The Economics of Exchange Rates

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and

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with a foreword by

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1 Introduction

In the last few decades or so exchange rate economics has seen a number of important developments, with substantial contributions to both the theory and the empirics of exchange rate determination. Important developments in econometrics and the increasing availability of high-quality data have also been responsible for stimulating the large amount of empirical work on exchange rates published over this period. Nevertheless, while our understanding of exchange rates has significantly improved, a number of challenges and open questions remain in the exchange rate debate, further enhanced by important events in this context such as the launch of the euro as the single European currency in January 1999 and the large number of currency crises which occurred during the 1990s.

In this book – part monograph, part advanced textbook – we provide a selective coverage of the literature on exchange rate economics, focusing particularly but not exclusively on contributions made during the last fifteen years or so. Throughout the book our aim is, in addition to giving a clear exposition, to provide constructive criticism of the literature and to suggest further avenues for research and analysis. The survey article by Taylor (1995) on 'The Economics of Exchange Rates', which provides a comprehensive review of the post-war literature on the subject until the early 1990s, may be seen as useful groundwork preliminary to the study of this book, although readers with a good general background in economics should be able to tackle the book head on. In this brief introduction, we provide a guide to the following chapters.

Chapter 2 covers the literature on foreign exchange market efficiency. In an efficient speculative market prices should fully reflect information available to market participants and it should be impossible for a trader to earn excess returns to speculation. Academic interest in foreign exchange market efficiency can be traced to arguments concerning the information content of financial market prices and the implications for social efficiency. In its simplest form, the efficient markets hypothesis can be reduced to a joint hypothesis that foreign exchange market participants are, in an aggregate sense, endowed with rational expectations and are risk-neutral. The hypothesis can be modified to adjust for risk, so that it then becomes a joint hypothesis of a model of equilibrium returns (which may admit risk premia) and rational expectations. In particular, the chapter covers the literature relating to the covered and uncovered interest rate parity conditions which have direct implications for market efficiency, and provides an account of the recent econometric methods employed

in testing the foreign exchange market efficiency hypothesis. Regardless of – or indeed perhaps because of – the increasing sophistication of the econometric techniques employed and of the increasing quality of the data sets utilised, one conclusion emerges from this literature relatively uncontroversially: the foreign exchange market is not efficient in the sense that both risk neutrality and rational expectations appear to be rejected by the data.

Chapter 3 is devoted to recent studies on purchasing power parity (PPP) and the behaviour of the real exchange rate. Under PPP, price levels are the same across countries if expressed in a common currency. Academic opinion concerning the validity of PPP as a realistic description of exchange rate behaviour over both the short run and the long run has shifted quite significantly over time. A long list of studies suggests that deviations from PPP are characterised as conforming to martingale or random walk behaviour, indicating the violation of PPP in the long run. However, increasing support for PPP as a *long-run equilibrium* condition has emerged during the last decade or so. We survey much of the influential literature on testing the validity of the law of one price (the hypothesis that individual traded goods prices should be equal once expressed in a common currency at the going exchange rate) and of PPP, covering the tests of the random walk real exchange rate model, the cointegration literature on PPP and the most recent developments in econometric techniques applied to PPP testing, which include using long-span data, multivariate unit root tests and the recent state-of-the-art nonlinear econometric models of deviations from PPP. Overall, arguably the main conclusion emerging from the recent relevant literature appears to be that PPP might be viewed as a valid long-run international parity condition when applied to bilateral exchange rates obtaining among major industrialised countries and that, because of the effects of international transactions costs and other factors, real exchange rate adjustment displays significant nonlinearities.

Chapter 4 is devoted to an overview of the theory and evidence relating to standard macroeconomic models of exchange rate determination, namely the flexible price monetary model, the sticky price monetary model, equilibrium models and liquidity models, and the portfolio balance model. The exposition of the theoretical foundations of these theories is followed by an analysis of their empirical formulations and an account of the relevant empirical literature. We also assess the validity of asset-market-based exchange rate models on the basis of the evidence on their out-of-sample forecasting performance. In fact, we discuss selected articles on exchange rate predictability, recording the difficulties encountered in using standard empirical models of exchange rate determination to predict the nominal exchange rate. We conclude that, although there seems to be increasing evidence that empirical models of exchange rate determination may be helpful for forecasting exchange rates at long horizons, it is still difficult to beat a simple random walk forecasting model in the shorter run. This is an area of research where more work is very much warranted.[1]

Chapter 5 offers an introduction to the recent literature on the 'new open economy macroeconomics'. This literature reflects an attempt by researchers to formalise theories of exchange rate determination in the context of dynamic general equilibrium models with

[1] See Clarida, Sarno, Taylor and Valente (2001) and Kilian and Taylor (2001) for recent contributions on forecasting exchange rates and attempts to beat a random walk forecast.

explicitly defined microfoundations and allowing for both nominal rigidities and imperfect competition. This literature has been growing exponentially since the appearance of Obstfeld and Rogoff's (1995) seminal 'redux' paper. The increasing sophistication of stochastic open economy models allows rigorous welfare analysis and provides new explanations of several puzzles in international macroeconomics and finance. Whether, however, this approach will become the new workhorse model for open economy macroeconomics, whether a preferred specification within this class of models will be reached, and whether this approach will provide insights on developing better-fitting empirical exchange rate models remain, at present, open questions. Nevertheless, this is clearly an exciting area of research.

Chapter 6 is devoted to the literature on monetary integration and target zones. The literature on monetary integration is largely dominated by the theory of optimum currency areas, developed in the 1960s and refined over the last few decades. The theory of optimum currency areas has increasingly attracted the interest of academics and policy-makers in the transition towards Economic and Monetary Union (EMU) and in the aftermath of the birth of the euro. A related literature, discussed in some detail in this chapter, is related to modelling exchange rate behaviour under target zone arrangements. Since the collapse of the Bretton Woods system, most of the major exchange rates have not in fact been officially pegged but have been allowed to float freely for the longest period of time in recent economic history. Many smaller central banks, however, have adopted policies of pegging their exchange rates to major currencies and the Exchange Rate Mechanism (ERM) of the European Monetary System (EMS) offers an important recent example of a pegged exchange rate system amongst major currencies.

Chapter 7 surveys and discusses the theoretical and empirical literature on foreign exchange market intervention. We start by examining the rationale for exchange rate management, and then discuss a number of relevant specific issues such as the secrecy of intervention, the role of international co-ordination, the profitability of intervention operations, and the availability and nature of data on official intervention. We describe the mechanics of official intervention through the portfolio balance channel and the signalling or expectations channel, and also provide a review of the empirical literature on the effectiveness of official intervention. We briefly present the simple positive theory of exchange rate intervention used by the literature to derive estimatable reaction functions and discuss the empirical evidence on central bank reaction functions.

Chapter 8 is devoted to an exposition and survey of the literature on speculative attacks and currency crises. In large part, this literature is a reaction to the relatively large number of currency crises which affected the international financial markets during the 1990s. The three strands of the literature we cover – so-called first-generation, second-generation and third-generation models of currency crisis – were largely developed, moreover, as a reaction to the apparently disparate nature of the various crises which have occurred. In particular, economies affected by speculative attacks and crises ranged from a number of Latin American economies, where economists were quick to point out apparent inconsistencies between the stance of domestic macroeconomic policy and a commitment to a fixed exchange rate; to advanced European economies where there appeared to be no inconsistency between the stance of macroeconomic policy but instead a perceived *temptation* of

the authorities to pursue a more expansionary domestic policy; to the ‘tiger economies’ of East Asia, where, prior to the crisis, the economic fundamentals appeared very strong and macroeconomic policy appeared entirely consistent with the fixed exchange rate rule.

In Chapter 9 we discuss the very recent literature on the microstructure of the foreign exchange market. As a reading of the first eight chapters of the book, and in particular of Chapter 4, will reveal only too clearly, an emerging stylised fact is that, while macroeconomic fundamentals appear to be an important determinant of exchange rate movements over relatively long horizons and in economies experiencing pathologically large movements in such fundamentals (such as during a hyperinflation), there seem to be substantial and often persistent movements in exchange rates which are largely unexplained by macroeconomic fundamentals. The recent and emerging literature on foreign exchange market microstructure in some measure reflects an attempt by researchers in international finance to understand these deviations from macroeconomic fundamentals. In addition, the microstructure literature is also concerned with other issues which are seen to be of interest in their own right by international financial economists, such as the transmission of information between market participants, the behaviour of market agents, the relationship between information flows, the importance of order flow, the heterogeneity of agents’ expectations and the implications of such heterogeneity for trading volume and exchange rate volatility. We conclude that, to date, the foreign exchange market microstructure literature appears to shed light most strongly on issues such as the transmission of information between market participants, the heterogeneity of agents’ expectations and the implications of such heterogeneity for trading volume and exchange rate volatility.

Although the sequence of presentation of the various chapters is, we hope, logical, it is not necessary to read the book in sequence from beginning to end, although this would be our preference. In particular we have attempted to make the chapters largely self-contained so that, if reference is made to results discussed in earlier chapters, it is brief enough to be easily remedied.

We very much hope that you enjoy using this book.

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