Introduction

It is the largest and most important financial market in the world. If you are in business or in finance, it affects just about everything you do, whether you like it or not, whether you know it or not. Along with the interest rate, it is the most important price of a free and open economy. It is the fuel of economic trade and liberalization and without it globalization would never have happened. It is also one of the least well-understood markets outside of those who choose to follow it in whatever capacity of their profession. It is variously described as the "currency" or "foreign exchange" or "FX" market, and it can be maddening and frustrating, but if you are a senior corporate officer or an institutional investor you are compelled to know what it is, how it works and how it affects you.

It should be stated right at the beginning that this is a book targeted not at the ordinary man or woman on the street but at the currency market practitioners themselves, at those whose "flows" are responsible for moving the market in the first place. The aim of this book is a simple one – to help currency market practitioners, from corporate Treasurers and Chief Executives to hedge funds and "real money" managers, execute more prudent and profitable currency decisions in their daily business.

This is no small aim and it is certainly not taken lightly. There is of course already a rich literature on the subject of exchange rates, as many readers will no doubt be aware. When you took business courses or did an economics degree at whatever level you probably had to wade your way through several of these. Why then the need for yet another book on exchange rates? The frank answer is that I felt there was a gaping hole in that "rich" literature, a massive omission that was intolerable and had to be addressed. Simply put, few if any of these works appeared to be aimed at the actual people who would have to put the theory into practice and actually execute the currency market transaction. It was as if a bank had written a series of books not for its clients or customers but instead for its own private, intellectual interest. The vast majority of the existing literature on exchange rates appeared to have been written from a very academic or theoretical perspective. To be sure, there are notable exceptions and in any case there is absolutely nothing wrong with academic theory. Few of these however went the extra mile and explained how to translate the theory into currency investing or hedging strategies. My aim here therefore is to address this "gaping hole" and try and do a better job of explaining both currency market theory and practice from the perspective of being a market participant myself, albeit in an advisory capacity.

The currency market is not just my job. It is a passion and interest of mine and has been so for many years now. I started covering it in 1991 as a journalist in the run up to the Sterling crisis

the subsequent year and "Black Wednesday", September 16, 1992, when the UK currency was forced out of the Exchange Rate Mechanism (ERM) and promptly collapsed in value. The abiding memory of mine to this day is of the sheer power of the currency market in its ability to "defeat" the might and resolve of such a respected central bank as the Bank of England, which gave everything it had in its effort to defend sterling's ERM "floor" against the Deutschmark of 2.7778. It is a memory of currency dealers screaming down the phone, of wave after wave of official intervention to support sterling being swatted aside by the sheer weight of selling pressure. The lesson of this neither is nor should be that financial markets will out in all cases. Rather, it is that the currency market has become so huge that it simply cannot be resisted for any length of time. In the case of "Black Wednesday" – or "White Wednesday" as many would have it subsequently – the UK economy was experiencing a severe recession and thus simply could not tolerate the raising of UK interest rates needed to support sterling and keep it within its ERM band commitment. The economic pain of this interest rate and exchange rate commitment was completely at odds with the economic reality in the UK at that time. Moreover, UK foreign exchange reserves were fast being wiped out in that defensive effort. In 1992, the global currency market's *daily turnover* was the equivalent of USD880 billion, according to the Bank of International Settlements (BIS) tri-annual survey. Thus, the Bank of England's ability to intervene to support sterling, albeit in the billions, was dwarfed by the size of the forces opposing it. As of the 1998 BIS survey, daily turnover had increased to some USD1.5 *trillion*, subsequently falling back to USD1.2 trillion in the 2001 survey in the wake of the creation of the Euro.

Needless to say, the Bank of England has certainly not been alone in its inability to defeat the power of the currency market. The following year, the remaining members of the ERM were forced under truly extraordinary pressure to abandon the narrow 2.25% bands required by the ERM commitment, widening them to 15%. On one day alone, on that Friday, July 30, before the weekend move to capitulate and widen the ERM bands, tens of billions of dollar equivalent were expended in an ultimately futile attempt to support member currencies. Depending on your point of view, even the feared German central bank, the Deutsche Bundesbank had been defeated (though the sceptical maintain that its effort to save the ERM was at best half-hearted). Whatever the case, it was an important lesson; not least that the currency market can act with unparalleled force and ferocity if it is so impelled. There was of course the obvious question – why and how could such extraordinary events happen in the currency market, events that were certainly not predicted by economists and which sometimes did not appear justified by the "fundamentals"?

For me, as for many people in the field, that time was the start of a journey, a journey I suspect without an ultimate destination. One remains forever a student and the capacity for being taken by surprise remains endless. As a Head of FX strategy for a leading international bank, the losses that one can incur as a result of making forecasting or recommendation mistakes are not so much financial as reputational, but for that I would argue they are no less painful. As a member of that relatively small group of individuals who for good or ill seek to forecast exchange rates and make currency recommendations, you live or die by your reputation. You do not have the luxury of resorting to vague rhetoric and that is indeed how it should be.

Nonetheless, as anyone who has tried knows, forecasting exchange rates is both an educational and a humbling business. A factor that is deemed a crucial market driver one minute may be spurned the next as irrelevant. Most attempts within economic "fundamental" analysis to analyse exchange rates are based on some form of equilibrium model, which presupposes that there is an ideal or an equilibrium level to which exchange rates will revert. While equilibrium

exchange rate models such as those that focus on Purchasing Power Parity (PPP), the monetary and portfolio approaches, and the external balance, real interest rate differentials and the Real Effective Exchange Rate (REER), are extremely useful when trying to predict long-term exchange rate trends, most have a relatively poor track record over a shorter time frame. They provide a framework for currency forecasting and analysis and alert the users of them to important changes in the real economy and how those in turn might affect exchange rates over the medium to long term. For instance, economists would say that an appreciation of a currency's REER value should eventually cause deterioration in a country's external balance, which should lead to a loss of export competitiveness and the eventual need for a REER depreciation of the exchange rate in order to offset that lost competitiveness. The most effective way of achieving this is through a depreciation of the *nominal* exchange rate (as in the one you use when you take a trip to France). For a corporate this may be an invaluable guide as to the long-term exchange rate trend, which they can use to determine the parameters of their budget rates and also to set a strategic hedging policy. What this does not do however is tell the user when these events are likely to happen. It can provide a framework, a corridor, but it is unable to be more specific. In short, such models are limited in their ability to forecast exchange rates over the period on which most currency market practitioners are focused – 1 day to 3 months.

The economics profession usually deals with this inconvenience in one of two ways – either by ignoring it or by dismissing short-term currency moves as "speculative" and therefore not capable of being predicted. It has long been my view that such a response was inadequate and that in order to study currency markets one might therefore have to include other disciplines, albeit within a single analytical framework. Indeed, where economics has for the most part failed to predict such short-term moves, other disciplines such as technical and capital flow analysis have succeeded. Granted, their success is not perfect, but it has been measurably better.

Furthermore, while it has to be stressed that such long-term valuation models are important and useful guides to long-term trends, they are flawed as forecasting tools because the very concept of "equilibrium" is itself flawed. Such a concept is a useful and logical construct, providing a framework around which economic analysis can be built and allowing one to focus on a final outcome. The specifics of that final outcome are likely to remain vague however. While an equilibrium model may be able to tell what the final outcome is likely to be, it will not be able to tell you when that outcome will happen nor what might happen in the getting there, which might change or distort that outcome. Moreover, while the construct of equilibrium may well be close to academic hearts, it seems rarely evident in real life, which remains in a constant state of flux. An equilibrium level relates to a point to which exchange rates, if they are temporarily divergent from it, will revert back. In other words, it relates to an ultimate destination, or a "final outcome" as described above. Markets however are volatile and can fluctuate widely. Yet markets are an expression of economic reality, which means that the economic reality itself fluctuates. In turn, this means that the equilibrium level resulting from that economic reality also fluctuates and instead of being a stationary, single, final outcome is rather a moving target. In economic jargon, the equilibrium level of an exchange rate is both cause and effect of the present level of exchange rates, moving over time, such movement constantly reducing or increasing the present exchange rate's over- or undervaluation relative to that equilibrium. This is not to say that trying to track an equilibrium exchange rate level is not an important exercise. Rather, it is to point out the practical limitations of such equilibrium-based exchange rate models.

As well as examining the limitations of exchange rate models, it is also important to dispose right at the start with a few myths that surround financial markets in general and more

specifically the subject of this book, the currency market. Firstly, classical economic theory asserts that market practitioners are "objective", that is they are completely independent of and are not affected by the market conditions in which they operate. Intuitively, we know this to be nonsense. An investor is not only directly affected by present market conditions such as liquidity and volatility but also by past experience. Past successes may make our investor bolder in their future investment decisions, while past losses may make them much more cautious. As John Donne would have it, no man is an island, so the same is true for the market practitioner, who can both be affected by and can affect market conditions. In short, they are both cause and effect. We can see this with that most fundamental of economic principles, supply and demand. Here too, there is no "objectivity". Each is affected by the other – and we know this because if it were not the case price trends could not happen. If they were completely independent of each other, supply would instantly match demand and vice versa, thus stopping a price trend before it had begun. Yet, this is not the case. Price trends across asset and currency markets can last for days, weeks, months or even years.

Another widely held myth is that markets are perfectly "efficient". The suggestion here is that both information availability and distribution are perfect – that all market participants have equal access to available, market-moving information. Furthermore, the assumption of market efficiency is that all market participants are "rational" and are profit seeking. Like the suggestion of "objectivity", this is also the stuff of nonsense. Information is widely and freely available, but neither its availability nor its distribution is perfect. Indeed, one could argue that the very purpose of currency market practitioners is to get information that others do not have. Equally, the very concept of being "rational" is a subjective one and open to interpretation. Further, currency dealers are "rational" to the extent that they are trying to make a profit. However, cautious investors or corporate Treasurers who are seeking to manage their currency risk are not trying to make a profit. Rather, they are trying to limit any possible loss from their original currency exposure. Central banks and Treasury departments, who also operate within the currency market, are also not for the most part profit seeking. Trying to impose an all-fits-one approach to explaining exchange rates simply does not work. For this very reason, economics by itself has had mixed results at best in forecasting exchange rates. The dynamics of the currency market are different from other markets and this should be taken into account.

As we have seen, equilibrium exchange rate models help to provide the framework and the direction for long-term exchange rate analysis, but they are for the most part incapable of being more specific or more accurate over a shorter time frame. In trying to forecast short-term exchange rate moves, it may be necessary to use other tools and even other analytical disciplines. Within this book, there are outside of economics four types of analysis that we will look at for this purpose: flow, technical, risk appetite and market psychology. Depending on what kind of currency market practitioner you are, you may view one or more of these analytical disciplines with some scepticism. This is all to the good, for if someone is to use any form of analysis in their daily business they first have to be convinced that it actually works. We will examine these types of analysis in detail in the first four chapters of this book. For instance, market psychology may be thought of as an excessively vague concept incapable of serious analysis or use, yet this is precisely what the field of "behavioural finance" seeks to explain. How else to explain the fact that political events that do not materially affect economic fundamentals can have *lasting* impact on exchange rates, were it not for the fact that such events changed the "psychology" or "sentiment" of the market? In early 1993, the then US Treasury Secretary Lloyd Bentsen was reported as saying that the Japanese yen was undervalued. This statement and others after it led the market to believe that the US was deliberately seeking to

devalue the US dollar against the yen in order to reduce the huge US–Japan trade deficit. Whatever the reality, the market convinced itself that this was the case and for two years after that statement the yen rose inexorably against the US dollar. Did economic "fundamentals" play a part? Of course they did. Japan's huge trade and current account surpluses with the US meant that for the dollar–yen exchange rate to remain stable Japan had to export to the US the same amount of capital through its capital account deficit. At times when this was not the case, the yen was bound to appreciate and so it transpired. The trigger, the catalyst for this subsequent yen appreciation was however a change in market sentiment or psychology – and it took another change in market sentiment resulting from the new US Treasury Secretary Robert Rubin's call for an orderly reversal of the dollar weakness for that yen appreciation to reverse.

The subject of technical analysis also draws mixed reactions. While widely followed by currency dealers and the leveraged fund community, many corporate officers and investors appear to regard it with scepticism – and many economists look on it as some form of voodoo or witchcraft. Yet technical analysis or "charting" has a strong following not for any ideological reason, but simply because it "works". Like any other form of analysis, there are technical analysts who are highly regarded by the market for their accuracy in meeting their forecasts, and those that are less successful. The appealing thing however for many market practitioners is that technical analysis has targets at all. While there are important exceptions, too many within the economics profession remain content to talk eloquently if vaguely, attaching a multitude of caveats and in sum coming to no conclusion whatsoever. Needless to say, decisions on whether or not to hedge or invest cannot tolerate such imprecision. Where the strength of equilibrium exchange rate models is in providing a long-term exchange rate view, the strength of technical analysis is in predicting the timing of currency moves. In particular, it can be especially effective in predicting when those fundamentally-based long-term trends may take place.

A more recent addition, at least in its present form, to this group of short-term analytical disciplines is "flow" analysis, which involves the tracking of a bank's client flows, again for the purpose of forecasting short-term exchange rate moves. One of the most well-known flow analysis products within the industry is *CitiFX Flows*. The field of behavioural finance has undertaken considerable research into behavioural patterns such as investor herding, which can both be responsible for accelerating short-term trends and also for reversing them. The broad rule of such trends is that the longer they continue the more they become self-fulfilling. This is of course how financial bubbles develop, in whatever kind of market. As the old adage goes, when you find your taxi driver giving you stock tips, it's probably time to get out of the market! We shall look at this recent yet intriguing discipline of flow analysis later in the book.

Most works to date on exchange rates rely purely on "fundamental" analysis, falling back on the traditional exchange rate models. While several of these are notable, most would appear to come up short on two grounds. Firstly, they fail to address the issue of the forecasting inaccuracy of those models. Secondly, few have included other analytical disciplines to try to improve on that forecasting inaccuracy. Crucially, few have tried to see exchange rates from the perspective of the end user of analysis or the currency market practitioner. For those who trade, invest or hedge in the currency market, the bottom line is indeed the bottom line. Fundamental economic analysis is the means, but it is not the end. A key aim of this book is to include other analytical disciplines and also to use a more currency-focused form of economic analysis or as I term it "currency economics", both for the purpose of trying to improve currency forecasting and recommendation accuracy. Using these various disciplines, I would recommend that currency market practitioners adopt an integrated approach towards currency forecasting and strategy

that is both rigorous and flexible. Equilibrium exchange rate models should still be used as the guide for short-term exchange rate trends, but for short-term moves a combination of currency economics, flows, technical analysis, risk appetite and market psychology should be used. Therefore, at its most ambitious this book, ***Currency Strategy: The Practitioner's Guide to Currency Investing, Hedging and Forecasting*** seeks to provide a new and more focused framework for currency analysis and thereafter to apply it to the decision-making process of the currency market practitioner themselves.

The fact that the currency market affects just about every aspect of our economic life is a relatively recent phenomenon. Before 1971–1973, when the Bretton Woods system of pegged exchange rates, which had lasted since 1944, finally collapsed, you would have been laughed at if you had suggested as much. Currency risk was not a primary consideration. Indeed, the last 30 years have marked the first time in monetary history that all major currencies have been freely floating and completely independent of some commodity peg. You could say as a result that we are living in a time of monetary experiment, an experiment that remains the subject of great controversy and debate as to whether or not it has been beneficial or harmful. For my part, I nail my colours to the mast from the outset. I am an unequivocal, unashamed proponent of free trade and free capital markets. There is little doubt that free and open competition carries with it a harsh discipline. Yet, just as there are flaws with that other experiment, democracy, so it can be measured only on a relative basis; that is, it is the worst option, apart from all the rest. Attempts at subsidizing the economy have clearly failed, thus for now free trade and capital markets reign supreme until such time as better alternatives come along. The currency markets are the fuel within the engine of globalization, an experiment that provides the liquidity for the world's markets.

That experiment began more precisely on August 15, 1971 when US President Richard Nixon announced that the US was abandoning its convertibility commitment between the value of the US dollar and gold at the rate of USD35 per ounce of gold. A diplomatic band-aid was subsequently attempted in December 1971 in the form of the so-called "Smithsonian Agreement", but the attempt to keep major exchange rates pegged and shackled finally collapsed in March 1973. As with the ERM crises of 1992 and 1993, the cost of defending a currency peg that was incapable of responding to economic changes was eventually viewed as intolerable. The 1971–1973 period was unquestionably *the* seminal turning point in the development of the currency markets. Subsequently, there were historical events of varying importance, not least the development of the European Monetary System or the "Snake" which was succeeded by the ERM, the various oil crises, the Plaza and Louvre Accords of 1985 and 1987 respectively, and the coordinated G7 effort to achieve an "orderly reversal" of dollar weakness from 1995 onwards. None of these however carried the same weight as that of the second most important event in the recent life of the currency markets, the break-up of the Soviet Union and the ending of the Cold War. The coming to power in the Soviet Union of Mikhail Gorbachev in 1985 was a momentous event, the effects of which are arguably still being felt to this day. *Glasnost* and *perestroika* were primarily viewed as political doctrines of change, but they also reflected significant economic change and not just for the Soviet Union.

The tearing down of the Berlin Wall and the ending of the Soviet occupation of Eastern Europe marked the end of an era of hostility, conflict and subjugation, but it also marked the beginning of the tearing down of global trade and capital barriers. The competition of the future would not be with arms, but instead with trade and economic competitiveness. This most recent phase of globalization is widely thought of as only being three or four years old, but it dates further back to those heady days of hope in the late 1980s, when all things seemed possible

and the prospect of "mutually assured destruction" through nuclear confrontation between the US and the Soviet Union was ended. Purists will argue that there have been previous examples of globalization, notably around the beginning of the twentieth century, an experiment that as we all know ended badly, but for our purposes we focus only on this more recent exercise.

The breaking down of those barriers – firstly those made of brick and subsequently those economic barriers to free markets – triggered an explosion in trade and capital flows, which in turn triggered a parallel explosion in the size of the currency market as the BIS surveys from 1989 to 2001 confirm. At a daily turnover of around USD1.2 trillion a day, the currency market now dwarfs the US stock or bond markets. As the pulling down of trade and capital barriers has led to investors and corporations seeking to expand and diversify in other countries, so the global currency market has been the facilitator of that, and in the process increased in size exponentially.

When the experiment began in late 1971, most economists viewed favourably this newfound exchange rate flexibility. Subsequently, to some, the experiment that started 30 years ago appears to have created a monster. The last decade in particular has seen much talk of a need to bring exchange rates back under control, either through a tax on currency trading (the so-called "Tobin Tax" idea) or a move to re-peg exchange rates, perhaps even using gold as the monetary anchor. From my perspective, while exchange rate volatility is frequently unwanted, empirical studies have noted that over the long term it is lower than equity market volatility and few are trying to shackle similarly the equity markets. Equally, the explosion the world has seen in trade, finance and most of all growth simply would not have taken place were it not for the currency market, acting as the facilitator of that growth.

Whatever one's view on the matter, there is no doubt as to the global effect the currency market now has, nor that currency risk is now a crucial consideration. At the level of the ordinary man or woman on the street, the most obvious expression of this is through travel. When travelling abroad, most people consciously or subconsciously translate "foreign" prices back into their home currency terms to give them a frame of reference. Thus, the price of foreign goods can seem "cheap" or "expensive" relative to the price of the same good in the home country. Economic models can be more effectively explained sometimes through example and analogy rather than through complex mathematical formulae. For instance, Americans generally regard the UK as "expensive". If a New Yorker, who is used to paying a dollar fifty for his morning cappuccino comes to London and has to pay three pounds sterling (USD4.5 at a sterling–dollar exchange rate of 1.5) the UK price is clearly expensive. In our example, the price differential reflects the sterling–dollar exchange rate, the relative supply/demand dynamics of cappuccino in New York and London and the different cost prices. The "law of one price" otherwise known as Purchasing Power Parity suggests that over time the exchange rate between two countries must alter so as to correct any imbalance between the price of the same basket of goods in those two countries. In our cappuccino example, if we use a cup of coffee as reflective of the general price differential for a representative basket of goods between the US and the UK, a combination of a sterling depreciation over time against the dollar and a fall in the domestic London price of cappuccino relative to that in New York should occur in order to narrow the price differential. In theory, this works fine over the long term. Readers will note that in 1992, the sterling–dollar exchange rate was briefly above 2.00. At the start of 2002, it was around 1.45. Over the short term, however, the record of PPP is decidedly more patchy, which is of course no consolation to London coffee lovers or to our New Yorker guest! Relative pricing can be further distorted by other factors such as barriers to trade and different cultural tastes. For instance, some people may not like coffee while to others it may be against

their religion. That said, it holds true that the exchange rate is a key determining factor for how one defines "expensive" or "cheap" in the first place.

The same premise is also evident at the corporate level. When the US dollar was appreciating to multi-year highs against European currencies during the period of 1999–2001, this together with the fact of strong US consumer demand made it very attractive for European manufacturers to export their production to the US at increasingly competitive prices. The strength of the US currency deflated the dollar price of these products, thus making them more competitive and encouraging US consumers to buy more European goods. For US exporters, however, the picture was the opposite, as their exports to Europe became less competitive as the dollar strengthened, reducing their market share or pricing them out of some markets entirely. Thus, the US trade deficit ballooned, not just with Europe, but with the world as a whole, reaching a level of some USD400 billion in 2001. Yet, just as the US trade deficit was expanding, so more competitive exports to the US together with a slowdown in US demand in 2001 forced US manufacturers in turn to cut their prices, reducing inflationary pressures. However, as corporate executives are painfully aware, just as domestic currency weakness can lead to more competitive exports and thus higher profits, causing a benign circle, so a vicious circle can result from domestic currency strength, hurting one's export competitiveness. From the perspective of a European exporter, a weak dollar is not a good thing, as it causes the exporter's prices to rise in dollar terms. At some stage, those higher prices will cause US consumers to buy American instead of European. This will cause the US trade deficit with Europe to shrink, but it will also bite hard into the profits of European exporters.

Exporters are of necessity keenly aware of the importance of exchange rate movements. However, companies that have no exports but simply produce and sell in a single country are also affected. A company that has no direct export exposure and thus thinks itself blissfully exempt from currency risk is in for a nasty shock. As we have seen in the above example, changes in the exchange rate – the external price – cause changes in turn in the *domestic* price of goods and services. Thus, if your currency strengthens against that of your competition, you face a competitive threat – and assuming all else is equal, the choice of either cutting your prices, thus reducing your margin, or losing market share.

Currency movements can also have a profound effect on investing. Fixed income and equity portfolio managers, in investing in another country's assets, automatically take on currency exposure to that country. Frequently, fund managers view the initial decision to invest in a country as being one and the same with investing in that country's currency. This is not necessarily the case for the simple reason that the dynamics that operate within the currency market are frequently not the same as those that govern asset markets. It is entirely possible for a country's fixed income and equity markets to perform strongly over time, while simultaneously its currency depreciates. My favourite example of this phenomenon is that of South Africa. From the autumn of 1998, when the 5-year South African government bond yield briefly exceeded 21%, this was one of the world's most outstanding investments until November 2001. By then, this yield had made a low of around 9.25%, a direct and inverse reflection of the degree to which its price soared over the previous three years. In that time however, the value of the South African rand has fallen substantially from around 6 to the US dollar to almost 14. Here is a clear example where the currency and the bond market of the same country were going in opposite directions over a period of three years! An investor in the 5-year South African government bond in the autumn of 1998 would have seen their excellent gains in the underlying fixed income position over that time wiped out by the losses on the rand exposure. The lesson from this is that currency risk should be an important consideration for asset managers and

moreover one that is managed *separately and independently from the underlying*. Empirical studies have shown that currency volatility reflects between 70 and 90% of a fixed income portfolio's total return. Thus, for the more conservative fund managers, who cannot take such swings in returns but do not take the prudent step of hedging currency risk, it can be the main reason why they stay out of otherwise profitable markets. Conversely, currency risk can also enhance the total return of a portfolio. When the US dollar was falling from 1993 to 1995, this made offshore investments more attractive for US fund managers when translating back into dollars. It was no coincidence that this period also saw a substantial increase in portfolio diversification abroad by this investment community.

There is little doubt that currency exposure can be unpredictable, frustrating and infuriating, but it is not something one has the luxury of ignoring. In John Maynard Keynes' reference to the "animal spirits," that elemental force that drives financial markets in herd-like fashion, he was referring to the stock market. More than most, he should have defined such a term as he was one himself, having been an extremely active stock market speculator as well as one of the last century's most pre-eminent economists. However, he might as well have been referring to the currency market, for the term sums up no other more perfectly. A market that is volatile and unpredictable, a market that epitomizes such a concept as the "animal spirits" surely requires a very specific discipline by which to study it. That is precisely what this book is aimed at doing; providing an analytical framework for currency analysis and forecasting, combining long-term economic valuation models with market-based valuation techniques to produce a more accurate and user-friendly analytical tool for the currency market practitioners themselves. In terms of a breakdown, the book is deliberately split into three main sections with regard to the currency market and exchange rates.

- Part I (Chapters 1–4): Theory and Practice
- Part II (Chapters 5 and 6): Regimes and Crises
- Part III (Chapters 7–10): The Real World of the Currency Market Practitioner

We begin this process with **Chapter 1 (Fundamental Analysis: The Strengths and Weaknesses of Traditional Exchange Rate Models)**, which as the title suggests examines the contribution of macroeconomics to the field of currency analysis. As we have already seen briefly in this Introduction, economics has created a number of equilibrium-based valuation models. Generally speaking, such models try to determine an equilibrium exchange rate based on the relative pricing of goods, money and trade. In turn, this concept of relative pricing can be broken down into four main types of long-term valuation model, which focus on international competitiveness, key monetary themes, interest rate differentials and the balance of payments. I would suggest that while such equilibrium exchange rate models are an indispensable tool for analysing long-term exchange rate trends, their predictive track record for short-term moves is mixed at best. Moreover, as we noted above, they are based on the concept of an equilibrium, which rarely exists in reality and if it does exist is in any case a moving target. This is in no way to attempt to downplay the immense contribution that economics has made to currency analysis, rather it is to emphasize the different focus of the two disciplines. Whereas economics seeks to determine the "big picture", currency analysis seeks specific exchange rate forecasts over specific time frames. Neither is "better" or "worse". They are merely different analytical disciplines responding to a different set of requirements. In the very act of attempting practical modifications to the classical economic approach towards exchange rates, one pays homage to the original work.

Precisely because currency markets are affected by so many different factors, it has proved an extremely difficult (if not impossible) task for economists to design fundamental equilibrium models with predictive capacity for exchange rates for anything other than the long term. Thus, **Chapter 2 (Currency Economics: A More Focused Framework)** seeks to go beyond these theoretical models outlined in Chapter 1 to capture those elements of economics relevant to the currency market and tie them into a loose analytical framework capable of giving a more relevant and accurate picture of short- and medium-term currency market dynamics. Whereas the classical economic approach has been to start with general economic rules and impose them on exchange rates, the emphasis here is to start with the specific currency market dynamics and use whichever aspects of economics are most appropriate to these, as characterized by the label "currency economics". The attempt here is not to create or define a new economic discipline, but instead to use the existing qualities of economic and other analytical disciplines to create a framework of exchange rate analysis that is more relevant and useful for currency market practitioners.

For this purpose, we cannot rely on economics alone. As we analyse the specific dynamics of the currency market we see that other analytical disciplines may also be relevant. In **Chapter 3 (Flow: Tracking the Animal Spirits)** we look at the first of these, namely that of "flow" analysis. It is interesting to note that where once this discipline was not even recognized as having worth, it is now at the forefront of financial analysis. As barriers to trade and capital have fallen over the last three decades, so the size and the *importance* of investment capital has grown exponentially. While the classical approach has traditionally taken the view of the efficient market hypothesis, namely that information is perfect and that past pricing holds no relevance in a market place where all participants are rational and profit-seeking, there have been a number of recent academic works looking at how "order flow" can in fact be a crucial determinant of future prices. Thus Chapter 3 seeks to take this view a stage further and look at using order flow – that is the sum of client flows going through a bank – as a tool for forecasting and trading exchange rates.

The tracking of capital flows of necessity involves looking for apparent patterns in flow movement. Linked in with this idea is the discipline of tracking patterns in price. This discipline is that of technical analysis. While the economic community appears to have finally taken the discipline of flow analysis to its heart, there remains considerable resistance to any similar acceptance of technical analysis. **Chapter 4 (Technical Analysis: The Art of Charting)** looks at this discipline, how it evolved and how it professes to work. Whatever the scepticism and criticism of this discipline, the reality is that flow and technical analysis have succeeded to a far greater degree where equilibrium exchange rate models have failed in seeking to predict short-term exchange rate moves. Technical analysis has come a very long way, even to the point where some market practitioners base their investment decisions solely on the basis of technical signals. Several public institutions have sought to investigate the phenomenon of technical analysis and why it works, including no less than the Federal Reserve Bank of New York. The reasons vary from market herding patterns, as noted by the field of behavioural finance, to economic and financial cycles matching each other. Whatever the case, the results of technical analysis are impressive, enough to persuade investment banks and hedge funds to trade off them.

Having looked at flow and pricing patterns in Chapters 3 and 4, it is also important to examine the structural dynamics that determine those patterns, which is the focus of Chapters 5 and 6. Currency markets are widely viewed as volatile, yet there is also the perception that a clear differentiation can be made between "normal" and "crisis" trading conditions. The structural

dynamics of the currency market can determine when and how this differentiation occurs. A key structural dynamic concerns the type of exchange rate regime, which can significantly distort both fundamental and technical signals. Thus, in **Chapter 5 (Exchange Rate Regimes: Fixed or Floating?)** we look at how the type of exchange rate regime can have potentially major impact on the business decisions of currency market practitioners. To most modern-day readers, at least those within the developed markets, the exchange rate norm is and has always been freely floating. While this is now true for the most part within the developed markets it is not so much the case in the emerging markets where the series of currency crises in the 1990s would appear to confirm that the type of exchange rate regime remains a pertinent issue for investors and corporations alike. This chapter takes a brief but illuminating look at the history of exchange rate regimes, noting a clear trend within the dynamic tension between governments and the market place towards either completely freely floating exchange rate regimes or hard currency pegs since the break-up of the Bretton Woods system in 1971–1973. There remains a rich debate within academia as to the optimal currency regime, with free market ideologues calling for freely floating exchange rate regimes as the only solution in a world of free and open trade and capital markets, while at the other end of the spectrum some still call for a return to fixed exchange rates. Where there appears at least some degree of agreement is the idea that within these two extremes semi- or "soft" currency peg regimes are no longer appropriate in a world without barriers to the movement of capital. We touch on this academic debate only for the purpose of seeing how the issues are relevant for currency market practitioners. Indeed, to round off the chapter, we look at the issues of "exchange rate sustainability" and the "real world relevance of the exchange rate system", noting points that currency market practitioners should be on the lookout for with regards to the relationship between the exchange rate regime they are operating under and the specific currency risk they are exposed to.

The implicit assumption in Chapter 5 is that "normal" trading conditions apply. Yet, within currency markets, there are periods of turbulence and distress so extreme that the dynamics of "normal" trading conditions may no longer apply. Logically enough, we term this hurricane or typhoon equivalent in the currency markets a "currency crisis". As with our meteorological counterparts, currency analysts have tried to examine currency crises in order to be able to predict them. As with hurricanes, this is no easy task. **Chapter 6 (Model Analysis: Can Currency Crises be Predicted?)** takes a look at the effort by the economic community to model and predict currency crises. For the reason that I have worked on this subject for some years, I enclose my own effort entitled the Classic Emerging Market Currency Crisis (CEMC) model, which looks at the typical emerging market *pegged* exchange rate regime. In addition, I enclose a model focusing on the "speculative cycle", which takes place in *freely floating* exchange rate regimes. Here, I make no claim to a definitive breakthrough. However, I do feel these two models capture the essential dynamics of the currency crisis on the one hand and the currency cycle on the other. The emphasis in this chapter is on the emerging markets for the most part, largely because ever since the 1992–1993 ERM crises the developed markets have no longer presented such easy targets. All major developed market exchange rates have been freely floating, and the 15% ERM bands in the run up to the creation of the Euro on January 1, 1999 were sufficiently wide to eliminate the risk of a repeat attack on the mechanism. Under freely floating exchange rates, currency crises take on a different form and are more reflective of a loss of market confidence rather than an actual crisis involving a pegged exchange rate, which ultimately involves desperate and futile defence followed by de-pegging and devaluation.

One could well argue that one of the prerequisites for developed country status is a freely floating currency, though to be sure the creation of the Euro somewhat clouds the issue. In any

case, the emerging markets have provided a rich if unwanted source of currency crises to study, including those of Mexico (1994–1995), Asia (1997–1998), Russia (1998), Brazil (1999) and most recently Turkey (2001). Needless to say, following these violent and destructive events the attempt at generating models able to predict currency crises has been greatly accelerated, albeit with mixed success to date.

In Chapters 5 and 6, we have looked at exchange rate regimes, how they might affect currency risk and in turn how they might drive the ultimate expression of currency market tension, the currency crisis. In Chapters 7–10, we again seek to take the study of currency markets to the next level and try to apply many of the lessons that we have learned to the real world of the currency market practitioner. The first chapter in this section, **Chapter 7 (Managing Currency Risk I – The Corporation)** looks at how the multinational corporation should manage currency risk. Before looking at currency hedging strategies and structures, we first have to establish what kinds of currency risks exist. For the multinational corporation, there are three types of currency risk or exposure: transaction, translation and economic, each of which requires a different approach. As with some investors, there are corporations ideologically fixated with the idea of not hedging. Others focus on the "natural" approach to hedging through the matching of currency assets and liabilities. There is an understandable desire on the part of some corporate executives to leave the issue of currency risk to the likes of currency dealers and speculators and to "just get on with the company's underlying business". Unfortunately, few things in life are as simple as one would like them. Whether it likes it or not, a corporation that has currency exposure is by definition a currency market practitioner. It may not seek to manage currency risk but even by doing so it is taking an active decision. *There is no opt-out with regards to currency risk or exposure*. Fortunately, most major corporations have realized this and have gone to great effort to establish sophisticated Treasury operations. There are still some who hold out, and in any case even for these "progressives" there remains work to be done in developing and maintaining skill levels to match those of their currency market counterparties. Finally, after establishing what currency risk should be managed and why, we shall look at the "how" by examining such concepts as optimization, balance sheet hedging, benchmarks for currency risk management, strategies for setting budget rates, the corporation and predicting exchange rates and a menu of advanced hedging strategies.

The worlds of the corporation and the investor may seem very different on the face of it, but in fact they are very similar in a number of ways. Both view currency risk as an annoyance and indeed there remain some on both sides who refuse to acknowledge it exists. Still to this day, I come up against investors who have an almost ideological aversion to the idea of managing currency risk. For the most part, this is on the view that investing in a country is equivalent to investing in that country's currency. If **Chapter 8 (Managing Currency Risk II – The Investor)** succeeds in nothing else than to disabuse readers of such a view, then it will have succeeded utterly and entirely. The case of South Africa already mentioned in this Introduction may be seen as an extreme example, but it is far from unique. The structural dynamics of asset market risk and currency risk are fundamentally different, and thus they should be managed separately and independently. This is not to say that they have of necessity to be managed by different people. However, the crucial point to be made is that these risks should be managed differently and separately from one another, reflecting those different dynamics. When pressed, both the investor and the corporation for the most part seek defensive strategies, which can manage currency risk by reducing that exposure, limiting the vulnerability of either the income statement or the portfolio. Indeed, readers will note that some strategies mentioned in Chapters 7 and 8 are interchangeable between the corporation and the investor. Thus, in this chapter,

we will take a look into the world of the sophisticated institutional investor and how they manage currency risk. As with the corporation, investors can choose both passive and active currency risk management approaches for this purpose. Investors can also use optimization as an important risk management tool, and the setting and use of currency benchmarks is a further similarity. For both, the bottom line is that the currency exposure should be managed in such a way as to limit any reduction and potentially enhance the total return.

The third set of currency market practitioners that we will examine is on the one hand the largest grouping within the currency market and on the other the most misunderstood – the currency "speculator". For many, the very term triggers an instinctive reaction, frequently one that is far from positive. For our purpose here, I define currency speculation as the *trading of currencies with no underlying attached asset within the transaction*. Clearly, such a definition is inexact, but it provides nonetheless a useful framework with which to analyse the subject. **Chapter 9 (Managing Currency Risk III – The Speculator)** takes a look at the fascinating but much misunderstood world of the currency speculator, how it works and how to be a better speculator! Speculators have periodically been demonized by governments of the developed and emerging countries alike, frequently in the wake of violent currency crises. Such crises are however rarely caused by speculators, who are I would contend a symptom rather than the disease itself. Indeed, in some cases speculation can actually be the cure, as when sterling was ejected from the recessionary shackles of the ERM in September 1992, only for the UK economy to recover strongly thereafter. Speculation can be both a positive and a destructive force, but its intention is neither, rather to make a profit. In this, it is neither moral nor immoral, but rather amoral.

Currency speculation does not take place within a vacuum, but instead is a market and indeed a human response to changes in ordinary fundamental and technical dynamics. For the most part, currency speculators follow the same economic and technical analytical signposts as corporations and investors. On occasion, both investors and corporations can act as currency speculators. The term is certainly not limited to dealers or hedge funds. Moreover, currency speculators generally provide exchange rate liquidity for the more productive elements of the economy. It is my hope that readers of whatever hue will find this chapter both interesting and informative, concerning a subject, which deserves at the least a chapter of its own if not an entire and separate book. Undoubtedly, the issue of currency speculation is likely to remain controversial for the foreseeable future. The aim here has been to take out some of the emotional aspects of the issue and try to look at it coolly and dispassionately.

Speculators can accelerate change but they cannot cause it in the first place. Moreover, speculation provides a valuable need for the rest of the market in the form of liquidity. Yet, speculation also remains only one part of the overall picture of the currency markets. As the title might suggest, **Chapter 10 (Applying the Framework)** seeks to bind together all the strands of thought that we have looked at up to now into a coherent framework for analysing the currency markets. One can have a reasonably informed idea about the prevailing currency economics, the technical picture and the flows, but it is only by combining those that one sees the whole picture and therefore can come to an informed decision about how to manage currency risk. For this purpose, I use a very simple "signal grid", which combines the individual signals of currency economics, technical analysis, flow analysis and long-term equilibrium model valuation, into a combined currency view. The signal grid should provide an informed view as to exchange rates but at its most basic it will only say "buy" or "sell". What it cannot do is to suggest the type of currency instruments or structures needed. For that, we need to apply the combined result of the signal grid to the currency market practitioner's own risk profile. For

both the corporation and the investor, their risk profile is a function of their tolerance of the volatility of their net profit or total return.

In addition, as mentioned in the Preface to this second edition, I have added to part III a **Chapter 11**, entitled **Emerging World: New Growth Markets for Global FX**, which looks at the explosive growth potential across Emerging Markets, but particularly in Asia.

No book should claim it can by itself make the reader an expert in its subject. Rather, this is a book aimed at those who are already experts in their own respective fields, whether that it is in fixed income or equity investment, managing multi-billion dollar corporations, or trading currency pairs such as Euro–dollar or dollar–rand. The purpose therefore of this book is to help these experts become more proficient in currency risk management to the extent where it makes a real and measurable difference to their bottom line. In sum, this book aims a lot higher than most written to date on exchange rates. I leave it to the reader to decide whether or not it has succeeded in this regard.

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