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CHAPTER 1

Overview

Reuven Glick and Michael M. Hutchison

Since the collapse of the Bretton Woods system of fixed exchange rate parities in the early 1970s, countries have been largely on their own in making choices about their exchange rate arrangements. Most countries have moved away from pegging to a single currency toward either pegging to a basket of currencies or adopting a more flexible arrangement under which the domestic currency is frequently adjusted. In large part this movement was prompted by a desire to liberalize financial markets, maintain some national autonomy over macroeconomic policy, and at the same time avoid the need for a system of widespread international capital controls.

This is especially true among Pacific Basin countries, which in the past fifteen years have undertaken substantial financial reform, removing barriers to domestic and international capital flows. Under these circumstances, national economies have become increasingly influenced by foreign developments. Greater international interdependence has complicated the conduct of domestic monetary policy and led to greater exchange rate flexibility as individual countries have sought to insulate themselves from foreign disturbances.

Because of the diversity of historical backgrounds, stages of economic development, and financial environments, the Pacific Basin region offers a wide variety of approaches to exchange rate policy. Some countries still peg their currency to a single foreign currency, while some peg to a basket of currencies. Other countries allow varying degrees of flexibility in their exchange rates. The Pacific Basin region thus provides a useful set of country experiences for a comparative study of exchange rate arrangements and their implications for the conduct of monetary policy. Why countries have adopted different exchange rate policies and how these different policy approaches have affected their national econ-

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omies are questions of substantial interest to policymakers and researchers alike.

The essays in this volume examine the conduct of exchange rate and monetary policy among Pacific Basin countries. They address four broad issues, with some essays focusing on the national experience of specific countries in the Pacific Basin and others adopting a cross-country comparison approach.

First, how closely linked are financial markets in the Pacific Basin? The extent to which individual countries are linked to foreign economies and are able to insulate themselves from foreign disturbances is dependent upon the degree of international capital mobility. Three essays in the volume quantify the degree of capital mobility and asset market linkages among Pacific Basin countries. Chinn and Frankel focus on the interest rate linkages of financial assets and the relative importance of the U.S. and Japanese markets in the region. Engel and Rogers examine the linkages in equity markets and the persistence of stock return differentials in the region. Dooley and Mathieson develop an alternative measure of capital mobility that does not depend on observed domestic interest rates.

Second, what are the implications of choosing different exchange rate regimes? The optimal choice of exchange rate arrangements depends on a variety of factors. These include the degree of capital mobility, structure of the economy, relative magnitudes of external disturbances, and policymakers' objectives. What is the experience of Pacific Basin countries? How have exchange rate policies influenced the dependence of these economies on developments abroad?

Five essays in the volume look at these issues. Turnovsky provides an analytical overview of exchange rate theory and its policy implications from several theoretical perspectives. Moreno examines the link between exchange rate regimes and domestic insulation from external shocks for Korea and Taiwan. Pitchford considers the importance of the exchange rate regime for the transmission of trade price shocks in the case of Australia. Grimes and Wong consider the New Zealand experience and discuss how the exchange rate is used to guide monetary policymakers in achieving their ultimate objective of price stability. Popper and Lowell look at the experience of Australia, New Zealand, Canada, and the United States and infer the extent of concern by monetary authorities about the exchange rate by measuring the influence of foreign developments on domestic prices.

Third, to what extent have countries been able to sterilize the effects of their exchange rate intervention policy on their monetary policy? Virtually all central banks in the Pacific Basin region have active inter-

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vention policies, in some cases designed to peg currency values and in others simply to moderate currency movements. How actively have central banks intervened in foreign exchange markets? What have been their objectives? What are the ultimate effects on the conduct of monetary policy?

Three essays examine these issues. Glick and Hutchison consider Japan's experience over the post–Bretton Woods period and estimate the nature of the Bank of Japan's intervention policy over time and its impact on the control of money aggregates. Watanabe analyzes how intervention operations by the Bank of Japan have acted as a signal about the future stance of monetary policy. Kwack examines the extent to which Korea was able to sterilize the effects on its money supply of large current account surpluses in the late 1980s.

Fourth, what are the prospects for a yen bloc? Two essays evaluate the prospects for a yen currency bloc among Pacific Basin countries. Ito discusses different interpretations of a yen bloc and examines the present overall international use of the yen, as well as the financial and trade relations of Japan with neighboring countries in the Pacific Basin. Melvin, Ormiston, and Peiers evaluate the portfolio demand for international currencies and assess the desirability of forming a yen currency area from the point of view of investors.

Using this organizational framework, we turn to a discussion of the individual essays.

1.1 International financial market integration

In recent years almost all countries in the Pacific Basin have attempted to promote greater economic efficiency by undertaking steps to liberalize their domestic financial systems and remove restrictions on international capital flows. Hong Kong and Singapore were the first to begin liberalizing their financial systems by removing or relaxing interest rate regulations and abolishing exchange rate controls in the mid-1970s. Significant financial reforms have been undertaken in Japan and Malaysia since the late 1970s and in the Philippines, Australia, New Zealand, and Indonesia since the early 1980s. More recent movements toward liberalization have occurred in Thailand, Korea, and Taiwan. Although the timing and the extent of liberalization steps have varied across countries, virtually all countries in the region have allowed domestic and foreign market forces to play a greater role in their financial markets.

To what extent has this liberalization process increased the integration of financial markets and the international mobility of capital within the Pacific Basin? In Chapter 2, Chinn and Frankel address three relevant

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questions: (i) Have nominal interest rates in Pacific Basin countries become more strongly linked to foreign rates as a result of the removal of capital controls and other barriers to international capital mobility? (ii) To the extent that barriers remain, are interest differentials attributable to country factors (such as capital controls, differential tax treatment, default risk, and imperfect information) or to currency factors (such as expectations of exchange rate changes or exchange rate premia)? (iii) To what extent are interest rates linked to the United States versus Japan? They find that though interest rate linkages with the United States have become stronger over the period 1982–92, the region is still far from achieving complete financial integration, particularly in the lesser developed countries. For countries with well-developed forward markets, they attribute most of the remaining barriers to integration to currency factors. Although U.S. rates remain the dominant foreign influence for most countries, for the Association of Southeast Asian Nations (ASEAN) in particular, there is some evidence of a greater Japanese role.

As local equity markets have grown in the region, the opportunities for international investors seeking higher return or diversification have expanded. Engel and Rogers in Chapter 3 explore the extent to which equity markets in the Pacific Basin have equalized real returns on investment opportunities using data on stock market indexes over the period 1983–91. Consistent with the Chinn and Frankel work on interest rates, Engel and Rogers find substantial differences in real return prospects for equity investors across countries. They also ask whether real returns differ among countries because (ex ante) nominal rates of returns are different or because (ex ante) purchasing power parity fails to hold. They find that the real return differences are largely accounted for by nominal return differentials. Moreover, there does not appear to be any relation between the type of exchange rate arrangement and the relative magnitudes of nominal return differentials and purchasing power parity deviations. Engel and Rogers's evidence implies that there are still important restrictions to the flow of financial capital among Pacific Basin countries that prevent the equalization of returns. The authors suggest that the observation of real return differentials might be attributable to differences in the relative riskiness of equity investments.

In light of prevailing implicit or explicit regulatory controls, Dooley and Mathieson (Chapter 4) question the usefulness of observed domestic interest rates in measuring the degree of capital mobility and extent of international financial market linkages. They construct an alternative measure of capital mobility, not based on observed domestic interest rates, but derived instead from the response of money demand to private

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capital flows. This measure gives results that are sometimes counter to the conventional wisdom about which countries are more integrated with world capital markets.

Dooley and Mathieson also discuss the implications of increased capital mobility for the choice of exchange rate arrangements and the conduct of monetary policy. They maintain that the choice of exchange rate arrangements is best viewed as a response by policymakers to their loss of control over growing private sector international arbitrage activity. To the extent that a country desires to maintain control over domestic monetary conditions, it must choose between permitting greater exchange rate flexibility and imposing increasingly restrictive controls on international capital flows. Moreover, changes in the degree of capital mobility have affected various monetary policy instruments. Dooley and Mathieson point out that the effectiveness of credit ceilings and allocation rules is weakened by the private sector's access to alternative sources of credit, through either nonbank financial intermediaries or foreign sources.

1.2 Choice of exchange rate regimes

Increasing economic interdependence implies that countries are subject to a broader range of shocks. Which exchange rate regime best insulates an economy from foreign shocks? What form of exchange rate arrangement helps provide discipline to policymakers and perhaps lends credibility to announced policies? Some of the basic economic theory on these issues is addressed in Chapter 5 by Turnovsky. Surveying the theoretical literature on exchange rate management and implications for monetary policy, he classifies these models into four categories: (i) dynamic portfolio models, (ii) new classical stochastic models, (iii) rational intertemporal models, and (iv) target zone models.

In Turnovsky's view, the principal policy insight from dynamic portfolio models is the implication for the long-run interdependence between monetary and exchange rate policies. Choosing to target the money growth rate implies a particular long-run domestic rate of inflation and, given the rate of inflation abroad, a corresponding long-run rate of exchange rate depreciation. If instead the monetary authorities choose to target a particular level or path for the exchange rate, this implies a corresponding money growth rate, and hence a loss of control over monetary policy.

What are the advantages of choosing to peg the exchange rate as opposed to allowing the exchange rate to float? One of the strongest arguments for pegged exchange rates is that they enforce discipline on

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domestic macroeconomic policies, which in turn may help to stabilize inflation expectations. Linking to a stable foreign currency limits the rate of domestic inflation, which in turn constrains monetary and fiscal policy. By "credibly" committing themselves to a fixed exchange rate arrangement, policymakers may hope to import some of the credibility for stable monetary control presumably associated with foreign policies. This presupposes that a country desiring to peg its exchange rate has a history of high and volatile inflation attributable to political/economic policy instability. The disciplining effects of a currency peg may be small or absent in an already well-managed economy.

In other cases, political pressures may make tighter monetary and fiscal policies infeasible and limit the ability of the government to commit credibly to a pegged exchange rate. With open capital markets, a more flexible exchange rate is often the only practical policy option, since attempts at fixing the exchange rate would inevitably invite speculative attacks on the rate. Thus, fixed exchange rates are consistent with a high degree of capital mobility only if domestic monetary policy objectives are sacrificed, a difficult political choice for many policymakers.

The implications of new classical models are particularly rich for exchange rate policy. With these models, Turnovsky discusses how the choice of exchange rate regime can depend on a host of economic and political factors, such as the nature of disturbances, the structure of the economy, the information available to agents, and policymakers' preferences. Whether economic disturbances are predominantly domestic or foreign, nominal or real, temporary or permanent, all influence the choice of exchange rate regime. A flexible exchange rate regime, for example, generally works better to insulate the domestic economy from foreign inflation than do fixed exchange rates by permitting the value of domestic currency to appreciate so as to limit the effect on domestic prices. Structural characteristics of the economy, such as the degree of international capital mobility and wage rate flexibility, also affect the insulating properties of the exchange rate regime. The less the degree of wage flexibility, for example, the greater the effect of a change in the nominal exchange rate on the real wage and thus on output, and hence the greater the desirability of exchange rate flexibility. Also important are policymakers' preferences regarding domestic price stability, output fluctuations, and the stability of the terms of trade, all of which can reflect political factors.

An important result of the theoretical literature is that because of the diverse nature of shocks facing an economy, neither purely flexible nor perfectly fixed exchange rates are generally "optimal." Rather, some intermediate degree of flexibility is generally best able to stabilize the

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economy in response to economic disturbances. The optimal degree to which exchange rates should be "managed" or "flexibly fixed" varies with changes in the nature of disturbances, economic structure, or political objectives.

However, the practical problems involved in discerning the source of shocks and identifying the relevant structural characteristics make it difficult for policymakers to apply theoretical criteria for adjusting the exchange rate. Thus, the choice of exchange rate regimes by policymakers is ultimately an empirical one involving "learning by doing." Pacific Basin countries provide a wide range of experience and learning paths in such a choice. Some countries have followed gradual regime transitions, moving from fixed exchange rates to more flexible exchange rates slowly over time. Others have undertaken major institutional and policy reforms affecting their exchange rate arrangements virtually overnight.

In Chapter 6, Moreno considers how exchange rate regime shifts in Taiwan and Korea affected macroeconomic discipline and domestic vulnerability to external shocks. Both countries maintained adjustable pegs to the U.S. dollar for most of the 1970s. In the case of Taiwan, large current account surpluses, together with liberalization of international trade and financial transactions, made continued pegging to the dollar undesirable. Consequently, it moved to a managed float policy against the dollar in 1979 and a free float in 1989. Korea also allowed its exchange rate to adjust more flexibly in the 1980s because of balance-of-payments disequilibria. It adopted a basket currency peg with undisclosed currency weights in the 1980s followed by a more explicit managed float against the dollar in 1990.

Moreno uses a vector autoregression model to identify the underlying sources of disturbances, which are generally unobservable, and focuses on how the change in exchange rate regime affected domestic price stability in each economy. He finds that Korea and Taiwan appear to be more insulated from foreign shocks with greater exchange rate flexibility. Taiwan is less insulated than Korea, however, because of its greater international trade openness and higher capital mobility.

Reflecting in large part the desire to improve macroeconomic performance in the face of large trade shocks and structural rigidities in the economy, Australia adopted a flexible exchange rate regime at the end of 1983. In Chapter 7, Pitchford analyzes several episodes of major foreign price shocks experienced by Australia and compares the effect of these shocks on the domestic economy during the periods of fixed and floating exchange rates. He concludes that the lack of exchange rate flexibility in response to external price shocks in the 1970s exacerbated

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Australia's macroeconomic adjustment problems during that period. The policy of flexible exchange rates maintained for most of the 1980s better insulated the economy from the nominal trade price shocks Australia has traditionally experienced. The insulation benefits manifested themselves in the form of lower domestic inflation and a more stable real economy despite substantial wage and price rigidity.

New Zealand switched dramatically from a fixed exchange rate to a freely floating exchange rate policy in March 1985. This change was necessitated by the lesson that a fixed exchange rate and an independent monetary policy could not be maintained following the removal of international capital controls in the early 1980s. The strong private capital inflows under the fixed rate regime frustrated the central bank's ability to control the monetary base. The floating of the exchange rate in turn allowed the central bank to maintain control over bank reserves. This has played an important operational role since 1988, when the Reserve Bank of New Zealand established a low rate of price inflation as the overriding goal of monetary policy.

Nonetheless, the exchange rate still plays an important role in New Zealand's monetary policy. In Chapter 8, Grimes and Wong describe how the exchange rate is used to guide monetary policy in achieving New Zealand's long-run inflation goal. While not an end in itself, this policy has resulted in a high degree of exchange rate stability. The price level stability objective for monetary policy stated in the Reserve Bank of New Zealand Act of 1989, combined with an operating procedure consistent with this objective, seems to have established the credibility of the policy with the private sector. Desired exchange rates, for example, are met without any significant official exchange market intervention, and private capital flows appear to have had a stabilizing influence.

Grimes and Wong argue that the present operating procedure comes close to being an "optimal" regime for New Zealand. They empirically test the relative merits of using a monetary aggregate, exchange rate, or some combined rule as an intermediate target for the monetary authorities. Using a vector error correction model approach, they find that the dominant influence on inflation in New Zealand has come from the exchange rate and international price variables, though money aggregates also have some influence. This implies that the exchange rate path, rather than the path of money aggregates (or a combination of the two, with greater weight to the former), provides the better intermediate target for policymakers.

Popper and Lowell focus their analysis in Chapter 9 on the exchange rate regimes of the United States, Japan, Canada, and Australia. All

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four countries are wealthy and developed and have relatively open capital markets. They also officially maintained floating exchange rate regimes through most of the 1980s. However, they differ greatly in terms of the openness of their goods markets, the extent of their economic dependence on trading partners, and the sources of the economic disturbances they experience.

Popper and Lowell explore the extent to which these countries, in fact, have implicitly targeted their exchange rates. They do so with a model that treats the exchange rate as an objective of monetary policy, along with output and price variability. Their model implies that domestic prices depend negatively on depreciations of the domestic currency (and positively on foreign inflation) to the extent that monetary policy authorities care about exchange rate stability and attempt to offset depreciations. A central bank caring strongly about exchange rate stability will offset a depreciation (or foreign inflation) with tighter monetary policy, hence lowering domestic prices or inflation. This implies that the behavior of prices in response to exchange rate changes ultimately depends on the extent to which the central bank targets the exchange rate. Popper and Lowell find some evidence of exchange rate targeting in the case of Canada, but not in that of Australia and Japan. There is weak evidence of targeting for the United States, but only vis-à-vis the yen.

1.3 Intervention and sterilization policies

An exchange rate policy implies a systematic effort by the monetary authorities to influence the level or rate of change of the exchange rate. A variety of policy instruments are potentially available to influence the exchange rate, including foreign exchange intervention, domestic monetary policy, various forms of controls on international trade and capital flows, and official announcements of future policies.

Foreign exchange market intervention and domestic monetary policy are generally perceived as the primary instruments available to central banks in their pursuit of an exchange rate policy. To some extent, the same exchange rate objectives can be accomplished with either foreign exchange intervention policy or domestic monetary policy. Foreign exchange intervention that is unsterilized is equivalent to domestic monetary policy to the extent that both affect the domestic monetary base: the former typically involves the exchange of domestic money for foreign currency assets, while the latter typically involves the exchange of domestic money for domestic government securities.

In some countries with relatively undeveloped domestic financial mar-

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kets, the foreign exchange market may be the primary means through which the central bank affects the money supply. Few disagree that unsterilized intervention has a significant influence on the market exchange rate. By changing the monetary base, monetary intervention influences broader monetary aggregates, interest rates, prices, the exchange rate, and usually real variables as well in the short term.

With sterilized intervention, however, the exchange of domestic money for foreign currency assets is offset by an accompanying exchange of domestic securities for domestic money, leaving the monetary base unaffected. Because it amounts to an exchange of domestic securities for foreign securities held in private portfolios, "pure" sterilized intervention (not associated with changes in other current or anticipated future fundamentals) can have a lasting effect on the exchange rate only to the extent that investors view the securities as less than perfect substitutes (and the investors are risk averse) or institutional impediments limit the degree of capital mobility. If international capital is not fully mobile and/or domestic and foreign assets are imperfect substitutes, relative yields and the exchange rate will adjust in response to the change in the relative supplies of assets in portfolios.

The extent to which central banks are able to pursue an exchange rate policy independent of monetary policy depends on its ability to sterilize or offset the effects of international reserve changes on the monetary base. The scope for successful sterilized intervention and an independent domestic monetary policy is greater in countries with limited international capital mobility and/or without fully liberalized domestic financial markets. Limited capital mobility enhances the ability of the central bank to retain overall control over domestic monetary aggregates. Even if the markets for certain short-term financial assets are closely integrated with those abroad, domestic monetary policy can still be effective through its impact on the prices of other domestic assets that do not have a close foreign substitute.

In Chapter 10, Glick and Hutchison examine how the Bank of Japan (BOJ) intervention and sterilization policies affected its control of money aggregates. They show that the BOJ has actively intervened in the foreign exchange market over most of the floating rate period. Using both simple regressions and a vector error correction approach, they also measure the extent to which the BOJ has been able to sterilize the effects of this intervention on the monetary base. They find that the degree of sterilization is high in the short run, but is much less in the long run. This suggests a high degree of international capital mobility in the case of Japan after a period of portfolio adjustment.

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