1 Introduction

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The recent turbulence in the European Monetary System has added new impetus to issues of international capital flows, such as macroeconomic volatility, exchange rate fluctuations, capital controls, and international convergence of growth rates. Key questions about international capital mobility which require a fresh look are:

(1) Is there rigorous evidence in support of the notion that international capital markets have become more integrated?;
(2) Does more capital mobility contribute to smoothing or volatilising of the macroeconomy?
(3) Are the comovements between national saving and investment weaker under increased capital mobility?
(4) Does enhanced capital mobility magnify the transmission of financial shocks from country to country and thereby raise the likelihood that governments will renege on their exchange rate commitments, such as target zones?
(5) Is there a link between the drop in investment growth in industrialised countries and the increase in exchange rate flexibility?
(6) What is the role of foreign finance in the growth of indebted countries?
(7) Is there stronger convergence in growth rates across countries when capital markets are more integrated?
(8) What are the political factors and institutions that are most likely to result in liberalisation of existing capital controls?

This list of questions constitutes the agenda for the research on capital mobility presented in this volume. Part One deals with macroeconomic volatility. Exchange rate volatility is discussed in Part Two. Part Three focuses on investment and growth, and Part Four provides policy perspectives.

1 Macroeconomic volatility

There are two basic approaches that have been used to assess the extent to which world financial markets have become more integrated in recent years. A first, direct, approach consists of examining whether asset returns on comparable assets traded at different locations exhibit lower cross-country differentials than before; e.g., the comparison between offshore–onshore interest rate differentials. That is, the removal of barriers to international capital mobility can be expected to result in stronger convergence of asset returns. Similarly, one could examine the extent to which the volume of international trade in assets has risen relative to GNP or other indicators of the real economy. A second, indirect, approach focuses on the implications of enhanced capital mobility for comovements of other economic variables across countries.

Chapter 2 by Maurice Obstfeld adopts this second approach. In particular it looks at changes in the comovement between domestic consumption and rest-of-world consumption for the seven largest industrial countries. If individuals in different countries are allowed to share their idiosyncratic risks by trading in the world capital market, then their consumption will tend to be correlated because trade in assets will tend to cancel out the country-specific shocks. If, on the other hand, individuals are allowed to trade only part of their country-specific risk, e.g. due to capital controls, then the correlation of consumption growth will be weakened.

Based on correlation and regression analysis, Obstfeld reaches the conclusion that for most of the countries in the sample there appears to be a post-war trend of increasing coherence between domestic and world consumption growth. For all countries, except Canada, the correlation of domestic with rest-of-world consumption growth rises in the most recent sample period, most sharply in the cases of Germany and Japan. While in principle the evidence is consistent with increased capital mobility, other interpretations could be provided. Specifically, increased coherence may have resulted from common shocks impinging on the various countries for a given degree of capital mobility. The chapter addresses this issue, at least partially, by explicitly accounting for one possible common factor, namely oil-price shocks. Clearly, these useful findings would have to be supplemented by more detailed evidence on common factors before one could reach decisive conclusions about the extent to which there has been a rise in capital mobility.

Chapter 3 by Assaf Razin and Andrew Rose examines whether the cyclical variability of consumption, investment and output in various countries is related to the degree of openness in financial and goods markets in a manner that is consistent with the predictions of basic intertemporal trade models. In this sense, the chapter belongs to the second, indirect, approach mentioned above. Reductions in barriers to capital mobility are expected to enhance investment opportunities, and therefore to raise the volatility of investment, and at the same time to improve the ability to diversify country-specific shocks, and thereby to facilitate consumption smoothing. A reduction in trade barriers (e.g., import tariffs or nontariff barriers) tends to enhance comparative advantage and thereby to increase output volatility.

Based on data from the IMF and World Bank, the authors used factor analysis to construct measures of capital and goods mobility for the countries in their sample. Moreover, the authors characterised the time-series properties of consumption, investment, and production in terms of transitory vs. permanent and country-specific vs. global (common) components. For the most part, the information in the sample was not powerful enough to deliver clearcut implications. Except for some evidence on the impact of openness on consumption smoothing, there is no strong link between openness and the volatility of investment and output. This could well be an indication that most of the fluctuation in these variables is due to permanent factors, and to common shocks, as some of the earlier evidence in the chapter tends to indicate. Perhaps more conclusive evidence could be derived from a more detailed set of indicators of openness, which would measure not only the existence of restrictions but also their intensity. Similarly, it would be useful to explore further alternative measurements of the transitory, and idiosyncratic, components.

According to the neoclassical model of a small open economy there is no necessary link between savings and investment as is familiar from closed economy analysis. That is, if capital is fully mobile and risk is internationally diversified investment is determined by technology and world cost of capital while domestic saving is determined by the world return on assets and the country's wealth and productivity. Empirical studies such as Feldstein and Horioka (1980), however, have found positive savings–investment correlations to be the rule, and have thus concluded that there is a limited degree of capital mobility. This, somewhat indirect, evidence on capital mobility is at variance with the notion that international financial markets have become more integrated, as directly evidenced by narrowing interest rate differentials. Experience with other indicators such as consumption smoothing and investment variability provided mixed results. Similarly, the evidence on portfolios indicates a bias toward home country investment which is a bit surprising if indeed there is high capital mobility and investors attempt to globalise their portfolios.

Overall, then, there are difficulties in designing appropriate measures for the degree of capital mobility.

Chapter 4 by Enrique G. Mendoza argues that the existence of strong links between saving and investment should not be interpreted as showing a low degree of capital mobility. In fact, the author shows that in a neoclassical framework calibrated to Canada and Mexico certain types of shocks will give rise to a comovement of savings and investment even under perfect capital mobility. Mendoza's simulations are derived under the assumptions of persistent productivity and terms-of-trade shocks. These shocks created business cycles comparable to those realised in Canada and Mexico. Mendoza then examines the accuracy of saving–investment correlations and the degree of consumption smoothing as indicators of capital mobility under several sets of parameters and assumptions about the true degree of capital mobility. This work thus belongs to the second, indirect, approach of measuring capital mobility. Mendoza found the indicators to be more sensitive to the parameters that describe the stochastic process and the preference than to the true degree of capital mobility.

2 Exchange rate volatility

There are various important channels of interaction between capital mobility and the exchange rate regime. On the one hand, in the presence of some degree of commitment to exchange rate management, such as target zones, increased capital mobility can reduce the scope for independent monetary policy. Since the authorities may have several other commitments and exchange rate management is only one of them, there could be sufficiently large shocks that would result in increased exchange rate volatility and the inability of the authorities to fulfil their commitments. In such circumstances, realignments and adjustments to the exchange rate regime would be observed. On the other hand, to restore monetary independence in the presence of strong exchange rate commitments countries may choose to limit the degree of capital mobility via exchange and capital controls.

Chapter 5 by Lars E.O. Svensson deals with the most widely used exchange rate regime in Europe in the present period of capital mobility: target zones. It provides a useful survey of the most recent work in this area which began with Krugman's (1987) study. Although the model provided useful insights into the mechanics of a target zone regime, most of the testable implications derived under the benchmark case of full credibility and marginal interventions have been rejected by the data. For example, the assumptions of perfect credibility and marginal interventions only suggest that exchange rates will spend most of their time near the edges of their bands. This indicates that a 'U-shaped' density function should describe the distribution of actual exchange rates in the band over time. The data, however, generates a 'hump-shaped' distribution whereby exchange rates tend most often to be realised near the central parity. This suggests that intra-marginal intervention is the rule. Another implication of the Krugman model is a strong negative correlation between the exchange rate and uncovered interest differentials. Under perfect credibility, if the actual exchange rate is near the weaker edge of its band it can only appreciate, thus resulting in a lower differential between domestic and foreign interest rates. However, the observed relationship between exchange rates and the uncovered interest differential is diffuse, with no apparent correlation of any sort. Svensson explains this by the imperfect credibility of the band. When the exchange rate is near the edge of the band, realignment expectations are high, thus distorting the effect of mean reversion on the data. Svensson surveys recent literature, which has been able to incorporate imperfect credibility and intra-marginal interventions in order to better describe exchange rate behaviour in a target zone regime.

The September 1992 currency crisis in Europe highlights the type of strains that can arise in a world of high capital mobility in the presence of policy commitments about exchange rates. Some countries, such as Italy and the United Kingdom, abandoned their earlier exchange rate commitments, thus confirming the expectations of those who stressed the lack of credibility of these policies. This classic episode of a speculative attack strengthens the need for incorporating endogenous policy choices about the exchange rate regime under imperfect credibility into the analysis.

Chapter 6 by Alex Cukierman, Miguel Kiguel, and Leonardo Leiderman provides a positive theory of how a policymaker determines the width of an exchange rate band and the timing and size of realignments of the central parity. Exchange rate bands are understood as a limited commitment device in a world where realignment may involve a political cost. The chapter models bandwidth as endogenously determined by a policymaker who weighs the benefits of higher short-run real depreciation of the exchange rate, and hence higher employment, against the costs in terms of higher level and volatility of inflation. The authors show that the choice of bandwidth is mainly affected by the strength of the policymaker's reputation, the cost of reneging on its commitments, and the volatility of the underlying shocks. The credibility of the band is shown to decrease as the exchange rate moves toward its weaker edge. While a wider band allows a greater range of flexibility, the choice of a narrow band increases the credibility of the policymaker. The tension between these goals of flexibility and credibility determines optimal bandwidth for a given set of parameters. Simple tests based on data for Chile, Finland, Israel, Norway, and Sweden (i.e., countries with unilateral exchange rate bands) provided evidence in support of the model's implication that the contribution of expected realignments to expected depreciation increases as the exchange rate increases toward the upper limit of the band.

High capital mobility and some flexibility of exchange rates are likely to be associated with substantial exchange rate uncertainty. Since the volatility of nominal exchange rates is likely to exceed that of prices in the goods and labour markets, nominal exchange rate uncertainty may have consequences for important real economic variables such as investment. In his Chapter 7, John Huizinga examines the effects on investment of the increased nominal exchange rate volatility, and thus uncertainty, which accompanied the transition from Bretton Woods to a flexible exchange rate regime. The research strategy consisted of breaking the sample into two periods, one when the exchange rate variability was high and the other when it was low. Huizinga finds that the move to a flexible exchange rate regime induced increased uncertainty in exchange rates as well as in a variety of price and quantity measures from data on four-digit US manufacturing industries. That an important causal role was played by the increased exchange rate volatility is evident from the nature of cross-industry diversity in changes in uncertainty: the increase in uncertainty was much more pronounced in those industries which were particularly exposed to international trade. Regarding investment, high uncertainty about real output prices is found to be negatively correlated with investment and productivity growth rates and positively correlated with the share of equipment in the capital stock. While the move toward flexible exchange rates could explain some of these findings (as stressed by Huizinga), the increase in investment volatility could be partly due to the impact of increased capital mobility per se.

3 Investment and growth

An important manifestation of capital mobility for many developing countries is the availability of foreign finance for their domestic investments. Daniel Cohen in Chapter 8 investigates the channels through which foreign finance has influenced the growth pattern of debtor countries. In a traditional Solow-type model in which total factor productivity is exogenous, foreign finance can only raise growth through capital accumulation. Cohen argues that in addition a country that gains new access to the world financial markets could use an important part of these resources to increase productivity. His evidence points to the importance of both these channels.

Assaf Razin and Chi-Wa Yuen in Chapter 9 provide a quantitative assessment of the role played by two factors, capital mobility and tax policies, in explaining the observed diversity rates of growth of per capita and total incomes, in the long run. Under free capital mobility, the law of diminishing returns implies that capital will move from the capital rich to the capital poor countries. Over time, therefore, such international capital flows will equalise the marginal productivity of capital prevailing in all countries. In the long run (with balanced growth), the authors argue that total income growth rates must be equalised across countries, regardless of national policy differences. However, this is not necessarily the case for per capita growth rates. Indeed, in the presence of capital mobility the implications that follow are: (i) long-term growth rates of population and per capita incomes should be negatively correlated across countries; and (ii) total income growth rates should exhibit less variation than per capita income growth rates across countries. The chapter provides evidence in support of these implications based on a cross-section of LDCs and DCs.

When capital is mobile the choice of the international tax principle and tax rates applied to capital incomes is shown by the authors to be crucial for the convergence of per capita growth rates. This was done by employing a calibrated model of the world economy. Simulations based on this model involve switching from a state where cross-country capital flows are perfectly mobile to a state where capital movements are nonexistent, and altering the tax rate on capital income with compensating changes in lump-sum taxes to balance the fiscal budgets. Razin and Yuen's numerical results show that although the long-run effects of liberalising capital flows may not be all that sizeable, the growth effects of tax policy changes are magnified in the presence of free capital mobility.

It has been observed that capital flows typically follow a cyclical pattern. That is, some regions are the recipients of capital inflows for a few periods and the pattern is reversed for several periods afterwards. For example, there was a marked capital outflow from Latin America in most of the 1980s, but there were pronounced capital inflows in the late 1970s and early 1990s. While external factors could partially explain these facts, Giuseppe Bertola and Allan Drazen argue in Chapter 10 that regional productivity shocks and the policies that they induce may also give rise to this pattern. In their chapter, they suggest that variability of government policies may be responsible for the observed volatility of capital flows. In a framework where productivity shocks can induce persistent effects on investment and capital flows, the authors show how government policies can magnify the effects of these shocks. That is, they stress the existence and role of procyclical government policies. This procyclical behaviour is attributed to the failure of governments to respond to domestic supply shocks by cutting government expenditures so as to keep the tax rates and the deficit unchanged. Bertola and Drazen discuss a mechanism by which the tax base shrinks during the low productivity state and a higher tax rate is required to maintain government expenditure. Increased tax rates mean a lower after-tax return on investment and thus a decreased capital inflow.

4 The political economy of controls and liberalisation

In their Chapter 11, Alberto Alesina, Vittorio Grilli and Gian Maria Milesi-Ferretti study, using simple regression analysis, the institutional and political determinants of capital controls in a sample of twenty OECD countries for the period 1950 to 1989. The authors focus on two main factors: the political strength of government (indicated by whether it is a majority or a minority government) and the exchange rate regime. In principle, political strength of a government can have two opposite effects on the extent of capital controls. On the one hand, strong governments are able to increase tax revenue via inflation tax and thus tend to rely on controls more heavily. On the other hand, in a political war of attrition situation the inflation tax is a residual tax and thus strong governments are likely to rely on this tax and on controls. The authors bring some evidence, based on their sample, which indicates that capital controls are more likely to be imposed by strong governments.

As far as the exchange rate regime is concerned, it is well known that greater fixity of exchange rates comes together with less autonomy of monetary policy under capital mobility. Capital controls thus help restore monetary policy efficacy under fixed exchange rates. The authors find that capital controls are empirically more likely to be introduced when the exchange rate is pegged or managed, a finding that is in line with the theory.

The use of capital controls has been motivated by various factors: to reduce volatility of capital flows, to ensure that domestic saving leads to domestic investment, to limit foreign ownership of domestic assets and to prevent currency appreciations due to capital inflows during periods of stabilisation and reform. While these controls have never been fully effective, Donald Mathieson and Liliana Rojas-Suarez argue in Chapter 12 that the ability of governments to prevent the flow of capital across borders deteriorated significantly in the 1980s, and that it is now extremely costly to maintain effective barriers. They attribute this change to several factors, including technological advances and learning-by-doing. The authors examine the policy implications of this reduction of the effectiveness of capital controls. They reach the conclusions that the sequencing and speed of liberalisation matters less than 'fundamentals' policy, and that fiscal adjustment is a crucial element in any stabilisation programme. It would be interesting to relate these findings to the political factors discussed above. In particular, strong government are most likely to exert a tight control over fundamentals, which may create a tendency toward liberalisation of the capital account.

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