 0.74 | 1.00 | | | | | | | | | | | | |
| GR | 0.58 | 0.81 | 0.81 | 0.91 | 0.85 | 0.90 | 0.17 | 0.66 | 0.86 | 0.78 | 0.91 | 1.00 | | | | | | | | | | | |
| SE | 0.41 | 0.52 | 0.93 | 0.84 | 0.85 | 0.64 | 0.08 | 0.78 | 0.84 | 0.72 | 0.91 | 0.77 | 1.00 | | | | | | | | | | |
| UK | 0.66 | 0.30 | 0.03 | 0.20 | 0.28 | 0.30 | 0.25 | -0.33 | 0.34 | 0.19 | 0.08 | 0.09 | 0.20 | 1.00 | | | | | | | | | |
| BG | -0.42 | -0.05 | 0.08 | 0.01 | -0.01 | -0.05 | -0.11 | 0.27 | -0.06 | 0.01 | 0.08 | 0.06 | -0.12 | -0.70 | 1.00 | | | | | | | | |
| CZ | -0.07 | -0.06 | -0.29 | -0.12 | -0.08 | -0.12 | 0.30 | -0.20 | -0.13 | -0.20 | -0.24 | -0.26 | -0.25 | 0.16 | -0.45 | 1.00 | | | | | | | |
| EE | 0.88 | 0.83 | 0.47 | 0.71 | 0.63 | 0.85 | 0.37 | 0.24 | 0.66 | 0.48 | 0.59 | 0.77 | 0.45 | 0.46 | -0.24 | -0.05 | 1.00 | | | | | | |
| HU | -0.19 | -0.19 | 0.51 | 0.28 | 0.40 | -0.06 | -0.29 | 0.45 | 0.37 | 0.40 | 0.43 | 0.16 | 0.64 | 0.04 | 0.06 | -0.21 | -0.24 | 1.00 | | | | | |
| LV | 0.53 | 0.76 | 0.63 | 0.78 | 0.73 | 0.85 | 0.14 | 0.53 | 0.74 | 0.71 | 0.75 | 0.91 | 0.59 | -0.01 | 0.07 | -0.15 | 0.74 | -0.10 | 1.00 | | | | |
| LT | 0.60 | 0.90 | 0.61 | 0.77 | 0.65 | 0.90 | 0.48 | 0.53 | 0.65 | 0.50 | 0.71 | 0.82 | 0.48 | 0.04 | 0.02 | -0.09 | 0.78 | -0.32 | 0.89 | 1.00 | | | |
| PL | 0.57 | 0.91 | 0.73 | 0.91 | 0.86 | 0.96 | 0.38 | 0.59 | 0.85 | 0.74 | 0.86 | 0.93 | 0.64 | 0.14 | 0.06 | -0.06 | 0.79 | -0.02 | 0.90 | 0.89 | 1.00 | | |
| SK | -0.04 | -0.42 | -0.88 | -0.73 | -0.66 | -0.51 | -0.05 | -0.92 | -0.63 | -0.54 | -0.84 | -0.70 | -0.79 | 0.39 | -0.35 | 0.36 | -0.20 | -0.52 | -0.58 | -0.49 | -0.57 | 1.00 | |
| SI | 0.48 | 0.82 | 0.64 | 0.78 | 0.67 | 0.84 | 0.31 | 0.58 | 0.65 | 0.52 | 0.73 | 0.80 | 0.54 | 0.03 | 0.04 | -0.06 | 0.70 | -0.13 | 0.78 | 0.81 | 0.87 | -0.54 | 1.00 |
| EU | 0.48 | 0.66 | 0.68 | 0.76 | 0.73 | 0.72 | 0.28 | 0.50 | 0.73 | 0.55 | 0.73 | 0.70 | 0.65 | 0.20 | -0.07 | -0.11 | 0.60 | 0.21 | 0.62 | 0.62 | 0.72 | -0.52 | 0.62 |
| CEECs | 0.26 | 0.39 | 0.28 | 0.38 | 0.35 | 0.41 | 0.17 | 0.23 | 0.35 | 0.29 | 0.34 | 0.39 | 0.24 | 0.06 | -0.10 | -0.09 | 0.28 | -0.18 | 0.31 | 0.31 | 0.36 | -0.36 | 0.31 |

Source: IMF (2002), authors' calculations.

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