FOREX FOR BEGINNERS

A Comprehensive Guide to Profiting from the Global Currency Markets

Adam Kritzer

Apress®

Forex for Beginners: A Comprehensive Guide to Profiting from the Global Currency Markets

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ISBN-13 (pbk): 978-1-4302-4050-1

ISBN-13 (electronic): 978-1-4302-4051-8

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To Lili and Ethan

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About the Author

Adam Kritzer is a professional writer, investor, and former investment banker. He first began analyzing currencies in 2004, as the inaugural writer for the *Forex Blog* (http://www.forexblog.org/). His goal was to provide an alternative method for analyzing currencies. What began as a basic overview of relevant news stories has since evolved into what is the web's premier source for fundamental analysis of the currency markets. His work has been cited by Dow Jones, and his articles have been published in media outlets as diverse as the *Wuhan Evening Post* and *Mergers & Acquisitions Journal*. A native of Philadelphia, Pennsylvania, Adam holds a BA in Economics and East Asian Studies from the University of Pennsylvania. He is fluent in Mandarin Chinese and currently resides in Yunnan, China, with his wife Lili and son Ethan. When he's not analyzing currencies, he's probably out hiking or gardening.

Acknowledgments

It’s a pleasure for me to acknowledge the contributions of many people to this book. From my parents and teachers, I first developed an interest in economics, which ultimately guided my approach to analyzing the currency markets. I am indebted to Andy Hagans for taking a chance and hiring me as the inaugural writer for the *Forex Blog*, and to Aaron Wall for continuing to invest in the website and support my approach in the years that followed. I’d like to thank Jeff Olson of Apress who first proposed that I write this book, and to Morgan Ertel, Rita Fernando and the rest of the team at Apress including Jill Balzano, and Joanna Meekins for shepherding this book through the writing and editing process. Finally, I am eternally grateful to my wife Lili for her patience and support during the lengthy period I spent laboring on this book.

Preface

A friend recently asked for my advice; his multinational employer was temporarily relocating him from the United States to the Netherlands. Furthermore, his salary would no longer be paid in US dollars, but in euros. His quandary was such that, while his long-term finances were denominated in dollars, he would still need to maintain a local supply of euros to fund living expenses. What would be the best method, he wondered, for minimizing any foreign exchange losses upon his eventual return to the United States? The answer to this question, I informed him, could easily fill a few hundred pages.

This book is albeit less concerned with personal money management and is really about a type of financial investing. My interest in writing it—and certainly, your interest in reading it—follows from the idea that it is possible to *actively profit from* fluctuations in exchange rates. Nonetheless, the fact of the matter is that foreign exchange is an integral component of the global economy and its influence is felt daily by businesses, governments, and individuals such as you, me, and my perplexed friend. I firmly believe that the principles upon which I will expound in the following pages can be applied not only to forex trading, but to issues as mundane as the foregoing one.

I'll begin by offering an overview of how the forex market has historically operated and explain how it differs from some of the other financial markets, in both positive and negative respects. After a brief discussion of history, I will move directly into the forces that cause exchange rates to fluctuate. There will be an overview of trading strategies and an in-depth discussion of the various analytical tools that investors can use to develop such strategies. I will explain how to choose a broker and open an account, and conclude with some commonsense wisdom on avoiding certain pitfalls and maximizing your odds of success in the forex market. Throughout the entire book, examples are both abundant and topical to make the presented concepts more concrete. Given that this book was written from 2011 to 2012, there will be a special emphasis on the credit crisis, as well as on the years that preceded and followed it.

Before I get into the nuts and bolts of forex, I want to offer a brief caveat: this book should not be filed under the domain of get-rich-quick schemes. There is no undiscovered opportunity and certainly no free lunch in forex. There are no magic formulas, no risk-free trading systems, and no guarantees of instant profits. The global currency market is by far the largest financial market in the world. Participants are savvy, and competition is fierce. To achieve success in forex trading requires the same dedication and hard work that it takes to succeed in one's normal professional life.

That being said, there are many aspects of forex—to be explained in great detail—that distinguish it from other asset markets and make it an attractive alternative for jaded stock market investors.

This book is intended to fill a void in existing financial literature. Most forex primers tend to devote tremendous space to technical analysis—the study of charts and price patterns—and are almost completely lacking in context. They posit that high-frequency, short-term trading is the only viable method for generating enough profit to sustain oneself as a full-time trader. For a number of reasons, however, the chances of succeeding with this strategy are extraordinarily low, and the majority of such traders tend to fail fast and fail big.

This book, in contrast, will probe more deeply into the currency markets and introduce a broader-based approach to forex trading. Readers can expect to obtain both a concrete understanding of what makes forex different from other financial markets and the ability to craft specialized strategies to profit from it. To the silent majority of readers that are interested in forex for the potential to earn supplemental income, for portfolio diversification, or merely as a hobby, this book is for you.

Introduction

Forex is short for foreign exchange and refers simply to the conversion of one currency into another. Currency exchange is vital to the functioning of the global economy. Goods that are produced in one country and sold in another necessitate currency conversion. Consider, by way of example, that the popular iPhone is assembled using components from at least five countries and is exported to no fewer than 87 countries.[1] Given that Apple accounts for its earnings and pays dividends in US dollars, payments to suppliers and the repatriation of profits will require nearly a hundred separate foreign exchange transactions for only this one product! When you apply this notion to the whole of the global economy, you begin to understand the scope of currency exchange.

In fact, average daily turnover in the forex markets now exceeds $4 trillion. Spot trading in the USD/EUR alone represents $400 billion—enough to earn it the designated status of most traded financial asset in the world. By comparison, the NYSE and Nasdaq combined account for perhaps $150 billion in daily equities volume. Global foreign exchange volume has doubled over the last six years, while equities volume has stagnated. Of course, this isn't an apples-to-apples comparison, but the point stands that the forex market is truly massive.

Meanwhile, the retail penetration of forex is minimal. As I will explain in due time, while many stockbrokers, bond brokers, and options brokers are all now household names, retail forex brokers tend to be small and specialized and have very little brand recognition outside of the forex niche. Ever heard of Charles Schwab or E-Trade? How about FXCM or Gain Capital, two of the industry leaders in retail forex? Case in point.

This contradiction is amazing to behold. It also partially explains the tremendous retail growth in forex over the last few years and the inevitable continuation of this growth over the next decade. Simply, it seems that forex trading has moved from a dark corner of the financial universe into the mainstream. An opportunity that has long been ignored by the majority of individual investors has been brought to the foreground, and the battle to profit from it has begun.

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[1] Yuqing Xing and Neal Detert, "How the iPhone Widens the United States Trade Deficit with the People's Republic of China," (*ADBI Working Paper* 257, Asian Development Bank Institute, December 2010),www.adbi.org/files/2010.12.14.wp257.iphone.widens.us.trade.deficit.prc.pdf.

PIPs and Interest

So how do you make money trading forex? With most assets (the notable exception being commodities), there are two sources of profit: *rents* (in economics terminology) and appreciation. In the case of equities, that refers to a rise in the stock price and the receipt of periodic dividend payments. With bonds, it's rising bond prices (also known as falling interest rates) and the receipt of interest. With real estate, it's home price appreciation and rental income. With currencies, it's appreciation and interest income. Simply, forex traders generate profit by selling a currency for a more favorable exchange rate than they paid to buy it, and by capturing interest in the interim.

Exchange rates are quoted to at least four decimal places, and the smallest unit—equivalent to 1/10000th of one unit of currency—is referred to as a *PIP*, which is short for *percentage in point*. Forex traders will typically brag about how many PIPs they cleared on a trade, which is just another way of accounting for how much profit they earned.

Currency traders also earn interest on their open positions. For example, if the interest rate associated with one currency (i.e., the approximate rate paid on a savings account in the country where that currency is used) is higher than the corresponding rate for a second currency, a trader can earn interest on the difference by selling the second against the first. To make this example more concrete, let's imagine that the current Eurozone interest rate is 5% while the corresponding US interest rate is only 1%. By buying the euro against the US dollar, you can effectively earn interest at an annualized rate of 4% (the difference between the two rates). Of course, the reverse is also true, as you would be charged interest on a long position in the dollar, against the euro. Ultimately, any positive interest income will either supplement or offset any gains or losses, respectively, from exchange rate fluctuations.

Liquidity, Simplicity, and Convenience

While the $4 trillion in daily forex market turnover is spread over a variety of different instruments and hundreds of unique currency pairs, its liquidity is still nothing short of immense. In practice, that means you can enjoy the ability to move into and out of positions instantaneously and at low cost. In addition, since trading takes place in many different trading centers and involves many different broker-dealers, the forex markets are basically immune to market manipulation. To be sure, there is unscrupulous activity in forex just as there is unscrupulous activity in stocks, but because of its size and structure, it is nearly impossible for individual traders to influence the market and/or profit from inside information. At this point, is there really anyone who believes that the same can be said about the stock market?

One of the peculiar features of forex is that there is never a bear market. That's not to say that currencies can't decline dramatically over a prolonged period of time. Rather, it means that when one currency is falling, another one is necessarily rising. When stocks are stagnating—as they have for most of the last decade—there is very little that long-term investors can do. Some intrepid traders will turn to shorting, but this is risky and complicated. In contrast, a forex bear market in one currency will create opportunities in another. Those that believe that the US dollar is due to depreciate, for example, need not sit around and twiddle their thumbs. They can turn to the euro or Japanese yen or an emerging currency, such as the Chinese yuan or Brazilian real.

Currencies also compare favorably to equities in terms of simplicity. There are tens of thousands of equities. To be thoroughly fluent in a single equity requires complete dedication and constant vigilance. As you can see from Table I-1, however, the overwhelming majority of currency transactions are conducted in less than a dozen currencies. The US dollar and euro alone are represented in more than half of all trades.

Table I-1. Currency Distribution of Global Foreign Exchange Market Turnover (%)[2]

Currency	2001	2004	2007	2010
US dollar	89.9	88.0	85.6	84.9
Euro	37.9	37.4	37.0	39.1
Japanese yen	23.5	20.8	17.2	19.0
British pound	13.0	16.5	14.9	12.9
Australian dollar	4.3	6.0	6.6	7.6
Swiss franc	6.0	6.0	6.8	6.4
Canadian dollar	4.5	4.2	4.3	5.3
Hong Kong dollar	2.2	1.8	2.7	2.4
Swedish krona	2.5	2.2	2.7	2.2
New Zealand dollar	0.6	1.1	1.9	1.6
Other	15.6	16.0	20.3	18.6

To be fair, there are 45 different combinations in which the 10 currencies in Table 1-1 can be exchanged, but there are certain mathematical and psychological truisms that ensure a tight correlation between many of these pairs. Besides, the fact remains that a small overall number of individual currencies and currency pairs means that tracking the currency market is inherently more manageable than following any other financial market. One need not resort to following market indices or sector indices; it is reasonable to be able to follow the currencies themselves.

Then there is the aspect of convenience. Because currencies trade on different exchanges around the world (unlike most other securities, which tend to trade on a single exchange or a cluster of exchanges all located within a tight geographic region), it is possible to trade 24 hours a day, 6 days a week. When the market in Sydney opens on Monday morning, it is still only 6:00 p.m. (EST) on Sunday in the United States. An hour later, the market in Tokyo opens, followed by Singapore, Frankfurt, London, and then New York City.

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[2] Bank for International Settlements, *Triennial Central Bank Survey: Foreign Exchange and Derivatives Market Activity in April 2010*, September 2010, www.bis.org/publ/rpfx10.pdf. Because two currencies are involved in each transaction, the sum of the percentage shares of individual currencies totals 200% instead of 100%.

Moreover, all forex brokers will automatically pull quotes from and execute trades on whichever trading centers happen to be open at any given time. As you can see from Figure I-1 that means that you can execute a currency trade at any time from Sunday night to Friday afternoon using one portal. For those who work from 9:00 a.m. to 5:00 p.m. and don't enjoy the time constraints that are imposed by equity and bond markets, this is an invaluable benefit.



Figure I-1. Forex hours of operation (US Eastern Standard Time)

The final set of forex benefits are conferred directly by forex brokers. First, there is leverage. Currencies tend to trade in lots of 100,000, which is unaffordable and unattractive for most retail traders. As a result, all brokers offer the ability to trade on margin. In a nutshell, that means that you can plunk down as little as $2,000 (previously, only $500!) for a $100,000 trade. Of course, with the potential for outsized profits comes the risk of massive losses. As I'll explain later, then, this perk is also a pitfall.

Finally, there is the fact that forex trading is basically commission-free. Generally speaking, there are no transaction fees associated with exchanging currencies. Instead of earning money from trading commissions, brokers profit from the spread—the gap between the rate at which a currency can be bought and then later sold. (Brokers for other securities always charge a commission, on top of the spread that is earned by the *market-maker*, whose job it is to match up buyers and sellers.) Those of you who have exchanged currency at the airport have probably taken note of the exorbitant spreads of 5%–10% that are charged by foreign exchange dealers there.

In contrast, retail forex brokers are able to offer spreads of only 1–3 hundredths of one cent for popular currency pairs. For example, to buy the euro against the US dollar might cost you $1.4503 but you might only receive $1.4501 if you tried to convert the euros back into dollars. That .0002 basically represents the broker's profit. It might not seem like much, but when you multiply that by 100,000 units (per lot) and consider that many traders churn their accounts repeatedly, you begin to understand why retail forex brokers earn significantly more money per account than their counterparts in equities trading. For those that practice the trading approach advocated in this book, you will find that spreads will come to represent only a small portion of your *profits and losses (*P&L).

Complexity, Competition, and Volatility

While I hope you will excuse me for dwelling on the benefits of trading forex, I don't want to ignore the drawbacks. First of all, competition in forex is fierce. The fact that retail penetration is so slight means that professional traders and financial institutions dominate trading. They are well-capitalized, have access to sophisticated research and rich data streams, and often have developed complex algorithmic trading systems that can make split-second decisions designed to outsmart other traders. To avoid becoming a victim in forex, then, you must practice the same dedication and vigilance that only a second ago I told you applied principally to equities. In order to profit consistently, you will also need to develop meaningful strategies based on a solid understanding of the markets.

Moreover, forex is a zero-sum game. One could plausibly make the case that in a bull market, all equity investors will profit across-the-board. Credit market investors that hold their bonds to maturity similarly all end up with more money than they started with, thanks to interest payments. The same cannot be said for forex. An increase in one currency must be offset by a decline in another currency. If you make money on your EUR/USD bet, it means that someone else necessarily lost money on his USD/EUR position. Without accounting for transaction costs (i.e., spreads), only half of all forex trades will lead to

a gain. Any profits are earned at the expense of another trader's losses. As a result, only about 30% of retail forex trading accounts are profitable.

In addition, the forex markets can be just as volatile as mainstream financial markets. With the inception of the global financial crisis, for example, market gyrations caused some currencies to lose a significant portion of their value in only a few months. Figure I-2 shows the double-digit declines in the New Zealand dollar and Brazilian real that took place shortly after the collapse of Lehman Brothers in October 2008.



Figure I-2. Impact of 2008 financial crisis on forex markets

Finally, while the number of currency pairs is small, the factors that drive their movements are various and often quite complicated. Generally speaking, economically strong countries have proportionally strong currencies, but the reality is much more nuanced. To understand what moves currencies requires a firm grasp of economic theory, financial trends, market psychology, technical factors, and even politics. For some aspiring traders, this is simply too much to ask. For others that are overwhelmed by the forex data deluge but are still attracted to its breadth, it's possible to develop a streamlined approach. In short, one must choose whether to be a forex *trader* or a forex *investor*.

Investing Versus Trading

For those with some previous exposure to forex, you may be under the impression that *forex investing* is an oxymoron. And with advertisements promoting 50:1 leverage, profits measured in cents, and so-called commission-free trading, you can certainly be forgiven for holding that belief.

Anecdotally, it does indeed seem that the majority of those active in the forex market fall into the category of *trader*. What do I mean by this? In a nutshell, forex traders have very short time horizons and aim to generate only a modicum of profit per trade. The goal is to magnify gains through the use of leverage and/or dozens (or even hundreds) of trades per day. Traders pay very little attention to the news (and even then, only for the purpose of planning coffee breaks) and focus instead on market psychology—on the ebbs and flows in market sentiment that drives second-to-second and minute-to-minute fluctuations. Instead of trafficking in terms like *gross domestic product* (GDP) and *inflation*, traders ply their trade with charts. Instead of models that are based on economic variables, they rely on technical analysis to discern barely perceptible patterns in exchange rates, with the intention of profiting from them before the majority of other traders discover them.

I don't have to tell you that forex trading is more difficult and more stressful than forex investing. With

such short time horizons, there is intense pressure to time trades perfectly. In addition, the algorithms used by financial institutions are becoming increasingly adept at performing this same kind of analysis, and high-frequency trading is rapidly colonizing the forex markets in the same way that it came to dominate the other financial markets. It should come as no surprise then that a recent study by the Federal Reserve Bank concluded that the profitability of forex trading (as distinct from forex investing) is declining.[2]

It's fair to say that my personal approach leans toward *investing*. That means that I have a longer time horizon and that I prefer fundamental economic and financial analysis to the technical analysis that is based solely on charts and price patterns. The time horizon for investors is necessarily longer than it is for traders, and is typically measured in weeks, months, or years. While exchange rates should revert to the mean over the long-term, multiyear rallies are not uncommon. There are certain strategies that will theoretically allow you to check your forex portfolio only once a week, as you would with a portfolio of stocks and bonds.

The downside to this approach is that overall profit tends to be smaller, and it's more suitable for padding your retirement account than as a means of generating substantial income. In addition, since currencies don't directly pay dividends, a buy-and-hold strategy probably won't generate the same returns as a similarly value-oriented approach to equities investing.

Thus, the approach to the forex market that I have come to espouse is *swing trading*, or *trend trading*. This approach aims to blend the best aspects of technical and fundamental analysis, and of trading and investing. The time horizon is three to six weeks, and a small amount of leverage can be applied. The goal is to spot severe fundamental mis-valuations, and to profit from them with the aid of technical analysis.

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[2] Christopher J. Neely and Paul A. Weller, "Technical Analysis in the Foreign Exchange Market" (Working Paper 2011-001B, Federal Reserve Bank of St. Louis, January 2011), http://research.stlouisfed.org/wp/2011/2011-001.pdf.

You can see from the euro/dollar chart below (Figure I-3) how many such opportunities for profit existed over the nine-month period of time depicted therein.



Figure I-3. Volatility in EUR/USD creates opportunities for profit

In the first four months of 2011, the euro appreciated from 1.29 to 1.49 against the dollar, a gain of nearly 15%! While perfectly timing the trough and the peak of this rise would have been nearly impossible, there were several excellent entry and exit points along the way, all of which would have yielded solid profits.

It is common for currencies to appreciate or depreciate by about 10%–15% per year. From the two-year period that began in the fall of 2008 and ended in 2010, changes of 30%–40% were not uncommon! For those with truly long-term time horizons (more than six months) and good foresight, trading these spikes may generate impressive returns.

If your approach to the forex market is slightly more aggressive, a shortening of the investing time horizon from months to weeks can generate stellar returns, without any of the risk that comes from making multiple trades per day. That's because the second half of the nine-month period displayed in Figure I-3 is probably more typical of forex markets. Those with a buy-and-hold approach that entered the euro/dollar trade in May 2011 would have netted a return of near 0%, without accounting for interest. In that kind of environment, the only way to generate PIPs would have been to buy and sell the spikes and dips that take place over a matter of mere weeks.

Developing Realistic Expectations

As I underscored in the preface, the forex approach advocated herein is intended to yield modest, steady profits. Currency pairs will typically rise or fall by about 10%–15% over any twelve-month period, and a back-of-the-envelope estimate suggests that total fluctuations (the sum of all substantial spikes and dips) might approach 80%, or about 7% each month. Given that perfect timing is difficult and that for every three trades, one trade will probably lose money, I think it's reasonable for a successful trader to expect a monthly return of 2%, or an annual return of 25%.

Some months will undoubtedly be better than others, and returns will be impacted by interest and leverage. Even with good luck and hard work, returns are likely to be modest. Using these numbers as a starting point, an investment of $50,000 could yield an annual return of $12,500 for a successful trader. This is certainly nothing to scoff at, but likewise, it probably isn't a basis for turning forex into a full-time pursuit.

CHAPTER

1

Historical Background
The Historical Development and Modern Structure of Foreign Exchange

While the history of foreign exchange is almost as long as civilization itself, one need only go back as far as 1944 to unearth the foundation of the modern structure of foreign exchange. Having witnessed the Great Depression and two world wars, global leaders were naturally anxious to bring about stability, and the creation of a new economic and financial system was an important step toward that goal.

With that in mind, the *Bretton Woods Accord* was drafted and signed by all 44 members of the Allied Nations. (It was later acceded to by Japan, Germany, and the rest of the defeated Axis Powers.) As the United States had already begun to establish itself as the world's preeminent economic power, it was decided that the US dollar would become the backbone of the new system of foreign exchange. The dollar was pegged to gold (at an initial price of $35/ounce), and all other currencies were in turn pegged to the US dollar. The world's central banks were then tasked with buying and selling dollars so as to limit their respective currencies from fluctuating by more than 1% in either direction.

In order to foster cooperation and stability, the Bretton Woods Accord also mandated the creation of the International Monetary Fund (IMF) and the precursor to the World Bank. The IMF was charged directly with carrying out a radical new financial system. Basically, members of the IMF were required to make *subscription* payments (in the form of gold and domestic currency) in proportion to their economic size. In return, they were granted voting rights, also in proportion to the size of their economies. As exchange rates naturally fluctuate in accordance with changing patterns in trade and economic growth, the IMF was endowed with the power to make loans to central banks, for the purpose of maintaining exchange rate stability. The World Bank, meanwhile, was charged with making loans to countries that were struggling economically and using its capital base to promote reconstruction and development in the wake of the devastation caused by the Second World War.

Bretton Woods II

Alas, the Bretton Woods system proved to be untenable. Due to an economic rebalancing (namely, the rapid post-war recovery of Germany and Japan), it became increasingly difficult to maintain the exchange rate pegs to the US dollar. This was further complicated by differing rates of inflation, and the swinging of the US trade balance from surplus to deficit. In 1968, the IMF tried to head off the impending crisis by creating so-called *Special Drawing Rights* (SDRs), a supranational currency that would be denominated in gold and a basket of constituent currencies. Member countries were automatically allocated SDRs in proportion to their subscriptions to the IMF, and could use them to stabilize their currencies in lieu of buying and selling US dollars.

Only a few years later, however, it was already apparent that this system had failed to address the massive imbalances, at the heart of which was the overvaluation of the US dollar relative to the price of gold. Then-President Richard Nixon responded by raising the price of gold (devaluing the US dollar) and imposing import controls designed to prevent further capital flight. Most importantly, he limited its convertibility, so that US dollars could no longer be exchanged directly for gold. This was a major historical development, as there was now nothing more than faith in the US government and a written declaration on the currency bills that guaranteed the worth of the US dollar.

As President Nixon did little to rein in spending on the Vietnam War and domestic social programs, however, the glut of dollars continued to expand inexorably. It soon became impossible to maintain a

currency peg at any level. In 1973, the original Bretton Woods system was officially terminated, and was replaced by the so-called Bretton Woods II system. In this new system, currencies fluctuate freely against one another in accordance with market forces. Within a few years, all major currencies were nominally floating (not explicitly pegged to the US dollar). This marked the beginning of the *fiat currency* era, as well as a bold experiment that some com-mentators argue has not yet run its course!

That's not to say that informal currency pegging has died out completely. The Bank of England continued fixing the British pound to the deutsche mark until 1992, when speculators, led by hedge fund investor George Soros, famously "broke the bank" and forced it to dismantle the peg. Meanwhile, oil-exporting countries have persisted in pegging their currencies to the US dollar to this day, since the price of oil is also denominated in US dollars. Countries throughout the developing world—namely China—also fix their currencies to the dollar and/or euro. And speaking of the euro, it is both the best-known and most recent example of currency pegging.

Overall, however, the fiat currency system remains the order of the day, despite the fact that, generally speaking, it hasn't really engendered stability. On the contrary, the last four decades have seen their share of collapse. More than 100 countries—mostly in Africa and Latin America—have defaulted on their sovereign debt obligations.[1] The most famous cases involved Argentina, Brazil, Mexico, and Russia, all of which were accompanied by (separate) currency crises. There was stagflation in the 1970s, brought about by rising oil prices and an economic recession, and a proportional devaluation of the US dollar. The late 1990s saw the Southeast Asian financial crisis and the consequent collapse of half a dozen regional economies, their financial markets, and their currencies. The financial crisis that lasted roughly from 2008 to 2011, meanwhile, witnessed similar instability and some of the largest forex fluctuations ever recorded. Iceland defaulted on its debt, and the Icelandic krona collapsed. And in almost every case, the IMF has been there to mop up the mess with (often controversial) counsel and loans, with the effect that most currency crises have been short-lived.

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[1] Eduardo Borensztein and Ugo Panizza, "The Costs of Sovereign Default," (IMF working paper, International Monetary Fund, October 2008), www.imf.org/external/pubs/ft/wp/2008/wp08238.pdf.

In the aftermath of every crisis comes the inevitable debate over whether the former economic system should be revived, and the financial crisis of 2008–2011 has been no exception to that rule. Economic conservatives argue that the US dollar will be ruined by the high level of US debt, and they proffer the reinstatement of the gold peg as the only real solution. Fiat currencies have given unlimited power to government and no check on their ability to print unlimited amounts of money. Critics of the euro, meanwhile, insist that the currency union never made sense and that fiscal and economic discrepancies will soon render it extinct.

In addition, the record spikes in volatility that accompanied the financial crisis of 2008 to 2011 have triggered the predictable calls for a cap on speculation. Policymakers have invoked the so-called *Tobin Tax*, which would levy a nominal fee on all forex trades, and use the proceeds to help central banks fend off speculative attacks on their currencies.

The IMF has most recently begun to encourage the use of capital controls as a tool to prevent wild oscillations in exchange rates. SDRs have also been expanded (to more than $300 billion) and redistributed (in accordance with Figure 1-1), but their use remains subject to practical complications. Besides, given that they are still denominated in other currencies, the role of SDRs is as much political as it is financial. It should come as no surprise that its biggest proponents are those countries that in general have strained relations with the United States.

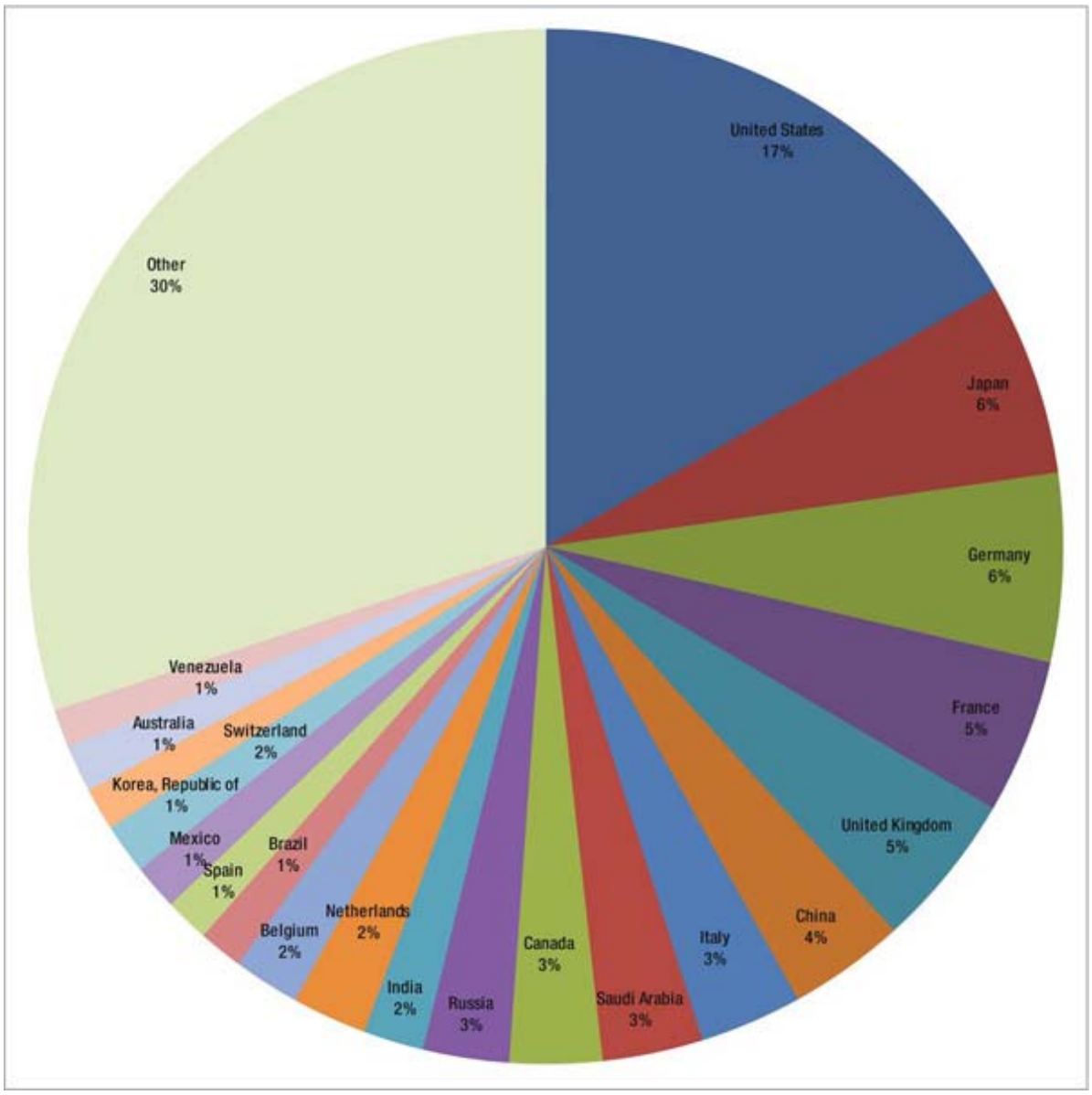


Figure 1-1. Allocation of IMF Special Drawing Rights (SDRs)

In short, the so-called Bretton Woods II system will probably remain in effect for the continued future. There may be further currency consolidation (within Asia and/or Africa), but no country is likely to unilaterally reinstate the gold standard. Barring any unforeseen developments, currencies will continue to fluctuate against each other in accordance with market forces.

Market Structure

In its modern form, the forex market closely resembles many of the other financial markets, with a few critical exceptions. Unlike the markets for other securities, forex trading is geographically decentralized. According to the Bank for International Settlements (BIS), the United Kingdom, United States, and Japan are the three largest trading centers, followed by Switzerland, Singapore, Hong Kong, Australia, France, Denmark and Germany. Together, these ten countries account for more than 90% of forex volume. Ironically, the rise in electronic trading (which would seem to render geography irrelevant) has spurred the creation of tight trading clusters. This has caused volume to become ever more concentrated in a

handful of cities, namely London and New York City (Figure 1-2).

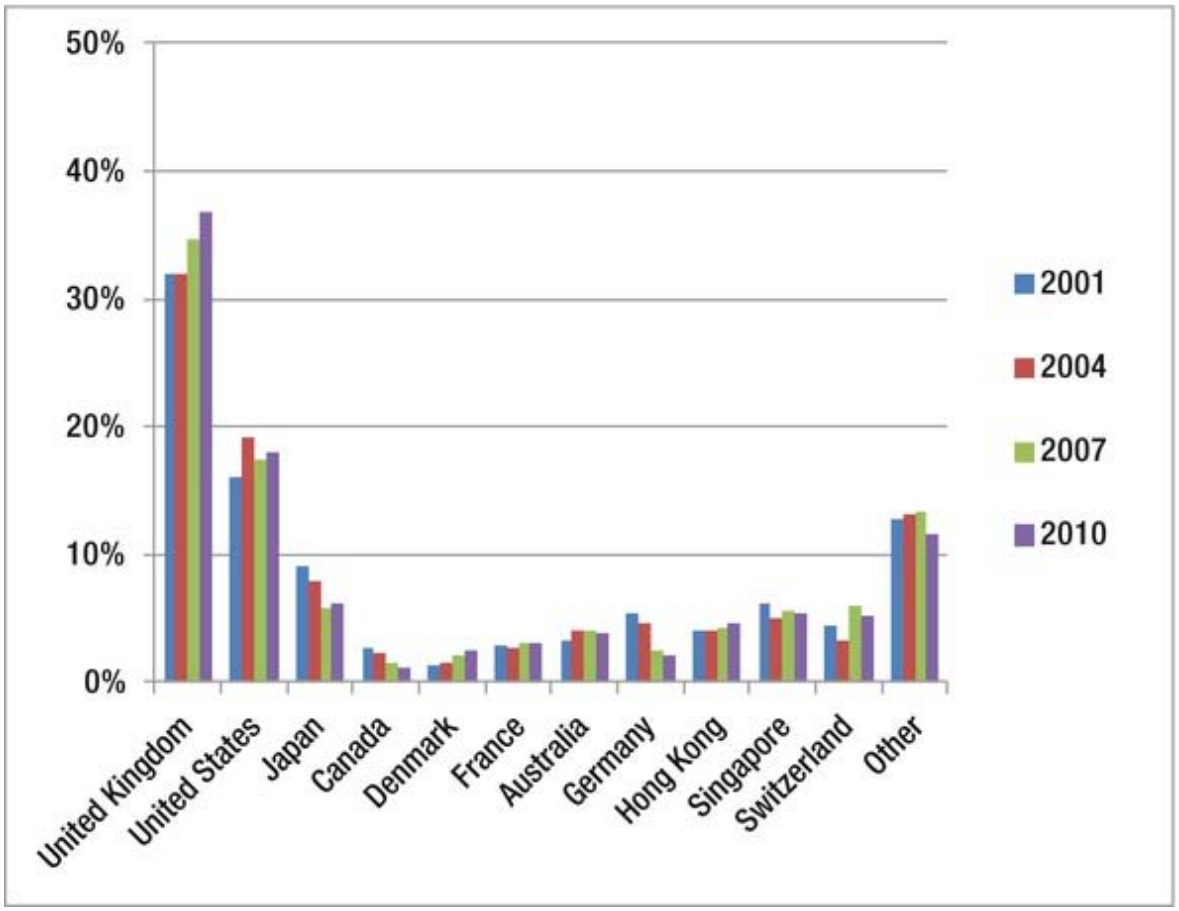


Figure 1-2. Geographical distribution of forex trading

While countries should enjoy a natural monopoly (or a comparative advantage) in the exchange of their own currencies, trades are typically routed to the nearest liquid trading center in order to optimize the speed of execution. In other words, while it takes less than a second for an order to be transmitted electronically from San Francisco to New York, it takes even less time for an order to be transmitted from 49th Street to 42nd Street in New York. For certain traders, shaving one millisecond off of their execution time can mean the difference between profit and loss.

Over-the-Counter Market

The second distinction between the forex market and other financial markets is that there is no centralized exchange through which all currencies are traded. (There is an exception to this rule, in the form of certain forex derivatives, which will be examined in greater detail in Chapter 2.) Instead, currencies are exchanged over-the-counter (OTC), which is to say that transactions are executed directly between two parties. These two parties, for example, might be an individual and a bank, or two individuals, or two banks. When one party wants to place a trade, it must contact a *broker* or a *dealer*. The former serves its customers by matching up buyers and sellers, while the latter will fill orders by taking the opposite side of a trade. (This distinction is not mutually exclusive, as some firms will switch roles as it suits them.)

Since currencies are always bought in pairs (one currency against one other currency) they must always be sold in pairs. In other words, the buyer and seller must necessarily be interested in taking opposing

positions. For example, if a seller is interested in closing out a long position in the US dollar relative to the euro, the buyer must be interested in opening a long position in the euro against the US dollar. As with any type of financial securities trade, it is the job of the broker to sort through all of these nuances. The broker must amalgamate quotes from multiple sources and combine the best *bid* (the price at which currency can be sold) with the best *ask* (the price at which currency can be bought), and present the resulting *spread* to customers (Table 1-1).

Table 1-1. Broker Amalgamation of Bid/Ask Spreads

Counterparty	Bid Price	Bid Amount	Offer Price	Offer Amount
JP Morgan	1.3502	$5.0 million	1.3505	$10.0 million
APK Hedge Fund	1.3499	$3.0 million	1.3506	$20.0 million
Joe Trader	1.3501	$1.2 million	1.3504	$7.0 million
Bank of America	1.3502	$20.0 million	1.3505	$3.8 million

Having received the separate quotes in Table 1-1, the broker would present the 1.3502 ($25 million) – 1.3504 ($7 million) to the customer, which represents a combination of the best bid and ask prices. (These days, this job is mostly done automatically by computers, but the principle is the same as if it were being done by hand.) Ultimately, if the seller is willing to accept a price at or below the buyer's offer, the trade will clear. The broker will earn a profit by charging a transaction fee (expressed as a percentage of the transaction value).

If the seller demands a price that is too high and/or the buyer's offer is too low, the trade cannot be executed. Given the size of the market and the continuous volume of transactions, this is not usually an issue. The main exceptions are for unusually large orders and during moments of uncertainty, such as major news developments. During these times, the market will temporarily shrink, and spreads will widen. Those that insist on placing a trade anyway may have to accept a less favorable execution price.

In practice, a forex dealer performs the same role for his clients by helping them execute trades. Unlike a broker, however, the forex dealer will actually serve as the counterparty for clients' trades and aim to profit from favorable exchange rate movements and also by capturing the spread. Let's consider the example above, to further elucidate this distinction. With a spread of 1.3502–1.3504, the broker will merely connect its clients with either the bid or the ask party, depending on whether they wish to buy or sell. The dealer, in contrast, will actually provide its own bid/ask spread and will fill the trade itself. It may aim to buy at 1.3502 and instantly sell at 1.3504, or it may wish to hold the position until it can earn a more substantial gain. Either way, the dealer must assume some exchange rate risk.

The business model of a broker is then quite different from a dealer. Despite the conflicts of interest that the dealer model would seem to engender, however, it is not automatically clear which one is better for clients.

Tiered System

The forex market is divided into different tiers, access to which depends on size. The top tier is known as the *interbank market* (or *interdealer market)*, where trading takes place directly between *broker-dealers* and other large-scale liquidity providers. While interbank trading accounts for less than 20% or so of overall forex volume (Figure 1-3), it nonetheless represents the backbone of the market. Access is limited

to the world's largest banks, liquidity is nothing short of complete, and spreads are ludicrously small (less than one PIP for major currencies).

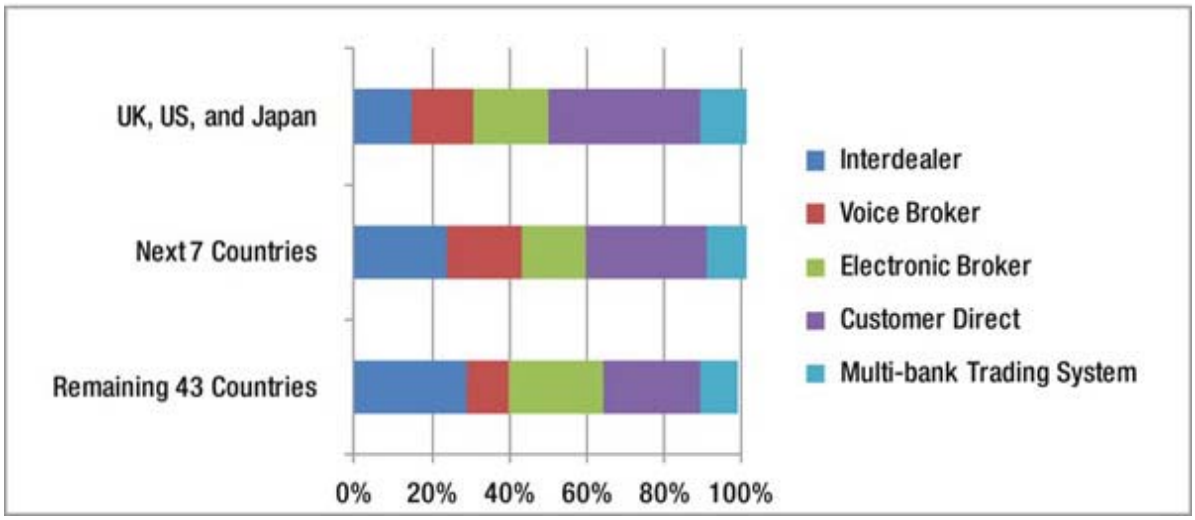


Figure 1-3. Breakdown of forex market tiers

These days, interdealer trading takes place almost entirely (90% plus) through electronic portals, such as Electronic Communication Networks (ECNs) that include Thomson Reuters Dealing 3000, ICAP EBS, and, to a lesser extent, Bloomberg Terminal and Citigroup LAVA.[2] Qualifying banks and broker-dealers pay subscription fees to the platform providers, and in exchange, are granted access to certain price data. The best prices are naturally extended to those with the best credit relationships. The ECNs do not themselves serve as brokers, but merely facilitate trading by participants. Toward this end, the ECNs offer trading overlays so that participants can move seamlessly from requesting quotes to executing trades.

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[2] Axel Pierron, *Electronic Platforms in Foreign Exchange Trading* (Paris: Celent, LLC, 2007).

Interbank trades are settled by the Continuous Linked Settlement Bank (CLS). Through a complex system of credit lines and payment protocols, this bank is able to limit one of the most basic risks of forex: *counterparty risk*. This risk is present in any financial transaction and basically represents the possibility that one party to a financial transaction (in this case, a currency exchange) will not honor its obligation to the other. CLS processes trades for 17 major currencies and on behalf of 69 financial institutions, comprising more than half of all global forex activity. Since CLS settles trades daily and ensures that everyone gets paid, participants can effectively conduct a limitless number of forex trades. Without CLS, forex liquidity/volume would be significantly smaller.

On behalf of their clients, brokers manually and electronically facilitate yet another level of trading. You can see from Figure 1-3 that telephone transactions (also known as *voice* broker) still account for a large portion of overall volume. For illiquid instruments and currency pairs, nonstandard contract sizes, unusual dates, and other circumstances, there is evidently still an important advantage to being able to speak with a broker. Phone execution also carries the added benefit of anonymity, which is important to some fund managers.

The majority of broker executions (especially on the spot market) are conducted electronically. Since

2005, brokers have begun to grant indirect access to the interbank market to favored clients. So-called *prime brokerage* account holders are able to place trades on the interbank market via their brokers. Trades are settled in the name of the broker-dealer, not in the name of the client that places the trade.

As seen in Figure 1-3, the interdealer market has suffered slightly, due to a rise in competition from platforms that facilitate trading directly between dealers and clients. In the United States, so-called *customer direct* trading represents a whopping 40% of overall volume.

Most of this trading takes place on proprietary trading systems that have been developed by broker-dealers. Due to the explosion in volume over the last decade, a handful of the top broker-dealers account for more than $100 billion in daily volume. (See Figure 1-5.) As a result, it's no longer necessary for large banks to rely completely on the interbank market. Instead, they have started to process trades internally, by directly matching their own customers' buy and sell orders. Evidence suggests that only the largest and most complex orders (representing perhaps 20% of the total) are now funneled into the interbank market.

Multi-dealer trading systems currently represent the smallest corner of the forex market. This category is poised to capture a growing chunk of volume over the upcoming decade, however, due to its growing attraction to hedge funds, commodity trading advisers (CTAs), and other high-frequency traders. The market is dominated by FX Connect (State Street), FX All, Currenex (State Street), and HotSpot FX (Knight Capital), with about a dozen others accounting for less than 30% of multi-dealer activity.

Multi-dealer platforms are attractive to clients not only because of the liquidity, range of instruments, and currency pairs they offer, but also because of the sophistication of their software and the breadth of services that they perform. Many platforms are basically one-stop shops for institutional currency traders, offering automatic trading reconciliation, multi-asset trading, trading statistics, streaming quotes, and even credit guarantees. They earn money by assessing nominal fees ($10–20 per million traded) on every transaction.

Retail represents the bottom tier of foreign exchange. The majority of retail forex volume is processed by a handful of *retail aggregators.* These aggregators work the same way as interbank broker-dealers. Sometimes they provide quotes from various brokers and "liquidity providers" and merely execute trades on behalf of their customers. Brokers that operate this way will profit by presenting their customers with a slightly wider spread (i.e., higher price for the buyer and a lower price for the seller) than with which their supplying interbank brokers originally presented them.

Other retail aggregators execute trades internally by either matching up buyers with sellers or by taking the opposite side of the trade themselves. This type of aggregator is known as a *dealing desk.* As you can probably imagine, this latter approach is somewhat controversial. Given that the majority of retail traders lose money, it is profitable for the broker. As explained in Chapter 8, however, neither system can claim outright superiority.

Of course there are also small transactions that are conducted at community banks, foreign exchange kiosks, money transfer companies, and other locations. Due to high transaction costs (i.e., spreads) and other constraints, these institutions facilitate non-speculative currency con-versions, overseas remittances, etc. They account for only a small portion of overall volume.

It should finally be pointed out that these tiers don't exist in separate vacuums. While trading amounts generally fall and spreads widen the lower one goes on the totem pole, the market at the retail level should nonetheless closely resemble the market at the wholesale level. Possibilities for arbitrage (taking advantage of price discrepancies on different markets to generate risk-free profits) should ensure that

prices are consistent across all levels of the market.

Participants

One would think that the majority of foreign exchange would take place for *necessary* economic purposes, such as to facilitate international trade. Even the most rudimentary analysis, however, shows that this is definitely not the case. For example, the British pound and the Japanese yen are exchanged at a rate that is 50 times greater than would be required for purposes of trade. For the US dollar and New Zealand dollar, the ratio of forex turnover to trade exceeds 100! You can see from the left-hand panel of Figure 1-4 that the relationship between forex volume and Gross Domestic Product (GDP) is similarly out of proportion, especially for Singapore and Hong Kong. The right-hand panel of Figure 1-4 shows that even non-financial participants exchange currencies at a rate that is far greater than necessary for normal business operations.

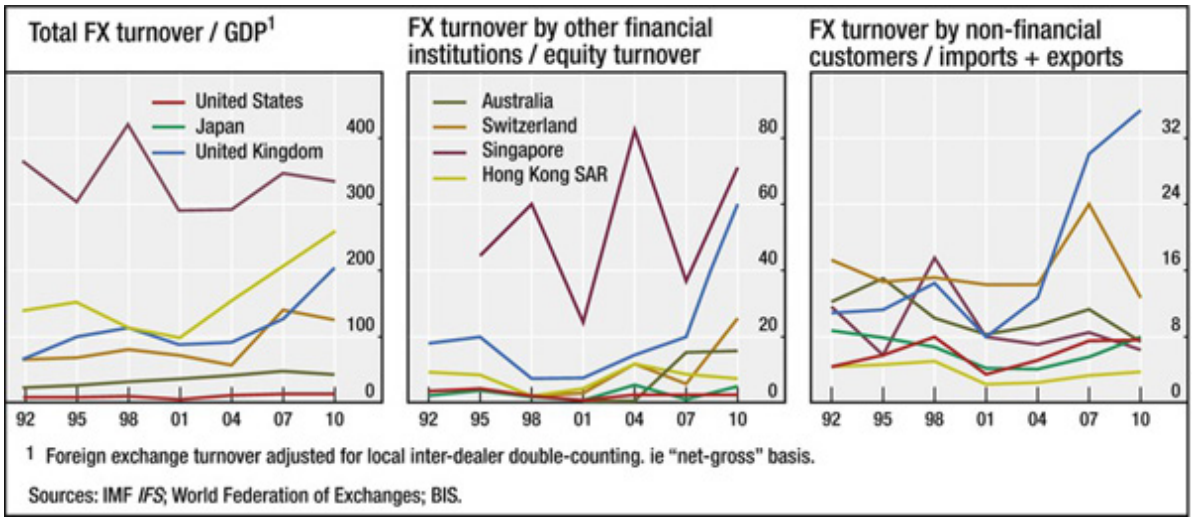


Figure 1-4. Ratio of forex market turnover to selected economic indicators

Corporations

To be sure, there is still plenty of foreign exchange that is conducted for *non-speculative* economic purposes. Any company with overseas suppliers and/or that sells in overseas markets will need to exchange currency on a regular basis. In fact, many multinational companies have entire departments focused entirely on managing their forex operations and *hedging* the risk that comes from fluctuating exchange rates. By way of example, consider that Apple Inc. must pay its Chinese suppliers in Chinese yuan, but that its accounts are denominated in US dollars. If the US dollar depreciates by 20% against the Chinese yuan, it would have the same effect as if Chinese wages had risen by 20%. There are several strategies that Apple Inc. has at its disposal to minimize the impact of such currency fluctuations on its operating profits, which I will explore in Chapter 7.

At the end of every fiscal year, multinational companies will typically repatriate a significant portion of its earnings in order to pay taxes and dividends. For a period of a few weeks, these flows are often significant enough to influence exchange rates. This is especially true for Japanese multinationals, which are primarily export-oriented and must convert billions worth of foreign currency back into yen.

When you consider that non-financial customers account for more than $500 billion (about 13%) in daily forex turnover, it is immediately apparent that multinational companies are doing more than simply

exchanging currency for risk management purposes. Instead, many corporations engage in forex trading for speculative purposes. Some are prodded into doing so by their financial advisers while others engage in speculative forex trading under their own accord. In fact, it's not uncommon for a multinational company's forex activities to cause it to swing from profit to loss, or vice versa. At the very least, most global companies will recognize the impact of exchange rates on their bottom lines when they release their quarterly earnings.

During the height of the 2008 credit crisis—when exchange rates were fluctuating wildly—Hong Kong–based CITIC Group shocked the markets when it announced a $2 billion loss from "unauthorized" forex trades. A spate of similar announcements from other companies followed in 2009 and 2010. As a result, some companies have curtailed all forex activities that are unrelated to core operations.

Banks and Broker-Dealers

Banks and broker-dealers (also known as *prime brokers)* account for $1.5 trillion in daily forex turnover. (The actual figure is certainly much higher, since trading by other financial institutions is still facilitated by banks. This figure represents trading volume in which a bank or broker-dealer served as a counterparty.) CLS lists 69 broker-dealers among its members, accounting for more than half of worldwide foreign exchange. As you can see from Figure 1-5 below, trading activity across the world is dominated by a handful of large banks.[3] Deutsche Bank is by far the industry leader, followed closely by Barclays Capital, UBS, and Citi.

What's more, the leading banks have rapidly consolidated their positions. The Bank for International Settlements attributes this to investment in proprietary trading systems. In other words, as other sources of profit (investment and commercial banking) have apparently dried up, banks have moved to expand their trading operations, starting with forex. Regardless of the reason, there are only half as many dominant forex broker-dealers (ten) as there were a decade ago. This is true across every major trading center except for Hong Kong.

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[3] Euromoney Magazine, "Euromoney FX Survey 2011," May 2011.

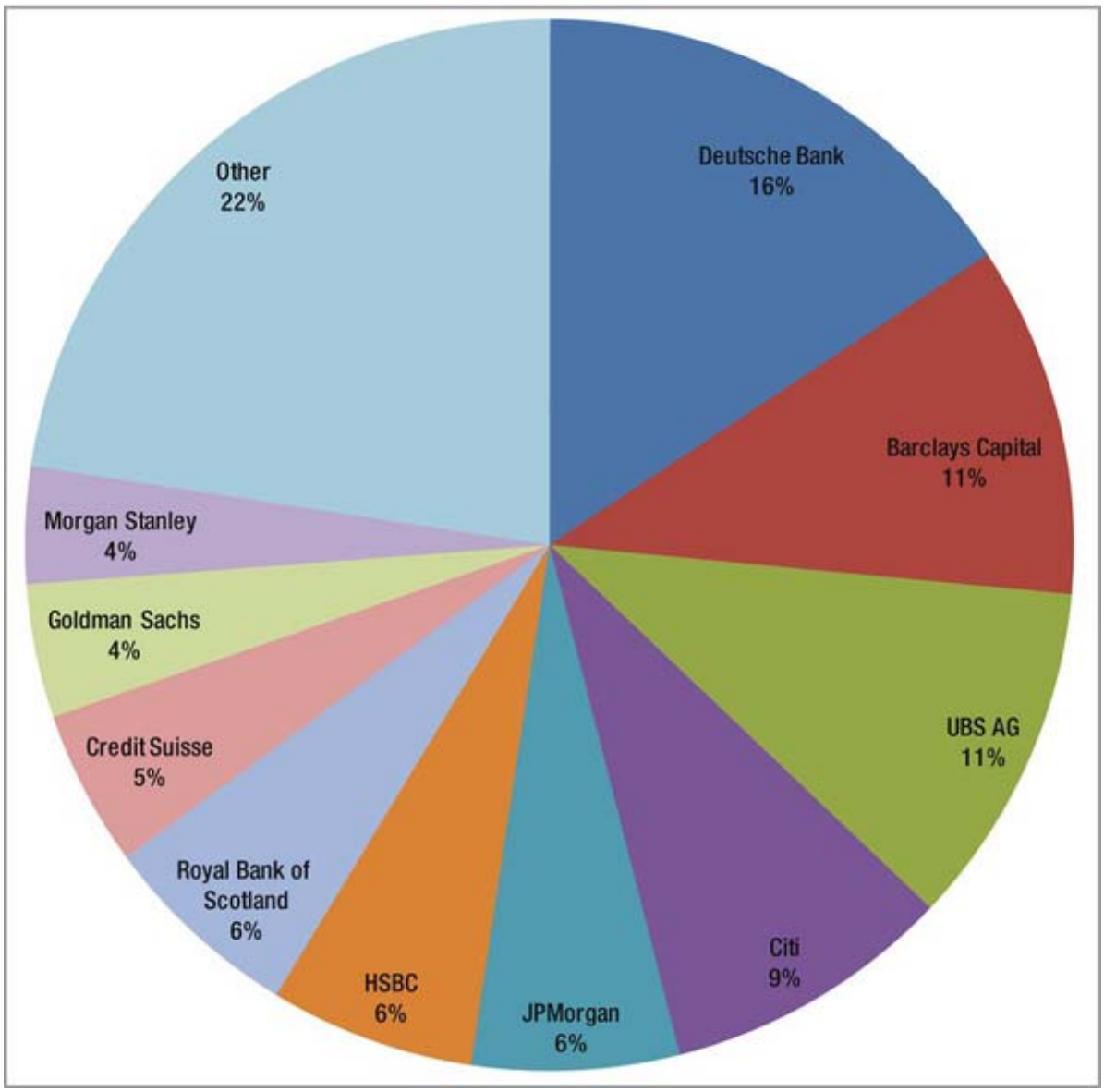


Figure 1-5. Concentration of trading volume among large banks

As a result of recent legislation, however, these banks are now prohibited from trading for their own accounts, and are generally only permitted to facilitate trades on behalf of their customers.

Other Financial Institutions

While almost all trades are ultimately routed through banks, the majority of actual trading is conducted by financial institutions—such as hedge funds, pension funds, investment management companies—which are engaged in forex trading entirely for speculative purposes. These institutions trade primarily through proprietary systems operated by individual banks or multi-bank trading systems.

Of course, some of this volume is transacted as legitimate cross-border investment. When a corporation invests in an overseas project, it is practicing what is referred to as *foreign direct investment* (FDI). When an investment fund buys shares of stock or bonds that trade on an overseas exchange, this is known as *portfolio investment*. Such investments necessarily involve foreign currency exchange.

However, an increasing amount of institutional volume is being transacted in the form of high-frequency and/or algorithmic trading. Hedge funds in particular have become notorious for their reliance on placing millions of rapid-fire trades every day, through systems that are largely automated. They seek to profit from miniscule changes in exchange rates and minute discrepancies in exchange rates across different trading centers, both of which might occur in less than a second. Known as *forex arbitrage*, this strategy typically involves buying a block of currency on one exchange and immediately reselling it for a slight profit (less than one PIP) on another exchange.

High-frequency trading already accounts for an estimated 30% of overall forex volume (compared to 66% of equities trading volume) and is expected to account for a majority of volume as soon as 2012.[4] On some exchanges, algorithmic (also known as computerized) trading accounts for 45% of total volume. This volume has allowed high-frequency traders to place themselves at the center of the market. (See Figure 1-6.)

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[4] Javier Paz,"Retail FX Comes of Age: Leveraged Trading Is Here to Stay," Aite Group, March 23, 2011.

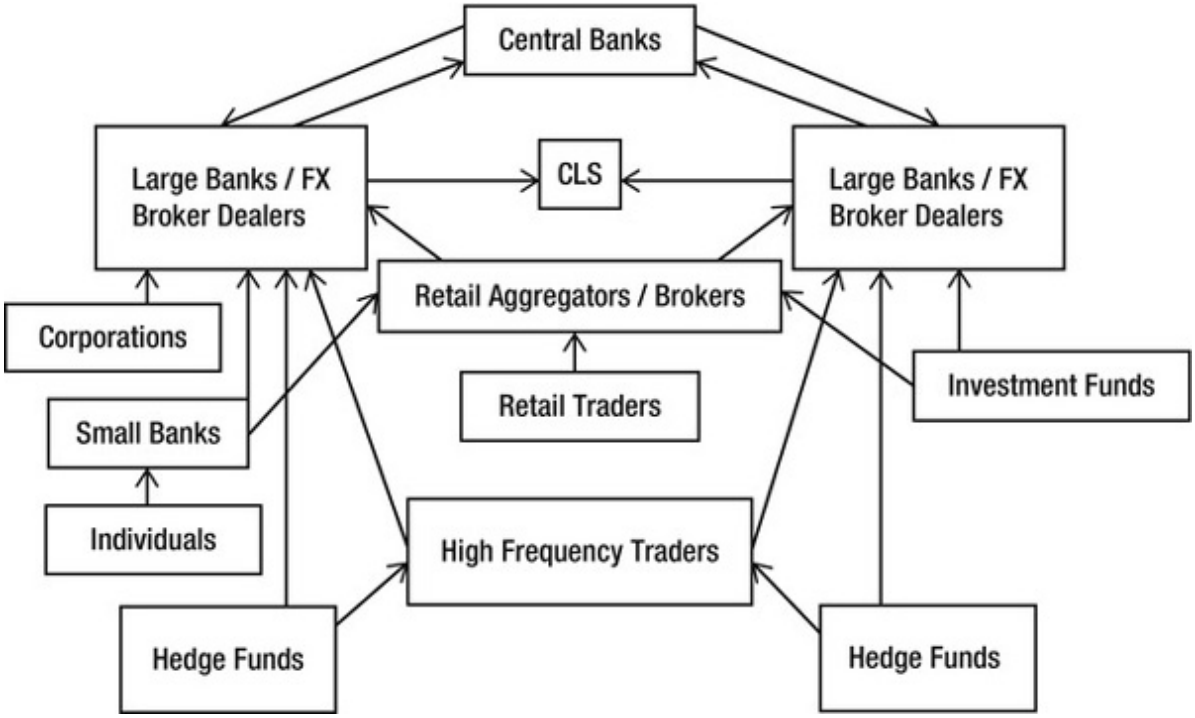


Figure 1-6. Relationship of forex participants

High-frequency trading might explain most of the growth in overall volume that took place over the last three years, and its use may continue to set the pace for growth going forward. Naturally, this has spurred an arms race among market participants to develop the fastest networks and most sophisticated software.

Many commentators have lamented this phenomenon. To be sure, high-frequency trading is probably responsible for increased volatility. In addition, the sophistication of institutional trading algorithms has made it more difficult for amateur traders to profit from technical analysis strategies. On the other hand, hedge funds have become a great source of liquidity, driving execution times and spreads down to record low levels. Besides, as I'll explain in the chapters that follow, it's possible to craft a trading strategy that

takes this trend into account.

Retail Brokers and Retail Traders

As forex becomes increasingly mainstream, more amateur and professional investors are rushing to join in. Households and small non-bank institutions now account for an estimated $300 billion in global forex volume, representing close to 10% of overall volume and market growth of 400% from 2007! Japanese retail traders are especially active in the forex market and may account for as much as 30% of trading in the Japanese yen. In fact, this phenomenon has become so widespread that the media has begun to paint a picture of Japanese women—referred to as *Mrs. Watanabes*—as housewives that sit at home trading forex from their computers while their husbands are at work.

Retail forex brokers have responded by becoming more sophisticated and more transparent. They have developed proprietary systems that rival those developed by broker-dealers, or engage in *white label* licensing of existing multi-dealer systems. In fact, some retail brokers have been able to lure small institutional customers away from broker-dealers. All have expanded their operations to offer more currencies, better coverage, lower spreads, and more tools for traders. In 2010, two forex brokers (FXCM and Gain Capital Group) became the first in the industry to become publicly listed companies, and a handful of others are reportedly considering a similar move.

Meanwhile, discount brokers have quietly expanded into forex. Ameritrade entered the forex market through its purchase of ThinkorSwim in 2009. Charles Schwab is using a similar strategy for gaining access to forex customers, with its acquisition of OptionsExpress. Overall, the industry is undergoing a period of rapid consolidation, which should ultimately produce a dozen or so solid contenders.

Individuals

It could also be argued that individuals participate in the forex market on a non-speculative basis. When consumer choices are framed in economic terms, consumers often respond by buying whatever is cheapest. Thus, fluctuations in exchange rates will cause important changes in travel and consumption patterns. The silver lining of a battered exchange rate is often a pickup in exports. Due to the recent multi-year decline of the US dollar, for example, US prices became relatively cheaper in terms of other currencies. As a result, US products became more attractive to foreign buyers, and multinational companies responded by relocating assembly plants to the United States. Overseas tourists have begun to visit the United States in droves, and Canadian citizens (especially those that reside near the border) have started taking short trips to the United States for the purpose of shopping.

Remittances, on the other hand, typically flow in the opposite direction. Migrant workers in countries with strong currencies will remit part of their salaries to countries whose currencies are relatively weak. In this way, migrant workers are also tailoring their economic behavior so as to take exchange rates into account. As I will show in Chapter 3, the pull that this exerts on forex markets is not insignificant.

Central Banks

Most currency traders consider the role of central banks only insofar as their policy actions indirectly influence exchange rates. In reality, however, central banks are among the largest and most active participants in the forex markets. During certain years, the world’s largest banks may buy hundreds of billions of dollars worth of foreign currency.

Despite preaching *laissez-faire* economics, many central banks closely monitor the value of their respective currencies. When exchange rates deviate too far from a targeted value, some central banks will

then go so far as to *intervene* in forex markets. They do this by buying or selling their home currency, causing it to appreciate or depreciate, respectively. These programs of intervention inevitably fail over the long-term, but over the short-term they can be very effective. That's probably because central banks have control over the money printing presses and nearly unlimited budgets. Speculators understand this and may not wish to take positions that aren't consistent with the short-term goals of the central bank.

In the process, central banks may amass hundreds of billions of dollars in foreign exchange reserves. The allocation of these reserves can have a direct impact on forex markets, as will be discussed later.

Regulation

It was only in the wake of the financial crisis that governments became serious about regulating the forex market—especially the retail side of the market. Due to its regional fragmentation, the market naturally resists regulation. A second problem is that forex is traded through a variety of financial instruments, and each instrument is technically regulated by a different government bureau.

The *Dodd-Frank Consumer Protection Act* of 2010 was intended to resolve some of these jurisdictional issues. The Commodity Futures Trading Commission (CFTC) has taken the lead and is now the official regulator of the forex spot market. After several rounds of negotiations and a public comment period, the CFTC formally released a set of new regulations in late 2010.

As a direct result of these new regulations, all forex firms are now required to register with the National Futures Association (NFA), either as futures commission merchants (FCMs) or as retail foreign exchange dealers (RFEDs). Registering institutions are required to "maintain net capital of $20 million plus 5 percent of the amount, if any, by which liabilities to retail forex customers exceed $10 million"[5] in order to protect traders against the possibility of broker bankruptcy. In addition, "persons who solicit orders, exercise discretionary trading authority or operate pools with respect to retail forex also will be required to register, either as introducing brokers, commodity trading advisors, commodity pool operators (as appropriate) or as associated persons of such entities."[6] Forex brokers must also "disclose on a quarterly basis the percentage of non-discretionary accounts that realized a profit and to keep and make available records of that calculation."[7] (Actually, this calculation has become an excellent tool for first comparing and then selecting a broker, as will be shown in Chapter 8.) Finally, American forex firms are basically prohibited from offering commodities trading and contracts for difference (CFD). Because of their derivative nature, there are too many restrictions on trading them over-the-counter (OTC).

These new rules have also been accompanied by strict enforcement. Firms that have failed to register are investigated and prosecuted. The NFA has also been quick to bring high-profile cases against legitimate firms. In 2011, FXCM was fined a record $8 million for illegally profiting from movements in exchange rates, and ordered to pay an additional $8 million in restitution to customers.[8]

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[5] "CFTC Releases Final Rules Regarding Retail Forex Transactions," CFTC, August 30, 2010, www.cftc.gov/PressRoom/PressReleases/pr5883-10.

[6] Ibid.

[7] "Final Rule Regarding Retail Foreign Exchange Transactions," CFTC, August 30, 2010, www.cftc.gov/ucm/groups/public/@newsroom/documents/file/forexfinalrulefactsheet.pdf.

The majority of retail forex brokers have accepted the registration requirements. (CitiFX is the only major forex broker that is exempt from registering; as a bank, it is not under the same regulatory purview as forex brokers.) In fact, many of the brokers lobbied aggressively for the new regulations with the intention of raising the barriers to entry and helping existing brokers consolidate their market share. The registration requirements have also brought much-needed credibility to an industry severely lacking in it and a framework for dispute resolution.

Exchange Traded Funds (including currency ETFs) are regulated by the United States Securities and Exchange Commission (SEC), while the stockbrokers that facilitate their trading are governed by the National Association of Securities Dealers (NASD) and to a lesser extent by the Securities Investor Protection Corporation (SIPC).

The one clause in the new regulations that was resisted by brokers and traders alike prohibits leverage that exceeds 50:1 for major currency pairs and 20:1 for other currencies. (It should be noted, however, that the CFTC did not itself specify the currency pairs that fall into each category.) Brokers were naturally upset that a direct source of profit (and a driver of volume) was being curtailed. Traders argued that it was an encroachment of government and threatened to move their accounts to offshore brokers.

Indeed, so-called regulatory arbitrage will always be an issue in forex, as there will always be US account holders that wish to trade using leverage in excess of what US brokers are legally allowed to offer. Not only are these traders breaking the law, but they also lose any consumer protection afforded by the US legal system. In fact, there have been a handful of cases of US traders experiencing difficulty in withdrawing funds from UK brokers. Forbes speculated, “These new rules will put a stop to Americans trading retail forex offshore to evade CFTC rules. That trend picked up the pace in recent years and it may need to be reversed quickly.”[9]

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[8] Chana R. Schoenberger, “FXCM to Pay $14 Million in Exchange-Rate Cases,” *Wall Street Journal*, October 3, 2011.

[9] Robert A. Green, “New CFTC Forex Trading Rules Call or 50:1 Leverage,” *Forbes Magazine*, September 2, 2010.

With the exception of the European Union, other locales are governed by relatively lax forex regulation. Some have even used the lack of regulation as a selling point to prospective traders. In some countries—such as Brazil—foreign investors must pay high tax rates in order to transfer funds into local currency. In other countries—namely China—forex trading has been banned completely, usually because it conflicts with the local monetary policy.

Conclusion

As you can see, the system, structure, and rules of forex market distinguish it from almost every other type of financial market. Currencies are traded differently from other securities and governed by different regulations. Participants behave differently and interact through unique, specialized systems. With this foundation, let’s move ahead and examine some of the specific vehicles that are used to capture currency fluctuations, and the concrete ways in which traders seeking upside exposure to forex utilize them.

CHAPTER

2

What Are Your Options?
Currency Pairs and Investment Vehicles

There are perhaps 160 different currencies in the world. While all currencies necessarily have exchange value, the majority of them are not exchanged outside of the territories where they are used. The Continuous Linked Settlement Bank (CLS) settles trades in only 17 currencies, and liquidity is greatest for an even smaller group of selected currencies. These so-called *major currencies* account for more than 90% of global foreign exchange volume and tend to be characterized by tight spreads and excellent liquidity. Expanding this group to include 20 or so *exotic currencies* can account for more than 97% of overall volume, as shown in Figure 2-1.

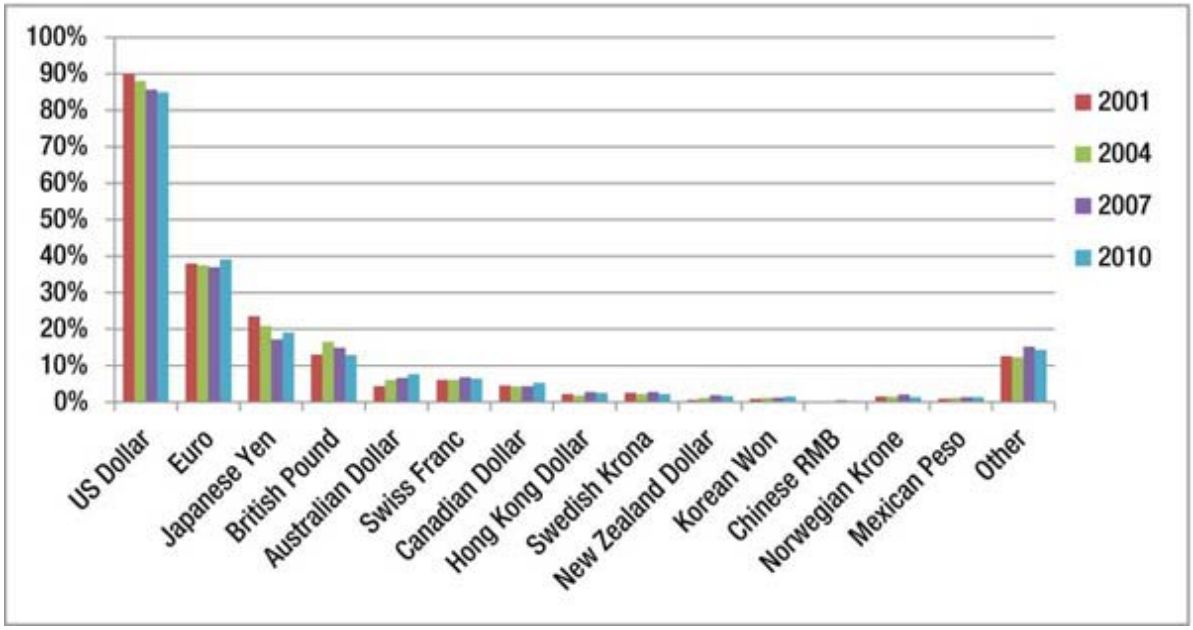


Figure 2-1. Major and exotic currencies, percent of overall trading volume: 2001–2010[1]

Just like stocks have ticker symbols, currencies have three-letter abbreviations, known as ISO (International Standards Organization) codes, which simplify the quoting and trading of currencies. As you can see from Table 2-1, ISO codes tend to be self-explanatory.

Table 2-1. ISO Codes for Major and Exotic Currencies

US dollar	USD	Polish zloty	PLN
Euro	EUR	Turkish lira	TLR
Japanese yen	JPY	South African rand	ZAR
British pound	GBP	Brazilian real	BRL
Australian dollar	AUD	Danish krone	DKK
Swiss franc	CHF	New Taiwan dollar	TWD
Canadian dollar	CAD	Hungarian forint	HUF
Hong Kong dollar	HKD	Chinese yuan renminbi	CNY
Swedish krona	SEK	Malaysian ringgit	MYR
New Zealand dollar	NZD	Thai baht	THB
Korean won	KRW	Czech koruna	CZK
Singapore dollar	SGD	Philippine peso	PHP
Norwegian krone	NOK	Chilean peso	CLP
Mexican peso	MXP	Indonesian rupiah	IDR
Indian rupee	INR	New Israeli shekel	ILS
Russian ruble	RUB	Colombian peso	COP

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[1] The total sum is 200% because every currency trade always involves two currencies.

Remember that currencies fluctuate relative to other currencies, and that they must necessarily be traded in pairs. There are hundreds of potential currency combinations involving the 30 most popular currencies, but less than 100 pairs dominate trading in mainstream investment channels. Most retail forex brokers offer about 50 pairs.

There are a few reasons for this. First, most exotic currencies are traded only relative to major currencies, rather than against other exotic currencies. You would never see a quote for the Czech koruna against the Thai baht, though both currencies can easily be exchanged for euros or US dollars. That's not to say that Czech companies and individuals have no way to exchange koruna for baht, but rather that volume is too small for international broker-dealers to profitably maintain a liquid market. Second, the forex market is governed by the rule of *triangular arbitrage*, which dictates that for a set of three currency pairs, only

two of them can fluctuate independently. For example, consider the following three currency pairs: dollar/euro, dollar/yen, and yen/euro. If the dollar rises by 1% against the euro, and the dollar stays flat against the yen, the yen must necessarily rise by 1% against the euro in order for market equilibrium to be maintained. These days, computerized trading systems can spot even the smallest discrepancies, and arbitrage them away in mere milliseconds.

Besides, it has historically been the case that exotic currencies fluctuate relative to the dollar, euro, or other major currencies. There simply isn't enough bilateral trade or cross-border investment between the Czech Republic and Thailand for the market to be able to determine a reasonable exchange rate between their respective currencies. Instead, both currencies will trade relative to the US dollar, and triangular arbitrage will dictate the *cross rate* for the koruna/baht (CZK/THB). For investors that nonetheless want direct exposure to CZK/THB, the investment process is fairly straightforward. By buying the USD/THB and simultaneously selling the CZK/USD, the result is a synthetic CZK/THB position:

$$\frac{\cancel{USD}}{THB} + \frac{CZK}{\cancel{USD}} = \frac{CZK}{THB}$$

US Dollar

The US dollar (or *Greenback*) is easily the world's most important currency. The relative strength of the US dollar is largely attributable to the facts that US economy is the largest in the world and its capital markets are the deepest and most liquid. Some also attribute the dollar's strength to political/military factors, while others consider it an outgrowth of the old Bretton Woods System. Regardless, the US dollar is the fulcrum of the forex markets, and all other exchange rates are based in large part on market participants' perceptions of the dollar.

In addition to its status as the world's most important currency, the US dollar is also the most liquid, and so it is unsurprising that it serves as the world's de facto reserve currency. In fact, roughly 65% of the world's reserves are denominated in US dollars, and as a result, central banks around the world collectively hold many trillions of dollars worth of currency on their balance sheets. From time to time, central banks will agitate for a new system that would leave them less exposed to a sudden devaluation in the US dollar. For a variety of reasons, however, they haven't made much headway in this quest. It can be seen from Figure 2-2 that the US dollar is represented in the overwhelming majority of forex transactions.

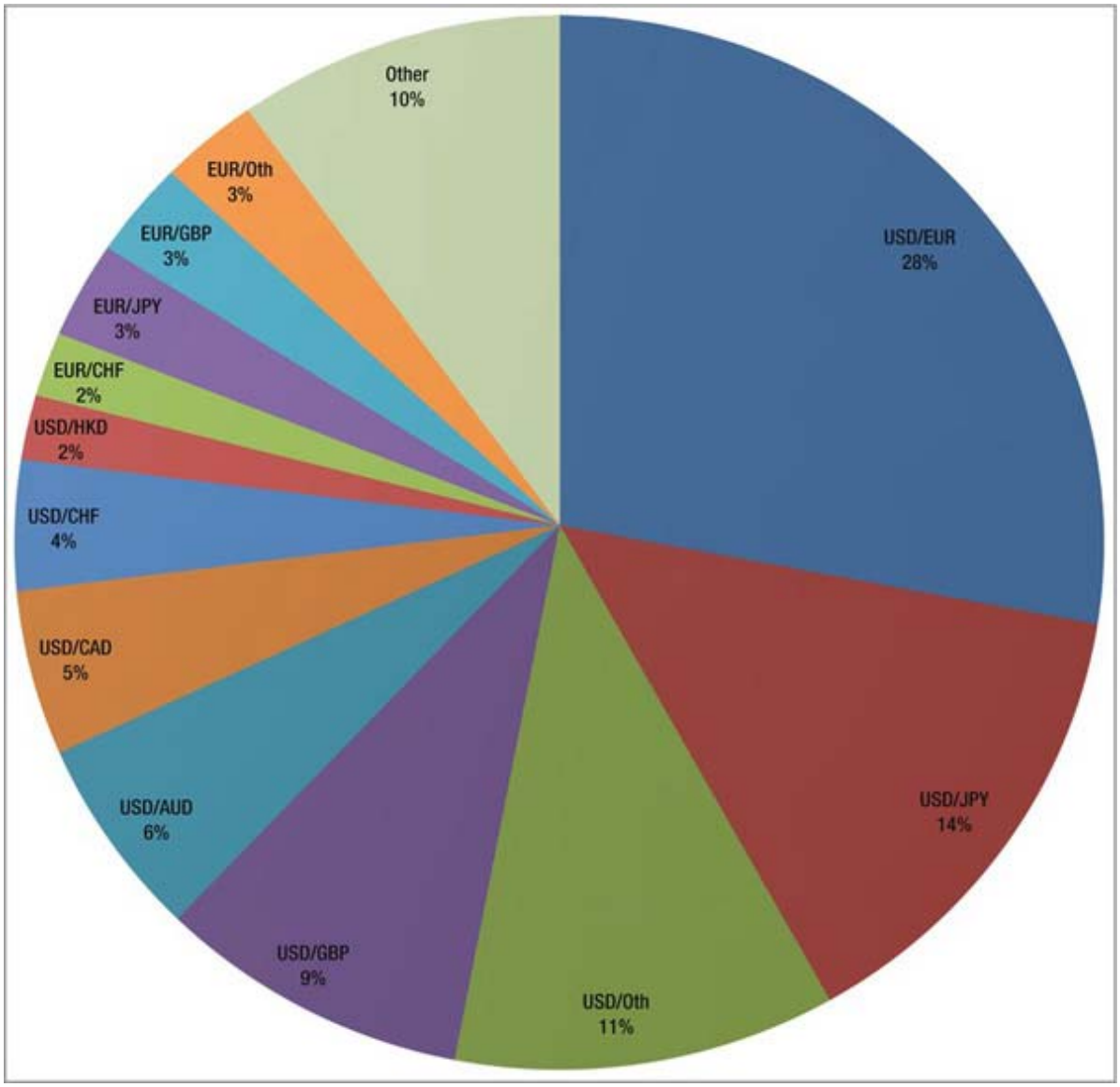


Figure 2-2. Breakdown of forex volume by currency pair

As I explained in Chapter 1, the US dollar's defining feature is that it is a *safe-haven* currency. During times of global financial, economic, or even political uncertainty, the underlying value of the dollar will rise. This point was underscored during the height of the global credit crisis in 2008–2009. Even though much of the financial distress originated within the United States (i.e., the bankruptcies of Lehman Brothers and Bear Stearns, falling real estate prices, etc.) the US dollar appreciated in value. That's because investors from the United States and around the world were suddenly overcome with fear, and moved their cash to what is perceived as the world's safest location: US government securities. That the US financial system was in many ways the source of instability was bizarrely of no concern to the forex markets! In addition, whether or not Treasury bonds are actually a good investment is certainly open to debate. What's important is that they are perceived as the safest investment in the world, a general sentiment that is made clear every time there is even a minor crisis in the financial industry.

To be sure, the US dollar looks vulnerable on a number of fronts. As this book goes to press, the US economic recovery remains precarious, and a second recession is not out of the question. The unemployment rate is still high, interest rates remain low, housing and stock prices are plummeting, and

commodity prices are rising. While the trade imbalance seems to have stabilized, it is nonetheless tilted heavily towards deficit.

Some commentators argue that there is a glut of dollars in the money supply as a result of two Federal Reserve Bank monetary stimulus programs. Left unattended, this could lead to an inflationary surge. Meanwhile, both public and private debts continue to reach record levels, and the US sovereign credit rating was downgraded from the highest level of AAA in 2011. Due to previously unseen levels of political infighting, federal and state governments seem incapable of putting the United States on a sustainable economic course. For this reason, there are a number of bears that insist the period of *dollar hegemony* will soon come to an end.

For now at least, however, the dollar seems likely to hold on to its position atop the forex markets, if only because of a lack of viable alternatives. (The *Wizard of Omaha* Warren Buffett famously lost more than $1 billion in 2005, when he bet on a long-term decline of the dollar.) As we'll see later, most other major currencies are racked by the same financial and economic problems as the dollar. Emerging market economies represent the future of the global economy, but it will still be many years before their currencies can challenge the dollar and the rest of the world's major currencies.

Euro

The euro was introduced in 1999 and entered circulation in 2002. As of 2012, it has replaced 20 separate sovereign currencies, including the deutsche mark and French franc. The Eurozone is the world's second largest economy, and the euro is easily the second most important currency.

The euro owes its existence both to political and economic forces. It was intended to further unify the European Union by eliminating the need for currency conversion within its borders. Moreover, it was deliberately engineered to be stronger than the US dollar (i.e., one euro is worth more than one dollar), and has remained quite strong since its inception. From 2002 to 2008, it appreciated by more than 70% against the dollar, and many currency investors netted a healthy profit. For both political and economic reasons, it has gained widespread acceptance as an alternative to the US dollar. This is displayed in Figure 2-3.



Figure 2-3. Complete history of EUR/USD

After peaking at $1.60 in 2008, however, the euro entered a period of decline. The first punch came in the form of the global credit crisis, which froze the European banking system and required significant intervention by the European Central Bank (ECB). Then came the revelation that some of the peripheral members of the European Union had overextended themselves and were teetering on the verge of bankruptcy. Greece, Ireland, Portugal, and Spain have all received financial support from the European Union and the International Monetary Fund (IMF), but investors remain skeptical that these countries can avoid defaulting on their debt. These countries have experienced repeated cuts in their sovereign credit rating and skyrocketing borrowing rates, and at this point, the vicious cycle of economic decline and cuts in government spending seem to make default a self-fulfilling prophecy.

The ultimate concern is that other EU economies will become engulfed in the storm, and that the European fiscal crisis will morph into a full-blown financial crisis. The reason being is that European banks lent heavily to the so-called PIGS countries (Portugal, Ireland, Greece, and Spain) during the economic boom years, and would certainly collapse if one or more of these countries defaulted on their debts. The extent to which foreign banks are exposed to Eurozone debt default is displayed in Figure 2-4.

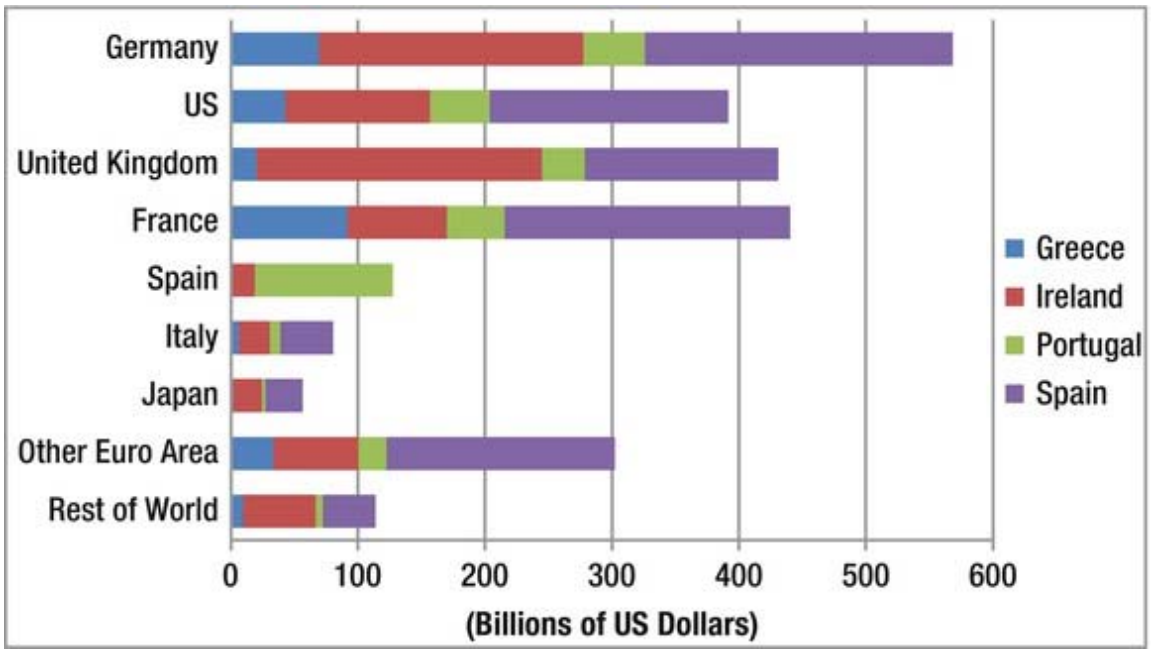


Figure 2-4. Foreign banks' exposure to Eurozone debt default[2]

In hindsight, it looks as though the original case for monetary union of the Eurozone was overstated. The Eurozone economies are simply too different from one another for their monetary unification to be justified. Furthermore, unifying under the umbrella of a common currency stripped them of their ability to carry out independent monetary policies, but did not similarly mandate a common fiscal policy. This sowed the seeds for extreme imbalances: during the boom years, low interest rates promoted overheating on the Eurozone periphery. These economies have been hit disproportionately hard by the bust, and without currency depreciation—rendered impossible by the euro—they have very few prospects for recovery. In short, the luster of the euro has been dented severely. It remains possible that the ten-year common currency experiment will soon come to an end.

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[2] Bank for International Settlements (BIS), *Quarterly Review March 2011*, www.bis.org/publ/qtrpdf/r_qt1103.pdf.

Japanese Yen

The Japanese yen is perhaps the world's best performing currency of the modern era, having strengthened by 400% against the US dollar since 1971! (See Figure 2-5.)

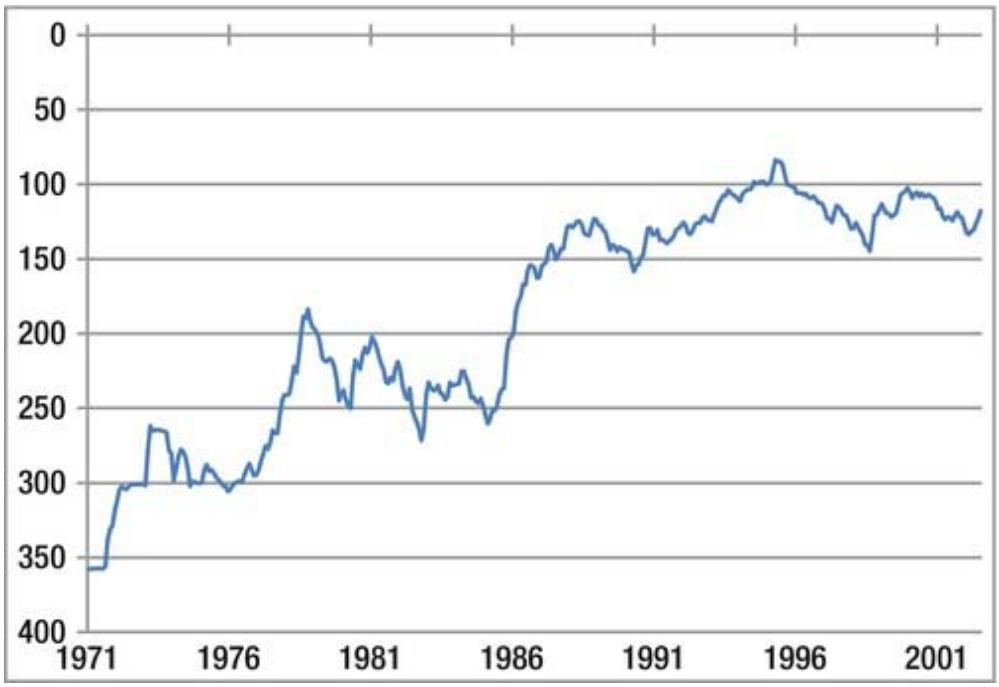


Figure 2-5. Recent history of USD/JPY (with exchange rate shown in reverse)

Initially, the yen's resurgence was due to a post–World War II economic boom in Japan that lasted well into the 1980s and culminated in Japan's emergence as the world's second largest economy. (It has since been eclipsed by China in 2010.) Ultimately, however, this boom proved unsustainable, and Japan's economy has stagnated for the better part of two decades. The same can also be said of its stock market.

What has saved the yen from the same dubious fate is Japan's export sector. Up until 2009, Japan had recorded a trade surplus (where exports exceed imports) for more than 30 consecutive years! This is especially amazing when you consider that Japan lacks natural resources and relies almost entirely on deposits in other countries to satisfy its needs for energy and other commodities. In addition, price inflation (which directly erodes the value of money) has been virtually nonexistent in Japan. Even though Japan's public debt is the largest in the world (on a per-capita basis), it is financed entirely from domestic savings. Finally, Japan's financial system is as sophisticated as any in the world and continues to attract strong investment. All of these forces ensure that demand for yen continually exceeds supply.

For most of the 2000s, the yen suffered a mild decline due to record low interest rates in Japan that enabled opportunistic investors to borrow in yen and use the proceeds for high-yielding investments abroad. This caused a massive outflow of yen from Japan. However, this phenomenon came to an end in 2008 when investors got spooked and moved to unwind all of their short bets on the yen. Ironically, the March 2011 tsunami/earthquake only accelerated this trend, and the repatriation of yen to fund reconstruction and insurance payouts has even further provided support for the currency. Even a historic joint intervention by the world's largest central banks was unable to stop the yen from surging toward record highs.

British Pound

The pound sterling (or *cable*) was the strongest currency in the pre–World War II era. Despite ceding this title to the US dollar, it has managed to remain the fourth-most traded currency in the world, which is due in no small part to London's position as the world's preeminent currency trading center.

The British economy largely mirrors that of the United States. It has been hollowed out by the shift of manufacturing to developing countries, and has been plagued by a perennial trade deficit. Unemployment and inflation levels are consistently among the highest in the industrialized world. Its housing market is still weak and may not recover for several years. UK public debt more than doubled from 2007 to 2011, which the Bank of England enabled by printing money on a never-before-seen scale following the 2008 economic downturn.

After a record run-up, the pound collapsed in the fall of 2008, depreciating by more than 30% from peak to trough. The UK government has yet to produce a coherent plan for exiting from recession, and four years later, the pound is still referred to as a "sick" currency.

Swiss Franc

Without knowing anything about the Swiss franc, there are already a few prima facie observations that can be made. First, the Swiss franc has proven itself to be an excellent store of value, especially relative to the US dollar. Second, the value of the Swiss franc has closely mirrored that of the euro, as can be seen in Figure 2-6.

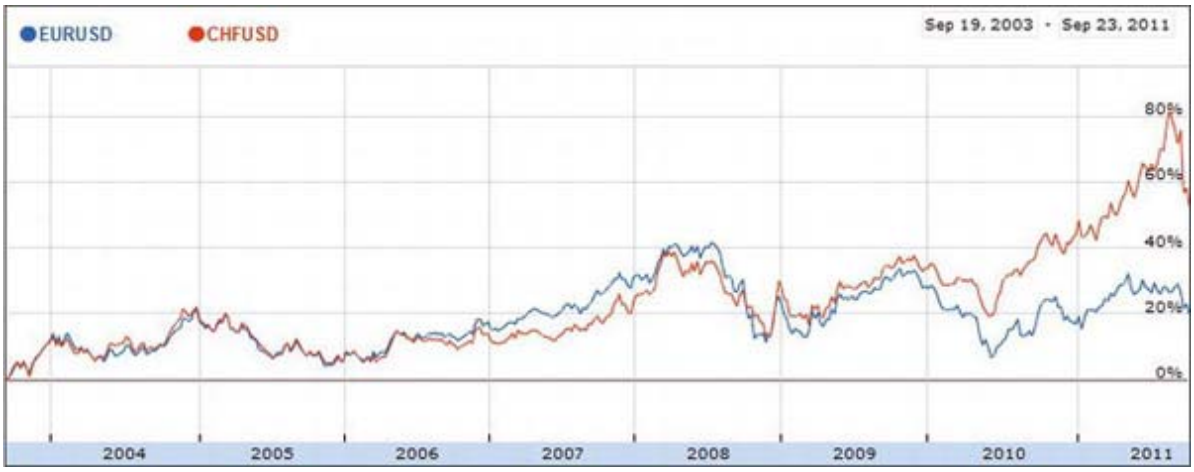


Figure 2-6. Swiss franc / euro correlation

The Swiss economy is one of the most stable in the world, and on a per-capita basis, Switzerland is the world's second wealthiest country (not including city-states), trailing only Norway. It boasts low unemployment and low inflation. Its trade surplus has expanded in spite of the rising franc thanks to key exports, such as jewelry (including watches), textile machines, chemicals, and tobacco products. The Swiss National Bank (SNB) has helped the overall health of the Swiss economy with a conservative monetary policy; it was one of the few major central banks that refrained from printing money during the credit crisis.

In some ways, the Swiss franc is the world's ultimate safe-haven currency. Whenever there is a flare-up in financial uncertainty, the franc typically rises more than both the Japanese yen and US dollar. This is perhaps due to the fact that the Swiss economy and financial markets are not large enough to absorb massive amounts of capital inflows without exerting upward pressure on the franc.

As for the Swiss franc's historic correlation with the euro, as shown in Figure 2-6, the Swiss and Eurozone economies are closely intertwined. Thus, it should come as no surprise that for most of the euro's existence, the two currencies have moved in tandem with one another. With the inception of the

credit crisis, however, investors began to see the franc as a proxy for betting on the stronger members of the Eurozone (Germany, France) without the baggage from the weaker members that comes with owning the euro. The benefits of Swiss neutrality (it is a member of neither the European Monetary Union nor the G7 and was one of the last countries to join the United Nations) have trickled all the way down to the franc.

In 2009, the SNB undertook a serious effort to prevent the franc from rising, and it even managed to hold the franc at €1.50 for several months. This can be seen in Figure 2-7. The upward pressure on the franc instead found an outlet in the CHF/USD, which rose by a whopping 60% from 2009 to 2011! The franc eventually broke through the barrier with the euro, rising to a record high and costing the SNB more than $20 billion in losses. In September of 2011, the SNB shocked the markets when it resumed its campaign and announced that the franc would not be permitted to rise beyond €1.20.

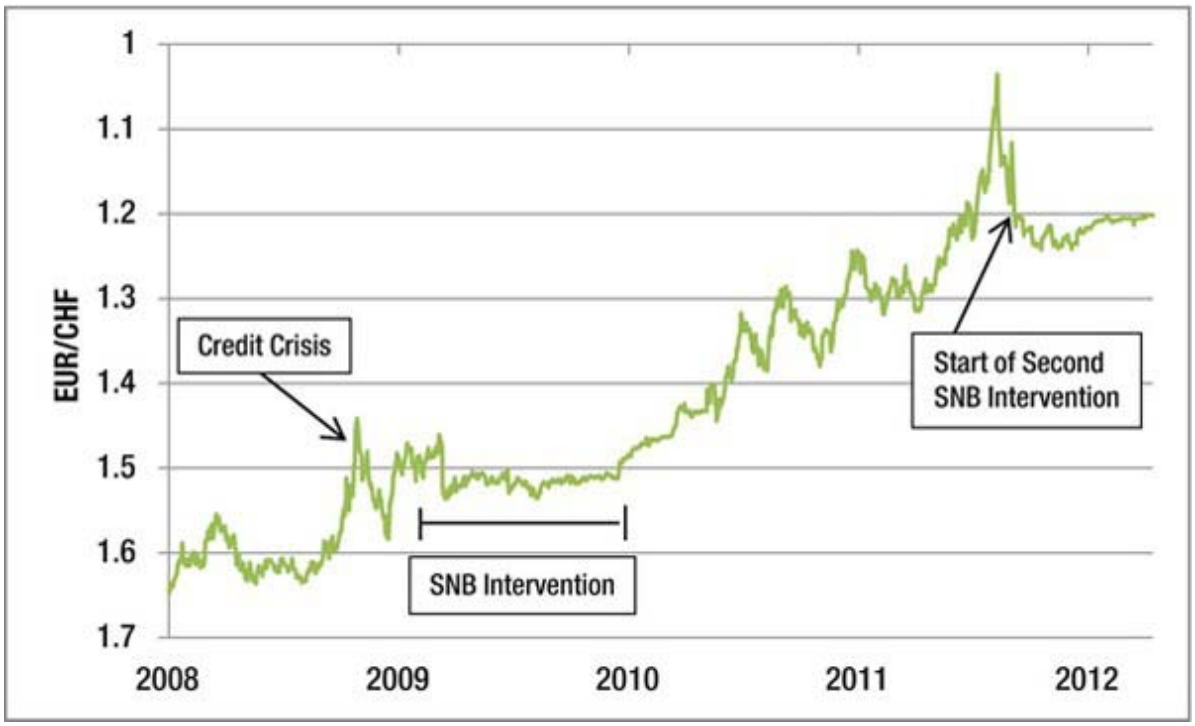


Figure 2-7. Rising franc (shown in reverse) and SNB intervention

Canadian Dollar

The Canadian dollar (or *Loonie*) is one of a handful of major currencies that correlates closely with commodity prices. Canada is one of the world's major producers of petroleum, electricity, timber, and certain agricultural products. Thus, the commodities boom that began in the 2000s and picked up again in 2010 coincided with a steady rise in the Loonie, which breached parity (1:1) against the US dollar for the first time in 30 years. This can be seen in Figure 2-8.

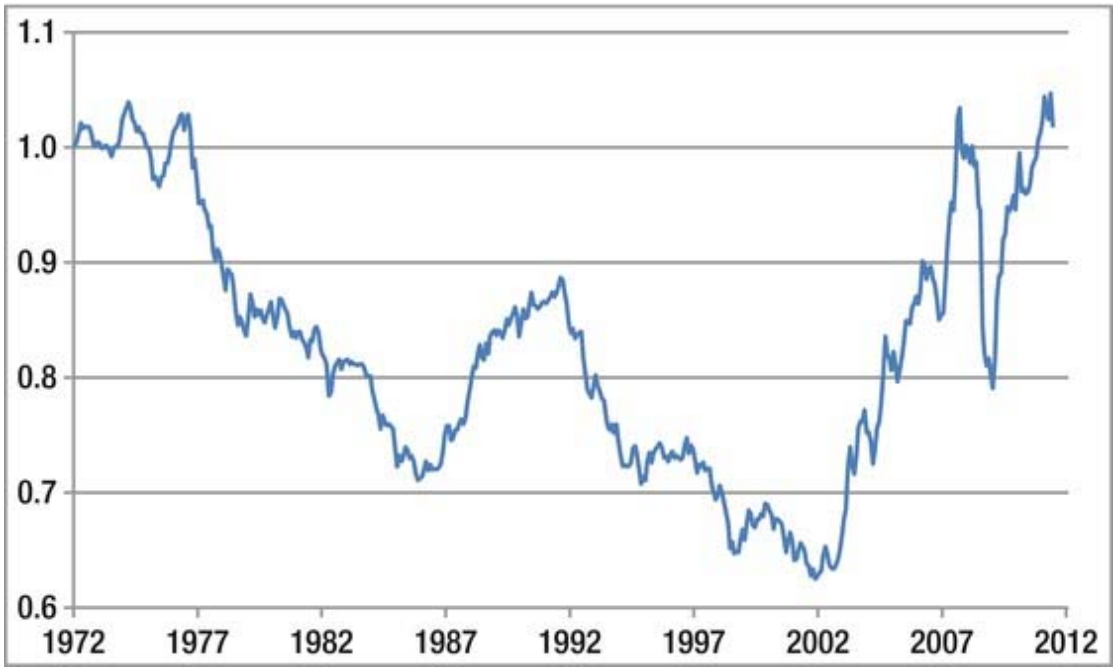


Figure 2-8. Recent history of CAD/USD

Ultimately, the most important facet of Canada's economy is its relationship with the United States. Canada is the most important foreign supplier of oil, natural gas, and electricity to the United States. Moreover, the United States absorbs around 75% of all Canadian exports. Thus, the economic fortunes of Canada hinge closely on those of the United States, and so it should come as no surprise that the economic downturn in the United States, combined with a soaring Loonie, hit Canada hard. In 2009, the balance of trade shifted towards deficit, and reports of cross-border shopping trips by deal-hunting Canadians have since abounded in the news media. Some commentators wonder whether the Loonie really deserves to trade at parity with the dollar.

Australian Dollar

The correlation between the Australian dollar (or *Aussie)* and commodities prices is perhaps the strongest among the so-called *commodity currencies*, as can be seen in Figure 2-9. In fact, Australia is among the world leaders in the production of coal, iron ore, and other precious metals. Thanks to these vast resources of energy and commodities, supported by interminably growing demand from China, Australia managed to emerge from the global financial crisis virtually unscathed.

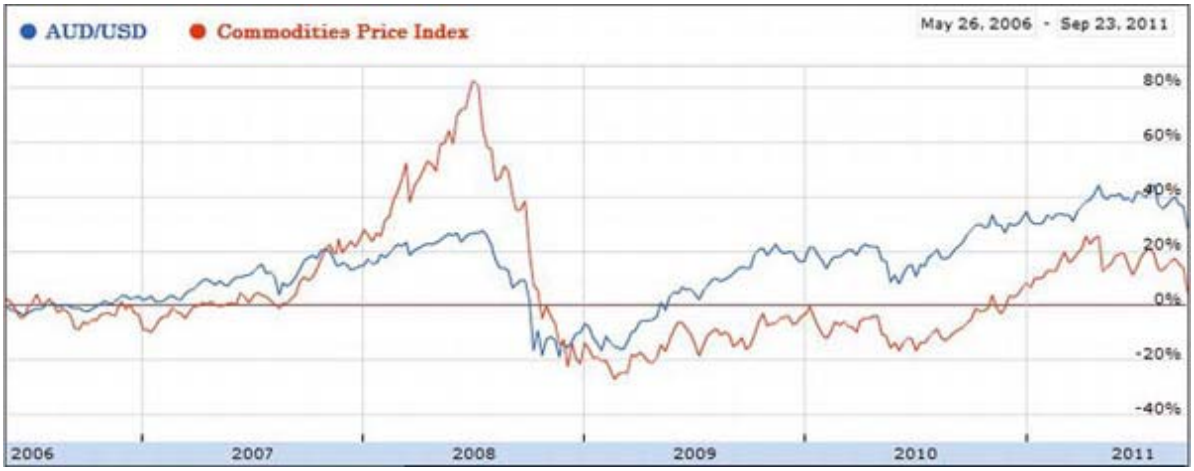


Figure 2-9. Correlation between AUD/USD and commodities prices

There are a couple of other observations that can be made about the Australian dollar. First, Australia's economy is closely tied to that of Asia—the destination for the majority of its exports—and especially China. As the Chinese yuan is pegged to the US dollar (more on that later) and Chinese capital markets are somewhat opaque, investors have started to treat the Australian dollar as a proxy for investing in the Chinese yuan. Second, Australian interest rate levels tend to be significantly higher than those in other industrialized countries. The Reserve Bank of Australia's (RBA) benchmark rate touched 7.25% in 2008, and was held above 3% during the depths of the global financial crisis. When investor risk appetite is high, then, Australia typically experiences an influx of speculative capital from investors seeking to take advantage of relatively high interest rates.

New Zealand Dollar

The New Zealand dollar (or *Kiwi)* is influenced by the same key economic factors as the Australian dollar; namely, high GDP growth, high inflation and interest rates, and a reliance on commodities as a driver of economic growth. Instead of metals and energy, however, New Zealand is a leading producer of dairy products and agricultural staples. Due to these factors as well as mere proximity, the NZ dollar has historically traded close to the Australian dollar, which can be seen in Figure 2-10. An unfavorable balance of trade and relatively high public debt levels, however, have caused the Kiwi to fall behind in the last several years.

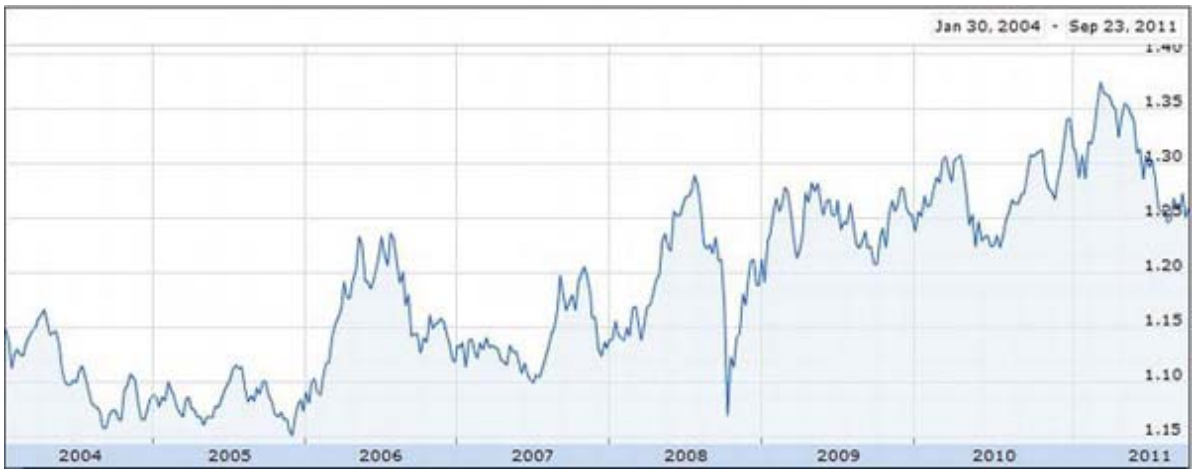


Figure 2-10. Recent history of AUD/NZD

Hong Kong Dollar

While Hong Kong is politically part of China, its economy and monetary system are still considered separate entities. It has its own currency and an independent central bank. However, its currency—the Hong Kong dollar—has been pegged at 7.8 HKD/USD since 1983 and is permitted to fluctuate only within a tight band. Despite being the eighth most traded currency in the world, it is ironically of little interest to currency speculators. It is important to forex markets mainly because of the vast sums its central bank must spend in order to maintain the peg. It has built up foreign exchange reserves of approximately $300 billion, providing great support for the US dollar in the process.[3]

Chinese Yuan

The Chinese yuan (or *renminbi*, RMB) should be one of the most important currencies in the world. The Chinese economy is already the world's second largest, and it leads the world in the volume of international trade. Alas, the People's Bank of China (PBOC) pegs the yuan to the US dollar at an artificially low rate in order to provide a benefit to Chinese exporters. Technically, the yuan has been allowed to float freely since 2005, as can be seen in Figure 2-11.

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[3] Hong Kong Monetary Authority, *Annual Report 2010*, www.hkma.gov.hk/media/eng/publication-and-research/annual-report/2010/ar2010.pdf.

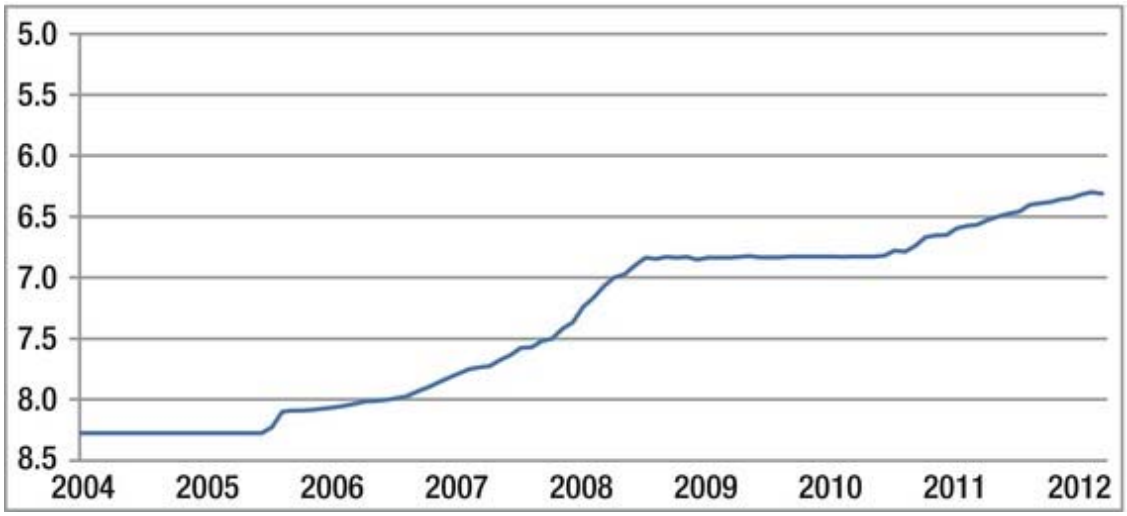


Figure 2-11. Recent history of CNY/USD (with exchange rate shown in reverse)

While it has risen by more than 25% against the US dollar in the ensuing years, however, its appreciation is still tightly controlled and remains an important component of China's national economic policy. In order to maintain this peg, the PBOC must buy $40 billion in foreign currency every month. It also strictly limits the trading of yuan outside of its borders, and maintains rigid controls on the movement of capital in and out of the country.

In addition, China's capital markets are disproportionately small, and far from transparent. Most public companies are majority-owned by the state, and a lack of accounting controls has given rise to repeated corporate scandals. As companies tend to borrow directly from banks, and municipal governments borrow from the central government (or not at all), the bond markets are similarly undeveloped. Furthermore, China's multi-tiered market structure discriminates against foreign investors. Even in matters of foreign direct investment (FDI), foreign companies are typically required to enter into joint ventures with local partners.

The Chinese government has tried to encourage the use of the yuan to settle trade. Toward this end, it has signed swap agreements with a handful of trade partners. In the end, however, the yuan will not achieve widespread acceptance until it is truly allowed to float freely and until Chinese capital markets are liquid enough to absorb significant inflows of international capital. Thus, it may account for "about 3% to 12% of international reserves by 2035."[4]

By most estimates, the yuan remains undervalued. Unfortunately, further appreciation depends more on political factors than on financial economic forces. For those that nonetheless want to bet that the yuan will be worth more in the future, there are investment vehicles that enable such speculation that will be discussed later in this chapter.

Exotic Currencies

With a handful of exceptions (Swedish krona, Norwegian krone, Singapore dollar, etc.), the rest of the lot can be broadly lumped into the category of *exotic currencies.* As most of these currencies also happen to be associated with emerging market economies, they are often referred to as *emerging currencies* or *emerging market currencies*. Emerging market currencies are somewhat akin to growth stocks and high-yield bonds. They are characterized by extremely high rates of growth, but also by high rates of inflation. Their capital markets are not as sophisticated and transparent as their G8 equivalents, but they are often

backed by high interest rates. During boom times, their currencies typically outperform major currencies. During times of crisis or uncertainty, their currencies are likewise the biggest sufferers.

While emerging currencies account for a minority of forex turnover, their share is growing rapidly. The 14 exotic currencies depicted in Figure 2-12, for example, accounted for a combined 9% of overall volume in 2010, compared to a meager 2% in 1998.

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[4] Asian Development Bank, *The Future Global Reserve System—An Asian Perspective*, June 2010, http://aric.adb.org/grs/papers/Future_Global_Reserve_System.pdf.

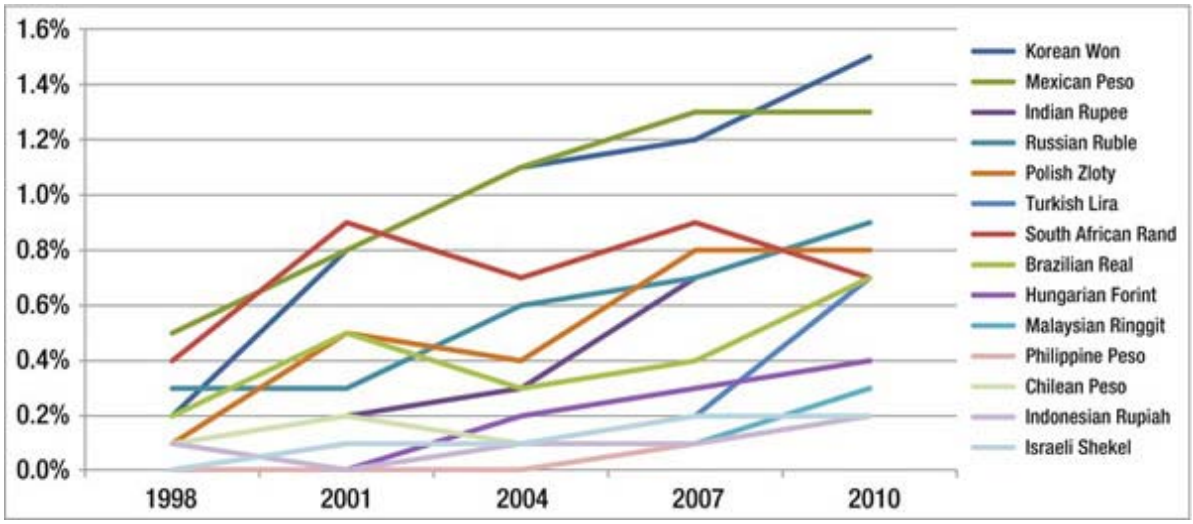


Figure 2-12. Growing share of forex market turnover by emerging currencies

The consensus among forex market watchers is that emerging market currencies nonetheless represent the future. Their economies collectively account for more than half of the global economy and an even greater share of global growth. In 2010, emerging market economies expanded at a collective 7.1%, compared to 2.7% growth in advanced economies. The disparity in financial market returns is similarly wide. Emerging market central banks control the majority of the world's foreign exchange reserves, and collectively add nearly $1 trillion in new reserves every year. Debt levels in advanced economies are projected to reach 114% of GDP in 2014, compared to 35% in emerging market economies.

At a certain point, the rise in emerging market currencies will become self-fulfilling. For now, liquidity is still too low and spreads are still too high to attract serious institutional interest. A handful of currencies, such as the Korean won, Mexican peso, and South African rand, are settled by the CLS Bank and are thus more attractive to speculators. Even so, trading such currencies against anything besides the US dollar or euro would be uneconomical. With a few exceptions, then, the majority of emerging currencies are suitable only for medium-term (greater than one month) and long-term (less than three months) trend trading.

Investors are often quick to lump emerging market currencies into one group, as though they move as one cohesive bunch. To be fair, sometimes this practice is indeed justified. During the credit crisis, for example, emerging currencies rose and fell in unison, in accordance with the frequent changes in investor market sentiment. During periods of normal market function, however, emerging currencies fluctuate independently. Every economy is different, and the characteristics of one currency might be completely

different from the currency of a bordering country. For example, Brazilian interest rates are among the highest in the world, and the Brazilian real is a popular currency for yield-hungry carry traders. South Africa is a leading producer of gold, and the South African rand sometimes mirrors gold prices. The same can be said for Mexico (oil), Russia (natural gas) and Chile (copper). South Korea is a high-tech export powerhouse, and the Korean won can be counted on to outperform when the global economy is strong. As a result, performance can vary significantly from one emerging currency to another (Figure 2-13).



Figure 2-13. Variations in performance among emerging currencies

There is one final point that I would like to make regarding emerging market currencies: their governments pay much closer attention to them than advanced economies do to their respective currencies. Due to higher saving rates and lower domestic spending, emerging market economies are often more dependent on exports to drive growth. That means that their central banks have a vested interest in keeping their currencies as cheap as possible. Thus, you can always count on emerging markets to step in when their currencies appreciate too quickly. Sometimes, they will verbally warn speculators. Other times, they will impose capital controls (in the form of taxes or other punitive measures) in order to limit short-term investment inflows and stem the upward pressure on their currencies. As we will see in Chapter 3, such efforts are rarely successful in the long-term, but traders need to be aware of them in the short-term.

Currency Trading Instruments

Choosing a currency pair to trade represents only the tip of the currency-trading iceberg. In fact, currencies are exchanged through a wide variety of different instruments, and each one is governed by different rules and different strategies. For administrative purposes, instruments are classified as spot, forward, futures, options, or swaps. (See Figure 2-14.)

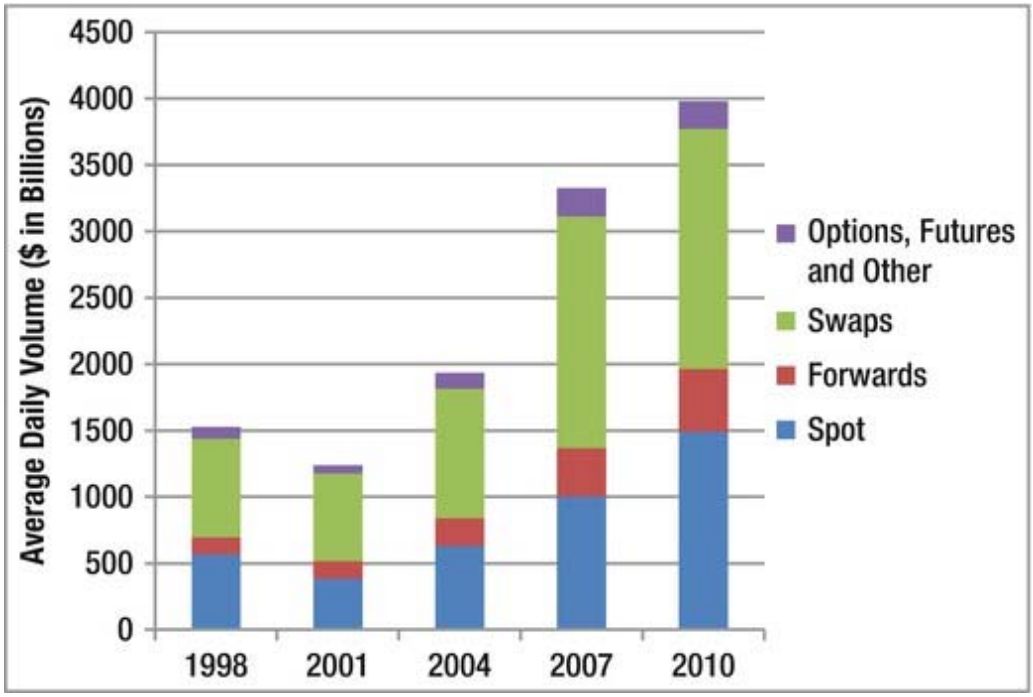


Figure 2-14. Daily forex turnover, by instrument[5]

Spot Instruments

A spot transaction is defined as a "single outright transaction involving the exchange of two currencies at a rate agreed on the date of the contract for value or delivery (cash settlement) within two business days."[6] For all intents and purposes, *spot* refers to all real-time, actual currency trades. If you are buying and selling currency right now (as opposed to at some point in the future), you are almost certainly engaging in spot trading. While this probably sounds repetitive, consider that the vast majority of forex exchange contracts are intended for delivery in the future, or not at all!

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[5] BIS, *Triennial Central Bank Survey of Foreign Exchange and Derivatives Market Activity in April 2010*, September 2010, www.bis.org/publ/rpfx10.pdf.

[6] Ibid.

As I explained in Chapter 1, most spot trading takes place electronically and instantaneously. Traders simply select the currency pair they want to trade and the amount of currency, key the order (along with a few other variables) into their trading platform, and *voilà*, a spot trade is executed. This goes for both institutional and retail traders.

Exchange Traded Funds

Some retail traders will inevitably find it easier to trade currencies indirectly, through Exchange Traded Funds (ETFs) or Exchange Traded Notes (ETNs). Those of you who have invested casually in the stock market are probably familiar with ETFs. With their low expense ratios and high liquidity, they represent attractive alternatives to mutual funds.

An ETF is almost identical to a mutual fund, with the main difference that it must be listed on an exchange and hence is very easy to buy and sell. An ETN is functionally identical to an ETF, but it is structurally different. ETN investors necessarily assume the *credit risk* of the issuer, whereas an ETF holder bears no such risk. For this reason, ETFs are more common with investors than ETNs. Both types of securities trade on stock exchanges and are regulated by the United States Securities and Exchange Commission (SEC).

Currency ETFs run the gamut from passive exchange rate funds to actively managed strategy funds. There are already 37 such funds that trade on US exchanges, and a few dozen more that trade in London or Toronto (Table 2-2).

Table 2-2. List of Currency ETFs/ETNs Traded on US Exchanges

WisdomTree Dreyfus Commodity Currency Fund	CCX		CurrencyShares Russian Ruble Trust	XRU
WisdomTree Dreyfus Emerging Currency Fund	CEW		WisdomTree Dreyfus New Zealand dollar Fund	BNZ
WisdomTree Dreyfus Japanese yen Fund	JYF		WisdomTree Dreyfus South African Rand Fund	SZR
WisdomTree Dreyfus Indian Rupee Fund	ICN		WisdomTree Dreyfus euro Fund	EU

PowerShares DB US dollar Index Bullish Fund	UUP	Market Vectors Chinese Renminbi/USD	CNY
Barclays Asian & Gulf Currency Revaluation	PGD	CurrencyShares Swiss Franc Trust	FXF
Barclays GEMS Asia 8	AYT	FactorShares 2X S&P 500 Bull/USD Bear	FSU
Barclays GEMS Index	JEM	EUR/USD Exchange Rate	ERO
CurrencyShares Australian dollar Trust	FXA	ProShares UltraShort yen	YCS
CurrencyShares British pound Sterling Trust	FXB	WisdomTree Dreyfus Brazilian Real Fund	BZF
CurrencyShares Canadian dollar Trust	FXC	ProShares Ultra yen ETF	YCL
WisdomTree Dreyfus Chinese Yuan Fund	CYB	ProShares UltraShort euro	EUO
CurrencyShares euro Trust	FXE	GBP/USD Exchange Rate	GBB
CurrencyShares Japanese yen Trust	FXY	ProShares Ultra euro	ULE
CurrencyShares Mexican Peso Trust	FXM	Market Vectors Double Short euro	DRR
Market Vectors Indian Rupee/USD	INR	PowerShares DB G10 Currency Harvest Fund	DBV
Market Vectors Double Long euro	URR	PowerShares DB US dollar Index Bearish Fund	UDN
iPath Optimized Currency Carry	ICI	JPY/USD Exchange Rate ETN	JYN
CurrencyShares Swedish Krona Trust	FXS		

Of course, there are a few downsides to ETFs. They carry expense ratios (~1–2%)—which eat into returns—and are subject to trading commissions. They are also never as liquid as the underlying currencies, such that spreads are higher. Stockbrokers offer lower leverage than foreign exchange brokers, and are not capable of paying interest on one's open foreign exchange positions. Finally, currency ETFs provide only indirect exposure to currencies, and there is always a slight lag between fluctuations in the ETFs and fluctuations in the underlying currency or currencies (Figure 2-15). Still, for long-term investors who wish to integrate currencies into a diversified portfolio, ETFs are an excellent choice.

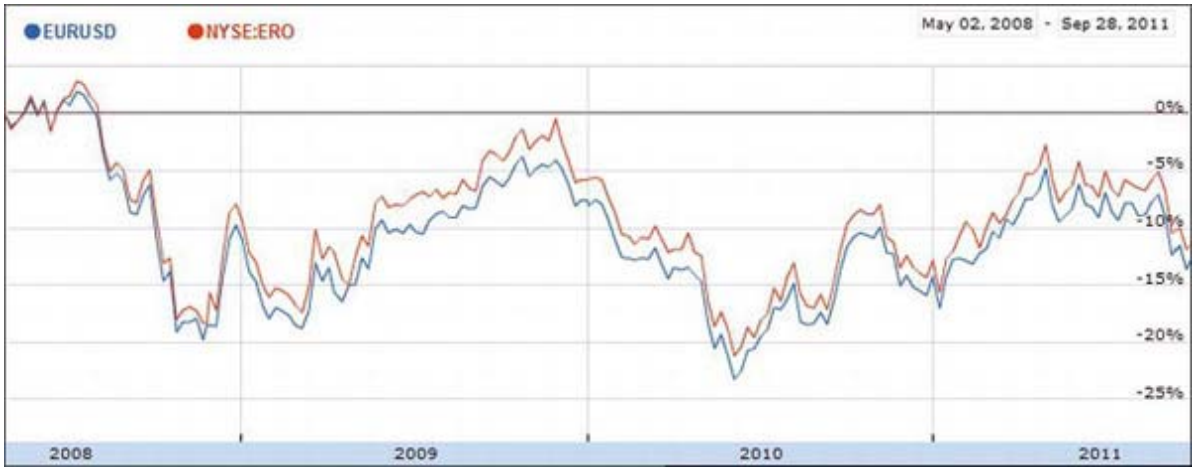


Figure 2-15. EUR/USD spot rate versus comparable ETF

Investors that want to make basic directional bets in the forex market can choose between ETFs that track individual currencies and ETFs that track multiple currencies. There are currently ETFs for the US dollar, euro, Swiss franc, Australian dollar, New Zealand dollar, British pound, Canadian dollar, Japanese yen, Mexican peso, Brazilian real, Indian rupee, Russian ruble, Swedish krona, Chinese yuan, and South African rand, spread across six different issuers. For the dollar and the euro, investors can choose between multiple issuers. Some of these funds even contain built-in leverage and/or mimic a "short" investment (though all currency trades necessarily involve a short bet).

Currency investors that want diversified exposure can buy bundled-currency ETFs, such as the PowerShares DB US Dollar Bullish Fund (UUP) and Bearish Fund (UDN), which are designed, respectively, to replicate buying or selling the dollar against six major currencies. Other options include the Barclays Global Emerging Markets Strategy ETN (JEM), which is comprised of 15 equally weighted currencies, and the Emerging Market Asia Fund (AYT), which consists of 8 emerging Asian currencies.

Finally, there are actively managed funds that aim to achieve particular strategies. For example, the Barclays iPath Optimized Currency Carry Exchange Traded Note (ICI) is composed of long positions in high-yielding currencies (those with high local deposit rates) funded with low-yielding (those with cheap borrowing rates) currencies. Rather than seek to profit from currency appreciation, these funds aim to capture the spread from interest rate differentials. The PowerShares DB G10 Currency Harvest Fund (DBV) employs a similar strategy, aided by leverage. For those with a higher risk tolerance but aversion to hassle, both funds provide a great proxy for the so-called *carry trade*.

Forwards

A forex forward agreement is an obligation to buy or sell a specific currency (pair) on a future date for a fixed price that is set on the date of the contract. As with the other types of instruments detailed below, a forward agreement is a kind of *derivative*, so-called because its value is *derived* from some other instrument, in this case the physical currency.

Forward agreements do not generally trade on exchanges and are instead executed directly between two counterparties. That being said, forex forward volume is immense (~$500 billion per day), and it's relatively easy to obtain forward rate quotes for certain currency pairs.

While retail traders are unlikely to ever be in a position to execute a forward agreement, it's still worth being aware of their existence. Forwards are priced in terms of (expected) interest rate differentials

between two currencies. For example, if expected Eurozone interest rates are higher than expected US interest rates for the period of time that the forward contract is outstanding, then the forward price for the EUR/USD will reflect a higher exchange rate (i.e., a more highly valued euro relative to the dollar) in the future. As (expectations of) interest rates change over time, so do forward rates. This structure makes it easy for banks to underwrite forward contracts, because they can immediately hedge their exposure through the credit markets.

The downside of this pricing mechanism is that forward prices are of limited value when it comes to forecasting exchange rate movements in the spot market. The one exception to this rule is the *Non-Deliverable Forward* (NDF). These contracts are used for currencies that are governed by strict capital controls and whose trading is often severely restricted. While priced in terms of exotic currencies, NDFs are settled in US dollars (or another major currency), rather than in the underlying currency. NDFs theoretically are based on interest rate differentials, but in practice, they may reflect market expectations for future exchange rates. For example, trading in the Chinese yuan—especially offshore trading—is severely restricted by the Chinese government. Those that want to speculate on or hedge exposure to the yuan are thus unable to execute traditional forward agreements because they don't have access to enough yuan to settle the contracts. Instead, they turn to NDFs and settle the contracts in US dollars, based on the difference between the USD/CNY spot price and the contracted forward rate.

Since the parties to a Chinese yuan NDF contract also lack access to Chinese credit markets and deposit accounts, Chinese yuan NDFs (and most NDFs, for that matter) tend to reflect expectations for the future USD/CNY exchange rate rather than expected interest rates. Furthermore, since speculators are limited in their ability to bet directly on the yuan, they will often turn to NDFs as a good proxy for such a bet. Reporters often quote NDF rates in news articles (on the yuan) as an indication of market expectations for the direction of the USD/CNY rate.

Swaps

Recall from Figure 2-14 that swaps represent the bulk of all forex transactions. There are a handful of different kinds of swaps that fall under the umbrella of foreign exchange trading, but they can generally be classified as either *forex swaps* or *currency swaps*. *Forex swaps* involve the exchange of two currencies on a given date at a given rate and the reverse exchange of the same two currencies at a later date and a different rate (Figure 2-16).

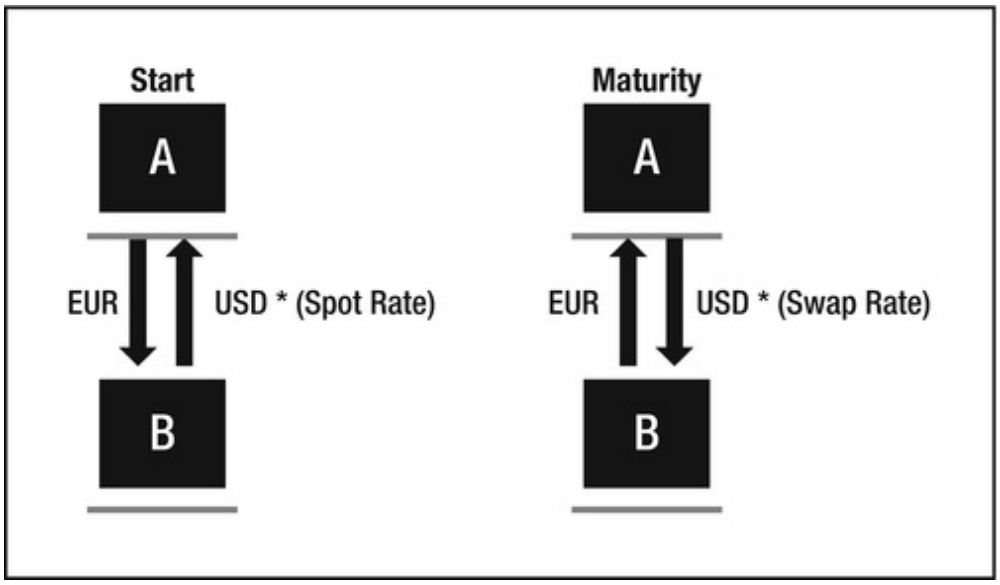


Figure 2-16. Structure of USD/EUR forex swap

Mainly financial institutions, speculators, and central banks use forex swaps. Financial institutions enter into forex swap agreements for the primary purpose of altering the dates on their foreign currency liabilities. For example, if a financial institution already has an existing forward agreement to exchange dollars for euros, but wishes to push the maturity date back by a month, it can execute a one-month USD/EUR forex swap. Forex brokers, meanwhile, rely on forex swaps for accounting purposes. With the use of a one-day *tom/next forex swap*, a broker can convert all of its clients' balances into the home currency at the end of each trading day and reconvert them (with interest) the following day. Speculators use swaps in the same way as forwards—to make bets on future exchange rates.

Central banks, finally, utilize forex swaps for liquidity purposes. During the credit crisis, for example, the Federal Reserve Bank opened swap lines with a dozen of the world's central banks in order to ease a sudden worldwide shortage of US dollars. In this way, foreign central banks were able to obtain enough US dollars to fulfill domestic demand and reduce rapid devaluation in their home currencies. When the liquidity crisis subsided, these dollars could then be reconverted into their home currencies per the Fed's swap agreements. Sure enough, Fed liquidity swaps have declined from a peak of $582 billion in the fall of 2008 to nil today.[7]

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[7] Federal Reserve Economic Data (FRED), Federal Reserve Bank of St. Louis, Board of Governors of the Federal Reserve, "Central Bank Liquidity Swaps Held by the Federal Reserve: All Maturities," accessed April 19, 2012, http://research.stlouisfed.org/fred2/series/SWPT?rid=20.

Currency swaps (also known as *cross-currency basis swaps*) are slightly more complicated, and therefore much less common than forex swaps. Per Figure 2-17, a currency swap agreement involves the exchange of principal and interest payments denominated in two different currencies between two parties.

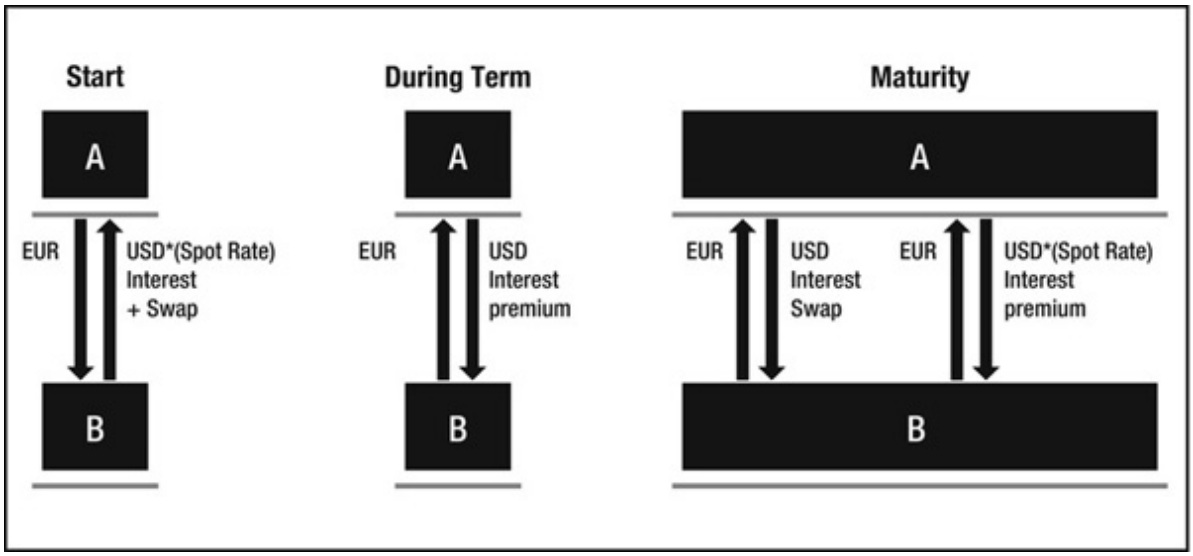


Figure 2-17. Structure of USD/EUR currency swap

The principal function of currency swaps is to enable two entities located in two different countries to borrow in foreign currencies at home-currency interest rates. They are of the most use to multinational companies and institutional investors to fund foreign direct investments and portfolio investments, respectively.

The *credit default swap* (CDS) is also relevant to currency traders (though it is not technically categorized as a forex transaction). A CDS functions as an insurance policy against the possibility of a bond default. A buyer of a CDS must pay both an upfront premium and annual premiums to the writer, who in turn is contractually obligated to pay compensation in the event of default on an underlying credit instrument. The upfront insurance premium is determined by the market, and denominated in basis points (equal to 1/100 of 1%). From this upfront premium, it is possible to deduce the market's estimation of default probability. Per Figure 2-18, a buyer of a CDS on a five-year Greek government bond would pay an upfront insurance premium of 5,900 basis points ($5.9 million) on every $10 million of debt that he wants to insure. This corresponds to a 98% probability of default. A buyer of an equivalent CDS on five-year US Treasury bonds, in contrast, would pay only 45 basis points ($45,000), implying a 4% chance of default.

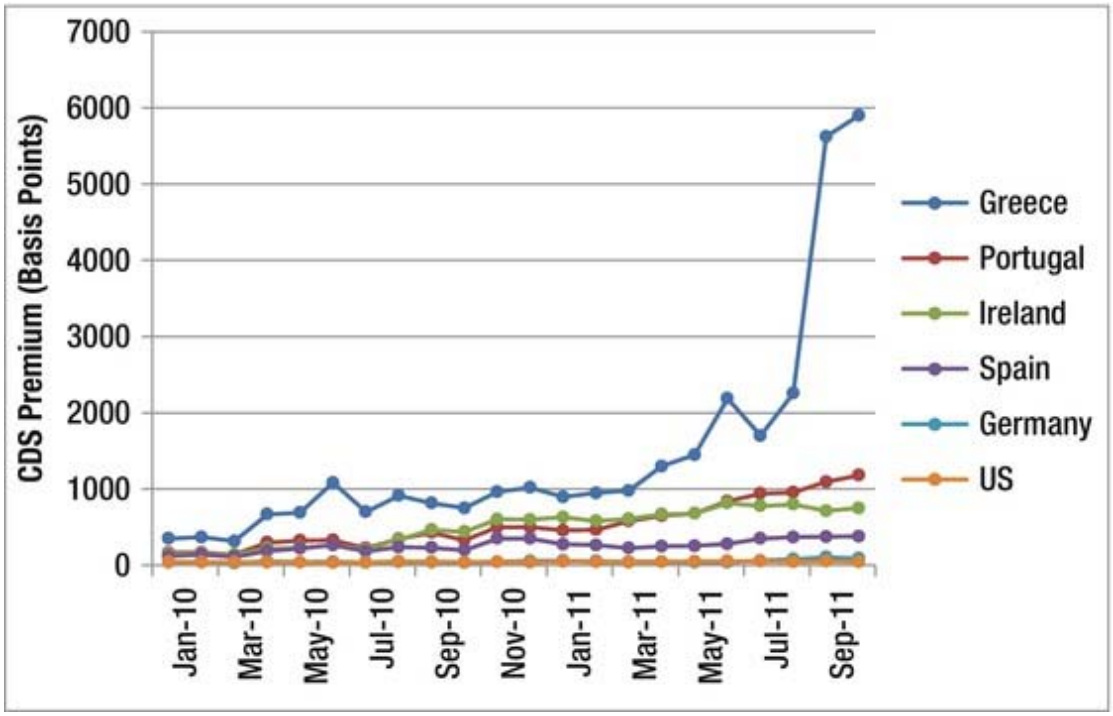


Figure 2-18. Comparison of credit default swap rates, 2009–Present (Source: Bloomberg)

The CDS was originally conceived as a hedging tool, but has since evolved into a big source of income for the financial institutions that underwrite them, and is popular among speculators. CDS rates are particularly interesting to forex traders for two main reasons. First, they serve as an excellent indication of default expectations, compared to bond rates and other metrics. Second, they are useful for gauging ebbs and flows in investor risk perceptions, pertaining both to individual currencies and the overall market. Simply, when CDS rates spike upward, it is both a reflection and a driver of risk aversion.

Futures

Forex futures are conceptually similar to forex forwards in that they allow parties to lock in a future exchange rate for a particular currency pair. Unlike forwards, however, futures contracts trade through centralized exchanges (rather than directly between two parties) and are governed by a set of standardized terms. Contracts can expire only at the end of a quarter (on the third Wednesday of March, June, September, and December), notional amounts are fixed for each currency pair, and terms are virtually the same for every contract.

In addition, futures contracts are *marked-to-market*, which is to say that cash changes hands between counterparties every day, rather than only on the date of maturity. By way of example, consider a party that purchased a futures contract that obligates it to buy 100,000 euros at a rate of $1.40 per euro three months from today. Now let's say that today's rate is $1.35 per euro. If tomorrow, the EUR/USD rate appreciates to $1.36 per euro, then the value of the futures contract will change, and the buyer will receive an immediate payment from the counterparty. In contrast, an investor who makes a bet on the EUR/USD in the spot market would only realize an actual gain or loss upon selling the currency.

This kind of continuous back-and-forth system of payments eliminates credit/counterparty risk and makes futures contracts arguably safer than forwards. In addition, since money changes hands daily, both parties are implicitly "even" upon the maturity of the contract, and (in most cases) physical delivery of currency (per the terms of the agreement) is unnecessary. On the other hand, the risk that monetary losses may be

experienced prior to expiration is a risk that is intrinsic to forex futures contracts and must be taken into account.

Futures are especially well suited to directional bets on exchange rates because they are priced in terms of a broad array of factors—not just in terms of interest rate differentials, as are forex forwards. In other words, if the current EUR/USD rate is 1.38 and the six-month futures price is 1.45, the implication is that the markets collectively believe that the euro will appreciate by seven cents against the US dollar over the next six months.

Forex futures are traded on a handful of exchanges, including the Tokyo Financial Exchange, Intercontinental Exchange, and NYSE Euronext. The vast majority of trading, however, is conducted electronically on the Chicago Mercantile Exchange (CME), which offers futures contracts for more than 20 different currencies and 40 unique pairs, and processes more than $100 billion in contract volume every day. Traders can also make bets on volatility and trade non-standard contract sizes using CME E-Micro Forex Futures.

Forex futures trading activity is dominated by speculators. At the same time, futures also serve an important practical function—known as *hedging*—for both investors and corporations. Hedging allows participants in the forex market to limit their exposure to currency fluctuations. For example, a US company that expects to receive €100 million in three months can lock in an exchange rate for that payment today. If the actual spot rate is higher than the contracted rate when the futures contract expires, then the company will have saved itself money. Of course, if the dollar declines over the next three months, the corporation must ultimately accept a less favorable exchange rate. In this case, it would have been better for the company to convert the €100 million into US dollars only after it had received the money. At the very least, however, there is something to be said for the fact that the company eliminated any uncertainty (also known as risk) by locking in an exchange rate in advance, and one could therefore argue that the hedge fulfilled its purpose.

Options

Forex *options* represent the smallest component of the forex market. After an explosive rise over the course of the last decade, growth in volume has slowed, and options now account for a mere 5% of overall daily forex turnover.

An *option* is unique in the financial world, because it carries a choice (i.e., the “right”), rather than an outright obligation, to buy or sell a given financial asset. Specifically, a forex *call option* gives the buyer the right to buy one currency pair, at a given exchange rate, on or before a pre-determined date. Conversely, a forex *put option* gives the buyer the right to sell a currency pair, again at a given rate, on or before a pre-determined date. In exchange for this right, the buyer must pay a *premium* to the seller of the option, who in turn has the *obligation* to honor the terms of the option if/when the buyer chooses to exercise his or her right.

American-style options allow the buyer to execute his or her right to buy or sell at any time on or before the expiration date. *European-style options,* however, only support execution at the date of expiry. With *Asian-style options* (which are not particularly common), the payoff depends on the average exchange rate during a given period of time. This is designed to prevent surges in volatility around the date of expiration from significantly influencing the profit/loss from the option. There are also dozens of other iterations, which, alas, are beyond the scope of this book.

Forex options are also unique in that they can inherently be seen as both put and call options, regardless of how they are denominated. While a call option to buy shares in Microsoft can only be interpreted as

just that, a call option to buy euros for dollars can also be seen as a put option to sell dollars for euros. Unfortunately, this complicates pricing, because certain variables (namely interest rates) for two different assets need to be taken into account.

With most other types of forex securities, there is simply a market price. For example, if I absolutely must exchange dollars for euros in March 2013, I have no choice but to pay the market price for the corresponding futures price. If the futures rate is $1.50, then $1.50 is what I must agree to pay in the future in order to lock in a rate today.

With a forex option, in contrast, I can choose the so-called *strike price.* For example, if the current EUR/USD exchange rate is $1.40, I can buy a March 2013 call option for $1.30, $1.35, $1.40, $1.45, $1.50, etc. The price of the option (also known as the *premium*) will depend on the relationship between the *strike price* and the *spot price.* When the underlying exchange rate (also known as the spot price) exceeds the strike price for a call option, it is said that the option is *in the money*. When the strike price exceeds the spot price, the option is *out of the money*, and when the two are roughly the same, it can be said that the option is *at the money.* The opposite is necessarily true for a put option. Since currencies fluctuate constantly, the relationship between the exchange rate and the strike price (and hence the price of the option) must also change continuously. An option that is in the money today might be out of the money tomorrow.

These relationships should be made clear by Figure 2-19 below. One who buys an out-of-the-money call will realize a loss (in the form of the premium that he or she paid) until the underlying exchange rate exceeds the strike price by a margin equal to the premium that he or she paid. Beyond this point, the greater the appreciation of the underlying rate, the greater the value of the option will be. Naturally, the opposite is true for the party that underwrites the call option. As long as the actual exchange rate remains below the strike price, the upfront premium paid by the buyer represents profit. A massive appreciation in the underlying exchange rate, however, would expose the buyer to significant losses. Meanwhile, the buyer of a put option will only earn a profit if the exchange rate depreciates. The seller of that put option can pocket the upfront premium, but will be exposed to losses in the event of depreciation.

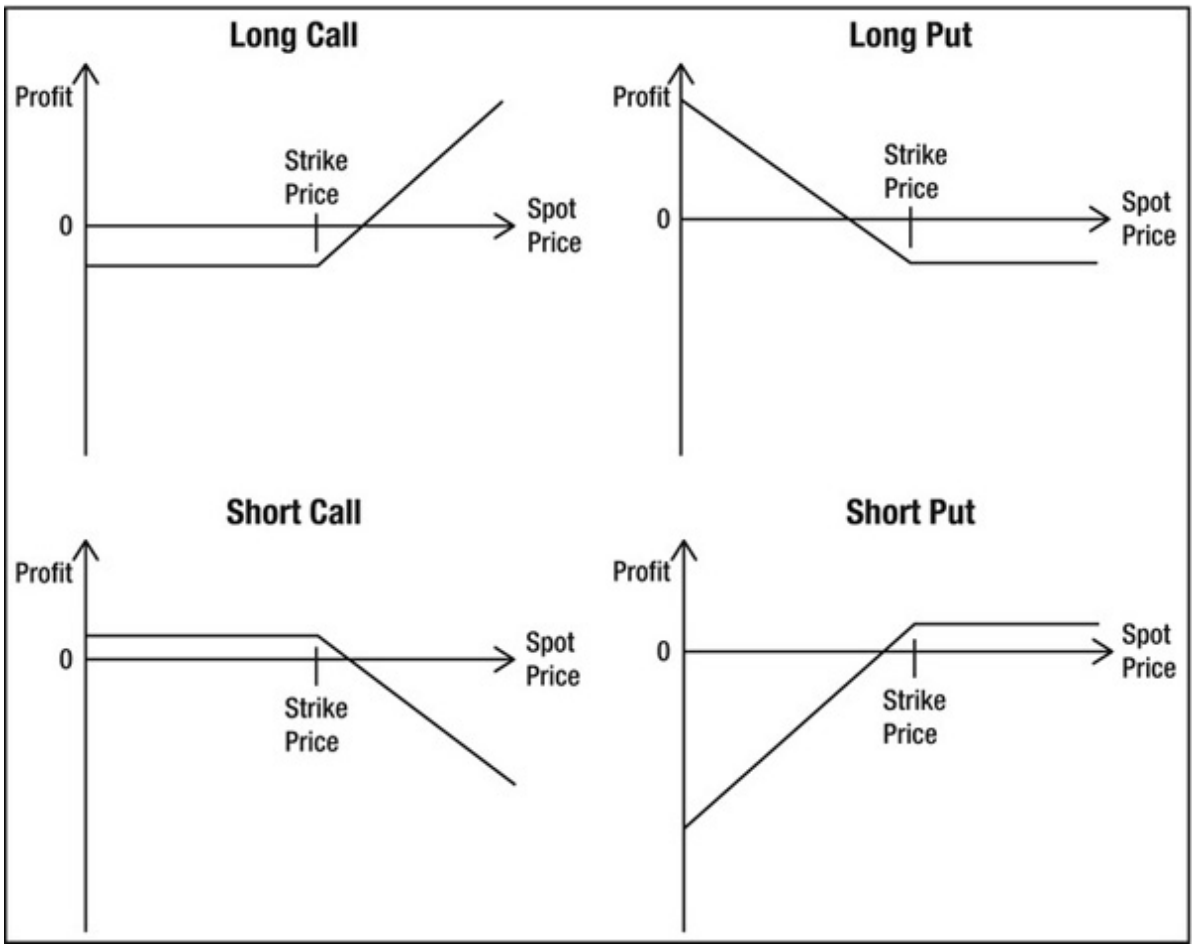


Figure 2-19. Profit/loss for various options

Participants in the options market typically use a variation of the *Black-Scholes* model (also known as the Garman Hagen model) as a basis for setting prices. Suffice it to say that this model is extraordinarily complex, and is based on the following variables: spot exchange rate, strike price, time until expiration, volatility, and interest rate differential. Alas, since volatility isn't known in advance, traders actually must approach the model in a backwards fashion. In other words, the market will set a price for each option agreement, from which the *implied volatility* can be induced.

Options are naturally useful for hedging purposes. For example, let's say you have an open USD/EUR position and you are concerned that a large downside loss would wipe out all of your profits. By paying a small "insurance" premium associated with an out-of-the money put, you could effectively protect yourself from the possibility of a sudden downside movement. A corporation might have the opposite problem, if it thinks that a surge in overseas Christmas sales might leave it with a big chunk of euros. Instead of executing a forward contract (which would leave it with the *obligation* to make an exchange of euros for dollars), it might instead buy a USD/EUR option. If its European sales fulfill expectations, the corporation will be protected from an adverse move in the USD/EUR by its forex options. If Christmas sales disappoint, it will have forfeited the option's premium, but at least it won't be forced into converting currency that it never received. As with futures contracts, the majority of forex options contracts are never exercised, and do not result in the actual delivery of the underlying currency.

Options are also attractive to speculators because they support complex trading strategies at costs that are lower than those offered in the spot market. For example, it might cost $100,000 in the spot market to bet

that the US dollar will appreciate against the euro, but it might cost only $5,000 to make the same bet in the options market! Moreover, by combining options with different strike prices and different expiration dates, it's possible to construct very particular trading strategies that target very specific price movements. For example, you can use options to bet that the market will trade flat (i.e., without volatility). Instead, you could bet *on* volatility and simultaneously buy/sell a put and a call option in a way that will yield profits if the exchange rate makes a big move in either direction, but a loss if the market trades flat. In Chapter 7, I will explore some of these forex trading strategies in greater detail.

Conclusion

If the possibilities seem overwhelming, consider that the majority of retail forex investors stick to trading ETFs or major currency pairs in the spot market. While such a choice curtails possibility and carries limitations, it greatly simplifies the decision-making process. Ultimately, forex can be as simple or as complex as you'd like. If you want to trade exotic currency pairs, rare types of options, or even swaps, there are plenty of brokers that will be more than happy to facilitate such trades for you. If you were initially attracted to forex by its lure of simplicity, however, it's probably best to stick to the 100 or so currency pairs that most retail brokers offer, or to a comparably-sized array of currency ETFs.

CHAPTER

3

What Makes Currencies Move?
An Exploration of the Key Forces That Cause Currencies to Fluctuate

A popular currency pair might fluctuate in price 18,000 times per day, and by 10%–20% per year.[1] This implies not only a constant shift in the supply/demand equilibrium for that currency pair, but also continuous changes in the financial-economic relationship between those currencies. In this chapter, I will introduce a framework for understanding these fluctuations, both in the short term and the long term.

Fixed vs. Floating

You should recall from the discussion of history in Chapter 1 that fluctuating currencies are actually a modern economic development. In fact, there are still a handful of currencies that are *fixed* by their central banks and fluctuate only slightly, if at all. There are currently more than 50 currencies that fall into this category, most of which are issued by countries in the Middle East, Africa, or the Caribbean region, and are of little consequence to the global economy.

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[1] International Monetary Fund (IMF), "International Capital Markets," *World Economic and Financial Surveys*, September 1998, www.imf.org/external/pubs/ft/icm/icm98/pdf/file01.pdf.

The advantage of dealing in currencies with fixed exchange rates is stability. For example, it is much easier for importers and exporters to make long-term business decisions if they know with reasonable certainty what their respective home currencies will be worth (relative to other currencies) five years from now. More to the point, an artificially cheap currency provides an invaluable boon to domestic exporters, which are able to compete at more favorable terms with exporters from other countries.

The main disadvantage of a fixed currency is that it deprives the issuing central bank of monetary independence. In order to uphold a currency peg, a central bank must closely align its monetary policy with the currency to which it is fixed in order to prevent disequilibrium and consequent unwanted attention from speculators. In addition, currency pegs are very expensive to maintain. Central banks must buy hundreds of billions of dollars (or an equivalent amount of another major currency) on the open market every year in order to constantly preserve the peg. They must further reinforce this peg with strict capital controls so as to limit the impact of inflows and outflows of capital on the exchange rate.

In most cases, currency pegs are extremely controversial because they promote global economic imbalances. For example, China's economic rise and the United States' growing trade deficit have been blamed on the fixing of the Chinese yuan to the US dollar. (It has also been the subject of a tense dispute between the two countries, and could eventually ignite a full-scale trade war!) As a result, currency pegs are mainly used by countries with unstable economies. The lone exceptions to this rule are Hong Kong (whose importance as a trading hub dictates that its currency be pegged to the US dollar), Denmark (which is part of the EU and whose krone is fixed to the euro), and Saudi Arabia (where the linking of the dinar to the US dollar ensures that fluctuations in the forex market don't impact its oil export revenues).

Currencies with fixed exchange rate regimes are naturally of little interest to currency investors. That's not to say that countries with fixed currencies are not worth investing in, but rather that it doesn't make much sense to take a speculative position in a currency when you have reason to believe that it won't move much over the next few years.

Technically, fixed currencies will still fluctuate against the currencies to which they are not pegged. For example, the Danish krone still rises and falls against the dollar, pound, etc., even as it remains fixed against the euro (Figure 3-1). Still, it makes more sense to trade the USD/EUR than the USD/DKK, due to higher liquidity and lower spreads.

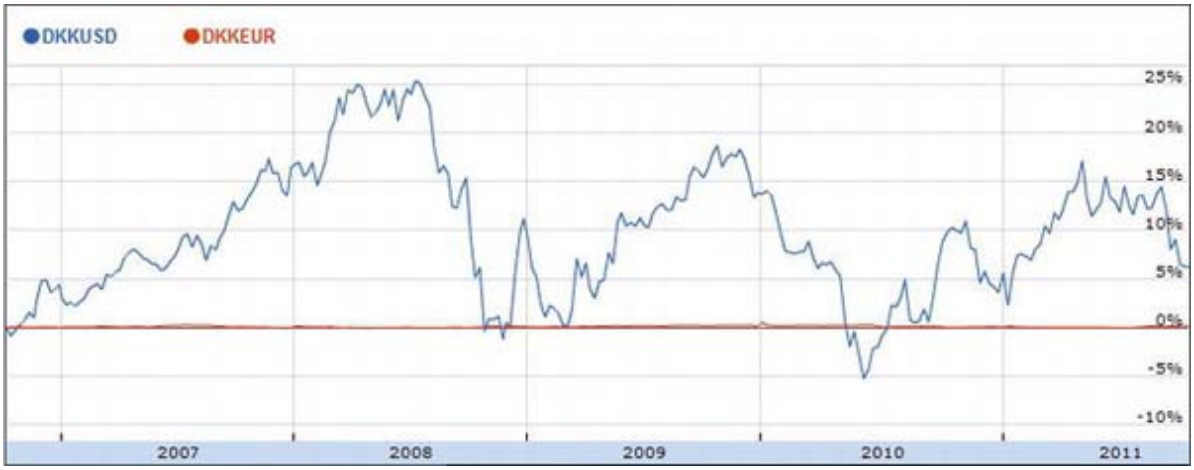


Figure 3-1. The Danish krone (DKK) is pegged to the euro but floats against the US dollar

Managed Floats

The rest of the world's major and minor currencies are governed by *floating exchange rate* regimes, which means that they rise and fall in accordance with market forces. In practice, however, it makes more sense to classify all exchange rate regimes as *managed floats* because central banks claim ultimate authority over their respective currencies. Indeed, central banks *can* and *do* intervene in the forex markets from time to time in order to influence exchange rates, and they are often successful in the short term in preventing their currencies from rising.

The Swiss National Bank (SNB), for example, spent $200 billion in 2009 in an attempt to hold the Swiss franc at the arbitrary level of €1.50 EUR/CHF. After nine months of success, however, it was overwhelmed by the weight of the forex markets (and a $20 billion loss) and stopped intervening. Other central banks "tinker" with their exchange rates indirectly, by imposing capital controls (Brazil) or by printing money and injecting it into financial markets (United States). In any event, no central bank is actually disinterested in its exchange rate, notwithstanding all of the rhetoric about "free markets." From time to time, almost every central bank takes steps that directly or indirectly impact the relative value of their respective currencies.

China takes this practice to an extreme. While it officially abolished its fixed exchange rate regime in 2005, its central bank has continued to intervene in the forex markets daily on behalf of the yuan. In the process, China has amassed more than $3 trillion in foreign exchange reserves and slowed the yuan's inevitable upward climb to a mere crawl.

Exchange Rate Theory

There is a large number of financial economists and a tremendous body of literature devoted to the study of exchange rate theory. The goal has always been to connect specific economic variables with fluctuations in exchange rates. Unfortunately, there are too many currency pairs and too many variables to construct a unified theory of exchange rates. In addition, the currency markets are confounded by the

role of speculators, who may not trade rationally, overemphasizing certain variables at the expense of others. Finally, currency markets and economic developments tend to be autocatalytic, which is to say that they drive each other in a chicken-vs.-egg relationship. For example, a change in the EUR/USD rate might cause the balance of trade to shift between the Eurozone and the United States, which in turn can cause the exchange rate to adjust further, and so on. As you can imagine, it is difficult for economic theories to capture this two-way causality.

Still, research has shown that the theories laid out below go at least part of the way toward explaining why currencies rise and fall against each other over time.

Purchasing Power Parity

The study of exchange rates begins with the theory of *purchasing power parity* (PPP), which states that exchange rates should adjust so as to equalize price levels in two countries. For example, let's pretend that the microchip is the only product that is traded between the United States and the Eurozone. If the price of a microchip is $15 in the United States but €30 in the Eurozone, you would expect the EUR/USD equilibrium exchange rate to be 2 EUR/USD. Otherwise, there would be opportunities for arbitrage (i.e., buying microchips in the United States and reselling them for a surefire profit in the Eurozone).

The Economist has taken this idea to a comical extreme by comparing the price of McDonald's Big Mac hamburgers across different countries and using the results as a basis for assessing whether their respective currencies are undervalued or overvalued relative to the US dollar. It has even attempted to control for changes in economic size. As you can see from Figure 3-2, the price of a Big Mac in Brazil is 50% higher than in the United States, and 150% higher when differences in labor and production costs are controlled. The implication is that the Brazilian real is 50%–150% overvalued, relative to the US dollar.

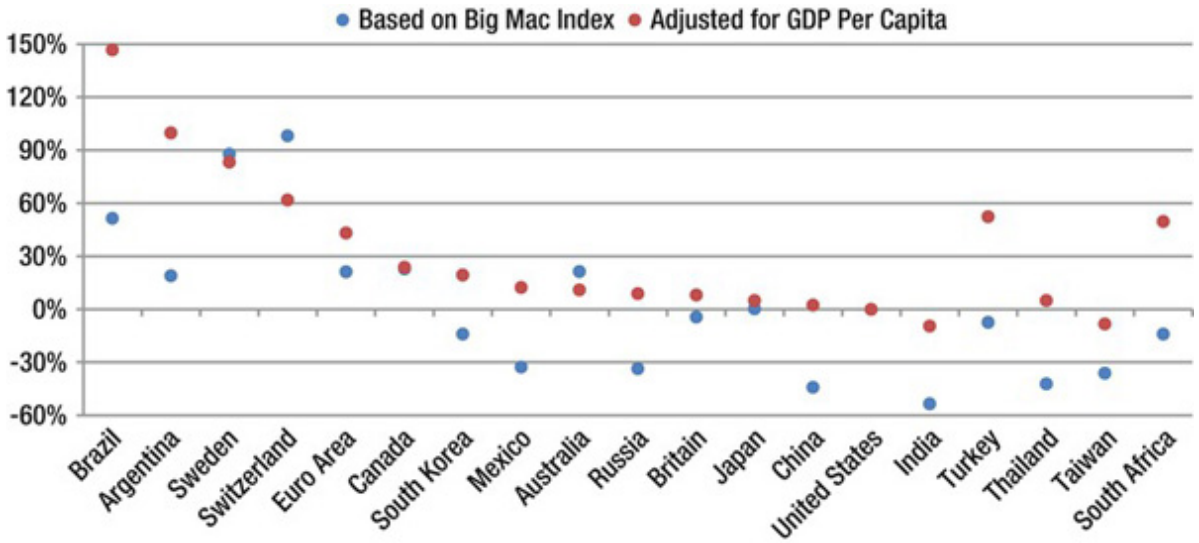


Figure 3-2. Big Mac Index: Local currency over/undervaluation against the US dollar[2]

If you're rolling your eyes at the simplicity of this idea, rest assured that you are not alone. There are many reasons—such as differences in relative wages, transportation costs, import and export barriers, etc.—that would cause the price of microchips (and Big Macs!) to differ between the United States and other countries. In addition, there are billions of goods and services that are traded between the United States and the Eurozone, so you clearly wouldn't expect the EUR/USD to adjust every time a disparity in

hamburger prices emerges.

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[2] "Beefed-Up Burgernomics," *The Economist*, July 30, 2011, www.economist.com/node/21524811.

Consequently, PPP theory has been tweaked to take into account a basket of goods and services (instead of just one) and relative changes in prices (rather than absolute levels). For example, if price inflation rates are compared across two countries, one would expect that a country with high inflation would suffer currency depreciation, so as to maintain exchange rate equilibrium. To take this idea one step further, let's assume that prices are rising at an annual rate of 10% in the United States and 0% in Japan. All else being equal, one would expect the US dollar to depreciate 10% (on an annualized basis) against the yen in order to maintain equilibrium.

In fact, this is exactly what has happened. Over the last two decades, the Japanese yen has appreciated considerably against the US dollar in spite of economic stagnation in Japan. The reason for this is undoubtedly connected to Japanese price stability. Whereas US price inflation has averaged more than 3% annually for the last 25 years, Japanese inflation has averaged less than .5%. Over the same period of time, the Japanese yen has doubled in value against the US dollar. When you plot these two series (Figure 3-3), you can see that the USD/JPY rate has depreciated almost perfectly in accordance with purchasing power parity! As is also evident, however, exchange rates are significantly more volatile than prices, and it can take many years for inflation differentials to become fully reflected in relative currency prices.

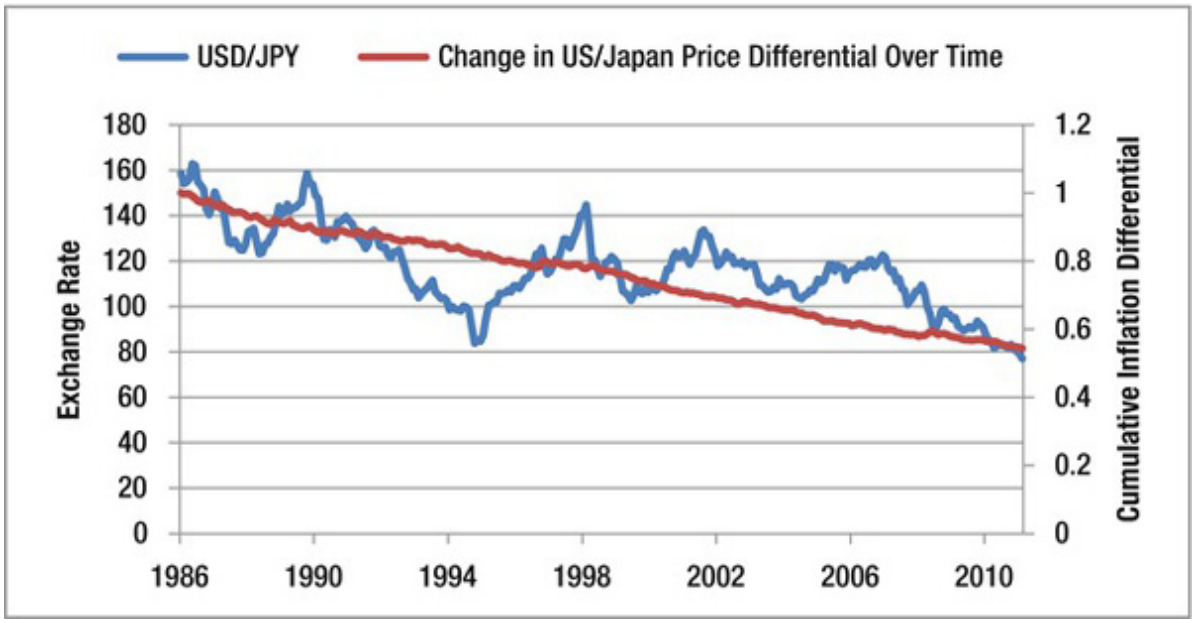


Figure 3-3. USD/JPY rate versus US/Japan inflation differential

At the very least, the model of PPP can be used to put trade disputes into context. For example, US politicians have long alleged that the Chinese yuan is significantly undervalued against the US dollar and is appreciating at an unsatisfactorily slow rate. However, PPP analysis implies that this isn't entirely true. For example, in 2004, the US Congress proposed legislation that would punish Chinese imports unless the Chinese yuan was permitted to appreciate by 25%-40%, the amount by which economists conjectured that the yuan was undervalued. Shortly thereafter, the Chinese government acceded to this demand, and the yuan began a steady course of appreciation. In 2011, the US Congress renewed calls for punitive

legislation on the grounds that the yuan hadn't appreciated by a large enough margin. To be sure, the Chinese currency had nominally risen only 23%. On an inflation-adjusted basis, however, it had already risen by more than 30%, well within the band targeted by Congress. As can be seen in Figure 3-4, this shows that the argument in favor of further appreciation is fairly flimsy.

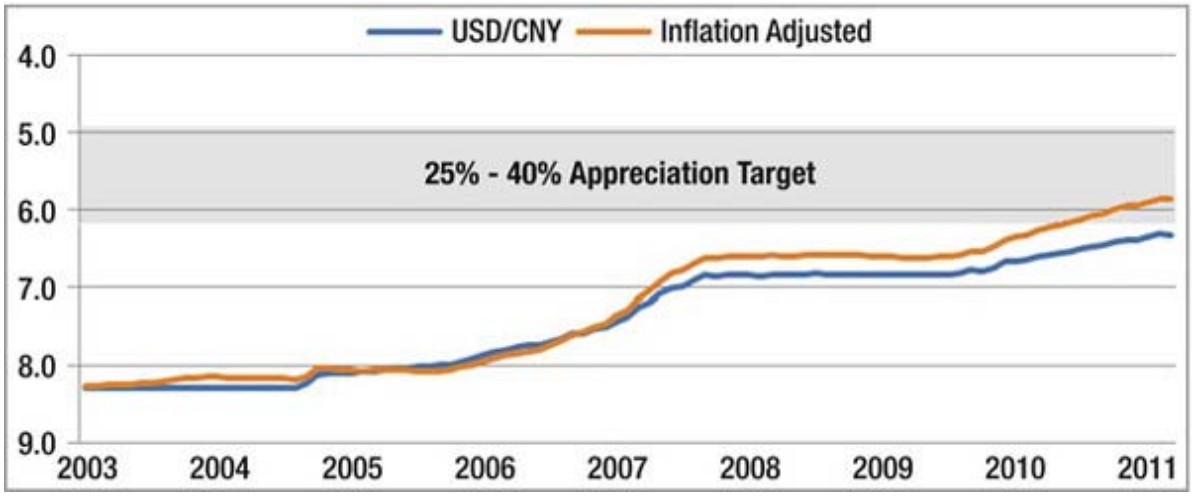


Figure 3-4. Chinese yuan appreciation has met expectations, when inflation (also known as PPP) is taken into account

Covered Interest Rate Parity

The theory of *covered interest rate parity* begins where purchasing power parity ends. In accordance with the equation below, covered interest rate parity holds that if the US interest rate ($i_{\$}$) is higher than the interest rate for another currency (i_c), then the expected future exchange rate (F_t) should be lower than the spot rate (S_t) in order to maintain equilibrium.

$$(1 + i_{\$}) = \frac{F_t}{S_t}(1 + i_c)$$

For example, if the US benchmark interest rate is 5%, the corresponding Eurozone rate is 10%, and the current EUR/USD rate is $1.50, you would expect the US dollar to appreciate 4.5% against the euro (to $1.43) in order to maintain interest rate parity and eliminate the possibility of arbitrage.

(1 + 5%) = $1.43/$1.5 * (1 + 10%)

You may recall from our earlier discussion of derivatives that this model also serves as the basis for pricing forex forward agreements.

In theory, covered interest rate parity should be a good model for understanding exchange rates because the financial markets can adjust instantaneously to actual and expected changes in interest rates. With purchasing power parity, in contrast, it might take years for differences in price inflation to be reflected in international trade patterns, and to be priced into exchange rates.

In fact, covered interest rate parity has been shown to hold in the absence of capital controls and high transaction costs. A corollary, known as the *International Fisher Effect*, hypothesizes that an investor will only hold a depreciating currency to the extent that the interest rate (differential) is enough to compensate

him. You can see from Figure 3-5 below, that the actual GBP/USD rate moves inversely with the UK/US interest rate differential (or directly with the US/UK differential). For example, it didn't take long for the GBP/USD rate to fall following the Federal Reserve Bank's cut in the federal funds rate (FFR) in the summer of 2007. The pound recovered slightly in 2008 when the Bank of England followed suit and similarly cut interest rates, which is exactly what the theory of interest rate parity predicted would happen!

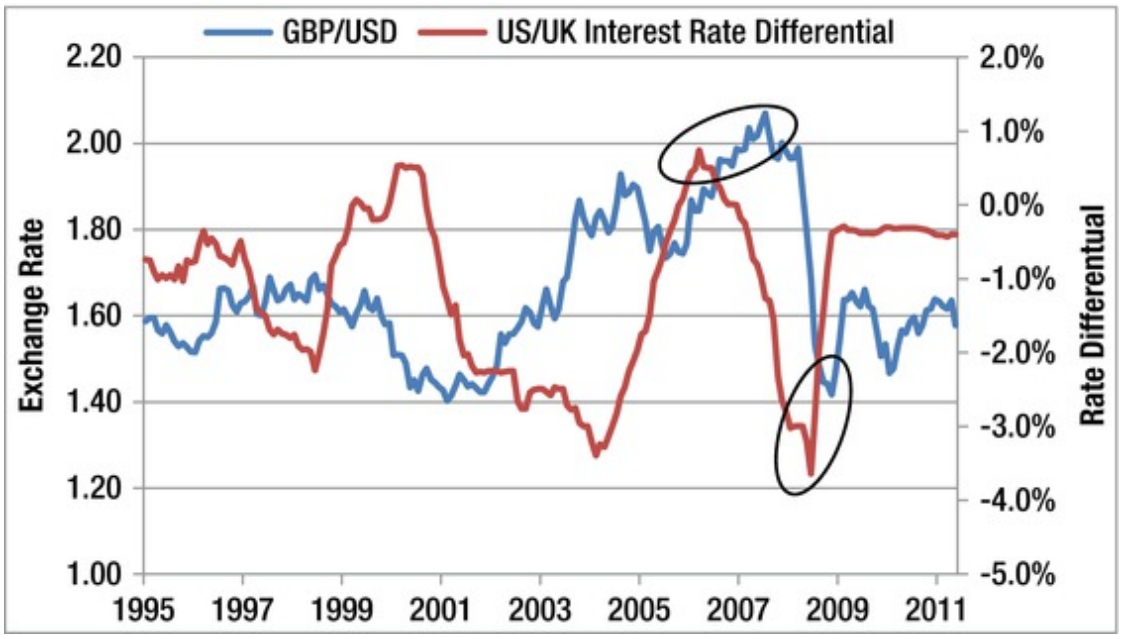


Figure 3-5. GBP/USD exchange rate versus US/UK inflation differential

In the short term, however, this relationship is sometimes turned on its head. For example, an investor that is long the Brazilian real (against the dollar) probably doesn't care about changes in the price of a hamburger in Brazil (relative to the United States) because he isn't planning on actually spending the real on anything tangible. However, he cares very much about Brazilian interest rates during the time that he holds the real because that will directly impact the return that he earns on his investment.

Thus, rising interest rates may actually be accompanied by an inflow of speculative capital, even if they are a harbinger of long-term inflation. As is apparent from Figure 3-6, the interest rate differential between Brazil and Japan has hovered above 10% for most of the last decade. During this period of time, the Brazilian real has notched some impressive gains against the Japanese yen, which is the opposite of what covered interest rate parity would have predicted! These gains are reinforced by a phenomenon in which declines in the interest rate differential seem to correspond with a decline in the BRL/JPY exchange rate, as though investors will only hold the real when interest rates are high. In other words, Brazilian speculators have targeted the real *because of*—rather than *in spite of*—its high interest rates.

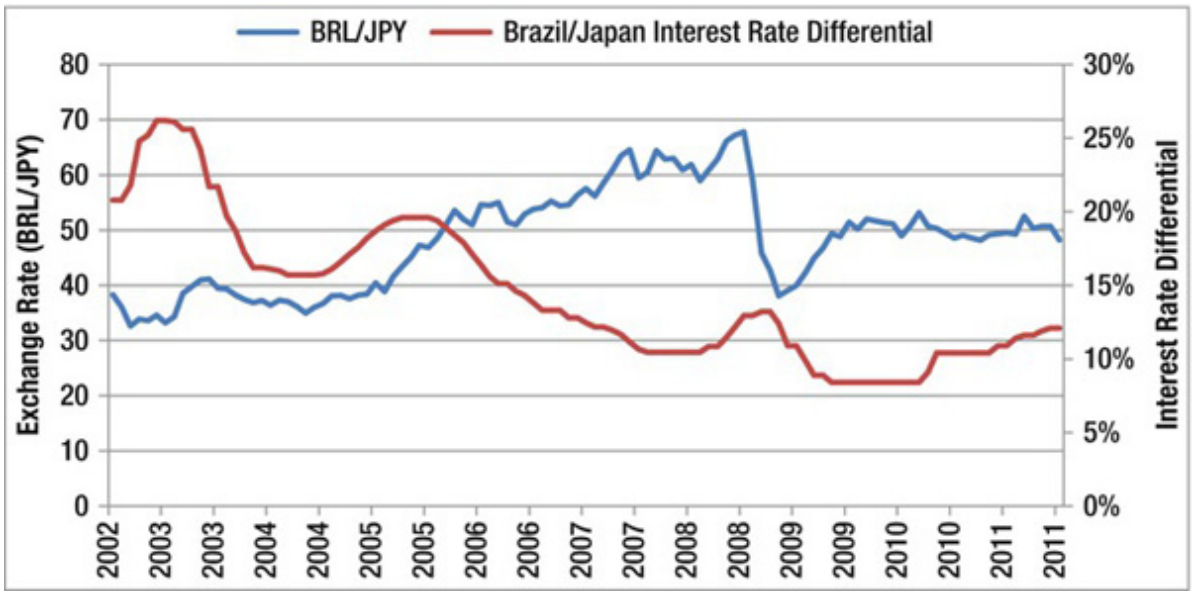


Figure 3-6. BRL/JPY exchange rate versus Brazil/Japan inflation differential

Monetary Theory

Monetarists approach exchange rate theory in terms of currency supply. If the money supply of Country A rises dramatically relative to that of Country B, monetarists hold that, all else being equal, Country A should experience currency depreciation.

When thinking about monetary theory, it is important to keep in mind that a nation's money supply is controlled directly by its central bank, which uses open market operations, reserve requirement ratios, and interest rates to control its country's money supply. If a central bank wants more currency to circulate, it can buy bonds on the open market, lower interest rates, and/or increase the ratio of deposits that banks can lend out. When these measures prove to be ineffective, the central bank can inject cash directly into the financial system through open-market operations.

During the 2008 credit crisis, for example, most of the world's central banks engaged in variations of *quantitative easing*, whereby they printed money and used the proceeds to buy mortgage-backed securities, government bonds, and other assets. The Federal Reserve Bank was especially aggressive, cumulatively printing more than $2.5 trillion in new money. Some currency analysts have connected this to the multi-year decline of the US dollar relative to the other major currencies (Figure 3-7).

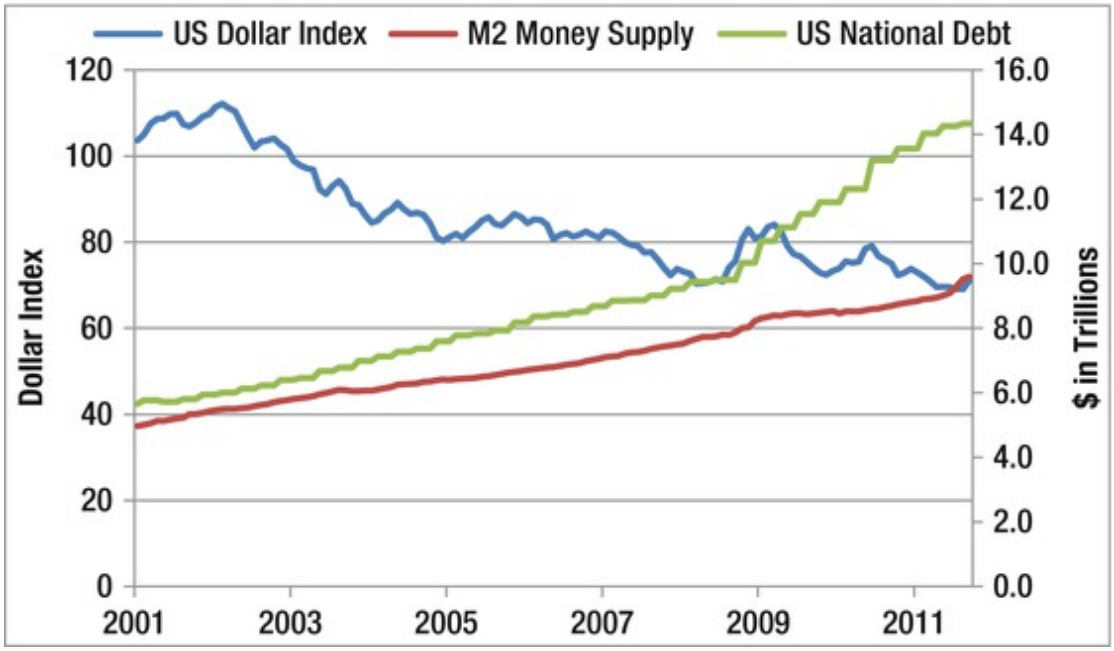


Figure 3-7. US dollar Trade-Weighted Index, Money Supply, and National Debt

Now, why would central banks deliberately manipulate the supply and demand of their respective country's money? Sometimes they do so in order to influence the value of their respective currencies. Known as *intervention*, this process typically involves printing money to buy an opposing currency. For example, if Japan decides that it wants to depress the value of the yen, the Bank of Japan will print a substantial amount of yen and immediately exchange this lot for US dollars, such that the forex markets have no choice but to adjust the JPY/USD exchange rate downward.

Those who passed their college Macroeconomics 101 course know that a sudden increase in the domestic money supply will have unintended monetary consequences, namely inflation. All else being equal, the 5% increase in the Japanese money supply in this case should cause a 5% across-the-board increase in the prices of all Japanese products. To counter this effect, central banks *sterilize* their intervention by issuing an offsetting amount of bonds so as to draw a proportional amount of money out of the economy. As for the chunk of foreign currency that they bought on the open market (US dollars, in this case), this is hoarded by the central bank in the form of foreign exchange reserves. You can see from Figure 3-7 below that, in spite of financial and economic liberalization, central bank intervention (implied by growth in forex reserves) in the forex markets has expanded dramatically over the last decade. China has taken this practice to an extreme; in a never-ending effort to control the ascent of the yuan, China has amassed $3 plus trillion in reserves!

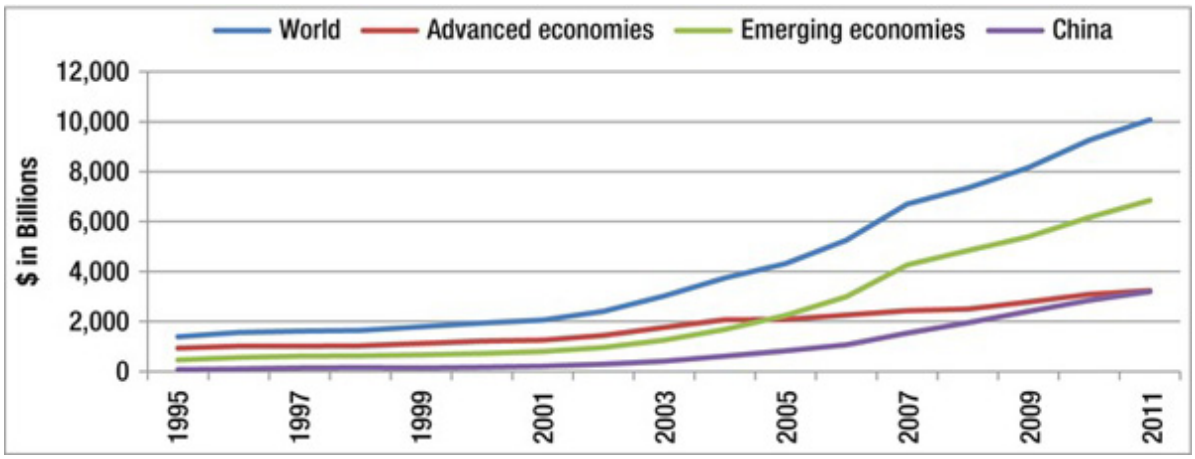


Figure 3-8. Central bank accumulation of forex reserves[3]

One aspect of intervention that is important to take into account is the inherent impact it has on other currencies. In other words, a currency cannot just depreciate; it must depreciate relative to one or more other currencies. A central bank has two objectives when selecting the currencies that will offset its intervention. Primarily, it wants to maximize the economic benefit of its intervention. If the Bank of Japan were to depreciate the yen relative to the Polish zloty, it would have little impact on the Japanese economy because Poland and Japan are not major trading partners. By targeting the euro or the US dollar—as is most common—the Bank of Japan ensures that its export sector will enjoy a direct benefit from a weaker yen.

Secondly, a central bank must act as a discerning investor since any currency that it buys will necessarily end up on its balance sheet. Central banks don't want to hold cash, which loses value over time as a result of inflation. Instead, they select liquid investments, such as sovereign debt and money market instruments. A decision to buy the US dollar is thus a vote of confidence in the creditworthiness of the US government and US financial institutions. As US capital markets are probably the deepest, most liquid, and most transparent in the world, it is perhaps unsurprising that the US dollar remains the top choice of the world's central banks, accounting for more than 60% of all foreign exchange reserves. Per Figure 3-9, the euro is in a distant second place.

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[3] Bloomberg, "China Monthly Foreign Exchange Reserves," www.bloomberg.com/quote/CNGFOREX:IND/chart; IMF, "Currency Composition of Official Foreign Exchange Reserves," www.imf.org/external/np/sta/cofer/eng/cofer.pdf.

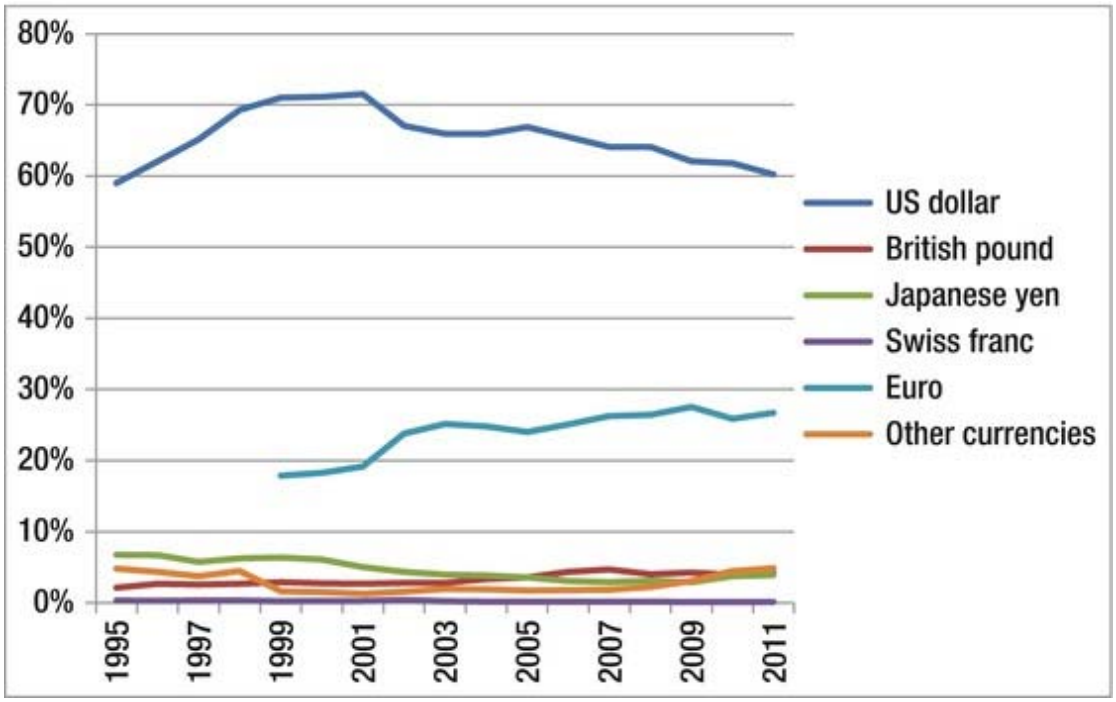


Figure 3-9. Central bank accumulation of forex reserves[4]

Portfolio Balancing Model

The portfolio balancing model is basically an extension of monetary models, but is expanded to include all debt and equity instruments and all participants in the forex market.

Adherents to this model argue that a currency is an investable asset, like any other, and that foreign currency should represent a component of any well-balanced portfolio. Thus, in the context of the portfolio balancing model, an exchange rate merely represents the equilibrium between the supply of a country's investable assets and foreign demand. For example, adherents to the portfolio balancing model would argue that the explosion in US debt shown in Figure 3-7 contributed significantly to increasing the supply of US investable assets. Since there wasn't a proportional increase in foreign demand for US assets, the dollar has necessarily declined.

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[4] IMF, "Currency Composition of Currency Composition of Official Foreign Exchange Reserves," www.imf.org/external/np/sta/cofer/eng/cofer.pdf.

The portfolio balancing model also attempts to take domestic demand for financial assets into account. For example, consider that Japan's sovereign debt is the highest in the world, and currently exceeds 160% of gross domestic product (GDP). However, the yen is one of the strongest currencies. How can this paradox be reconciled? The answer is that 95% of Japanese sovereign debt is held by domestic savers.

On the other hand, Switzerland is generally known for its fiscal and monetary prudence, which has resulted in an undersupply of Swiss franc currency and more importantly, Swiss franc–denominated financial assets. At the same time, investor interest in Switzerland and the franc is arguably in excess of

what an economy of that size would normally merit. In order for equilibrium to be achieved, a portfolio balancing theorist would argue that an appreciation in the franc was unavoidable.

Trade and Investment Flows

According to the Continuous Linked Settlement Bank, forex trades can be netted daily with 98% efficiency. In other words, the vast majority of forex market activity is offsetting, and for only 2% of trades does cash need to exchange hands. This is because most forex trading is short-term and also because brokers generally dislike holding overnight positions. That's not to say that this 98% of trading has no bearing on exchange rates. Rather, it means that 2% or so of foreign exchange is long-term (or at least longer than 1 day). These trades are driven more by international trade and cross-border investment than they are by speculation and should reflect fundamental (rather than technical) factors.

The rise in globalization and outsourcing has spawned record imbalances in the global economy. As a result, the United States (as well as certain other advanced economies) has experienced a trade deficit for most of the last three decades—which is to say that its imports have consistently exceeded its exports. This is depicted in Figure 3-10.

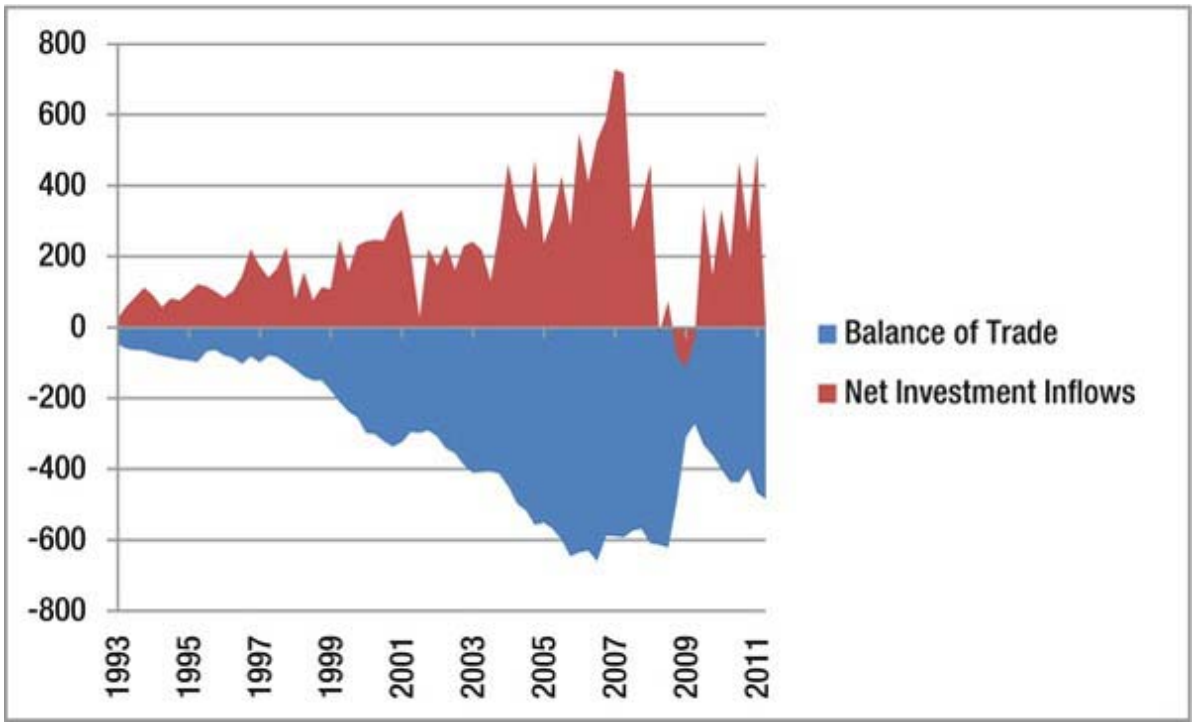


Figure 3-10. US balance of trade,[5] net investment inflows[6]

However, there is another way of looking at the balance of trade that may explain why the US trade balance has remained negative for so many years. Consider first that a *trade deficit* is also known as a *current account deficit*, which implies that the difference between exports (X) and imports (M) is basically equal to the difference between domestic savings (S) and investment (I).

$$X - M = S - I$$

It follows, then, that in the case of the United States, the long-term disequilibrium between exports and imports can also be seen as a disequilibrium between savings and investment. In fact, Benjamin

Bernanke, Chairman of the Federal Reserve Bank, has vehemently advanced the idea that the US economy should not be faulted for importing much more than it has exported. Instead, or so Bernanke argues, countries with limited domestic opportunities for investment and propensities toward saving are at fault for enabling these imbalances.

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[5] FRED, U.S. Department of Commerce: Bureau of Economic Analysis, Census Bureau, "Trade Balance: Goods and Services, Balance of Payments Basis," updated April 12, 2012, http://research.stlouisfed.org/fred2/series/BOPGSTB?cid=125.

[6] FRED, U.S. Department of Commerce: Bureau of Economic Analysis, "Foreign-Owned Assets in the United States, Excluding Financial Derivatives," updated March 14, 2012, http://research.stlouisfed.org/fred2/series/BOPI?cid=127.

Yet another model holds that a country's current account balance must equal its capital account balance. The difference between exports and imports (or savings and investment) will equal the net change in ownership in domestic assets. A trade/current account deficit, then, implies a capital account surplus. For every dollar flowing out of the United States because of trade, another dollar is flowing in for purposes of investment. Sure enough, you can see from Figure 3-10 that the US trade deficit has corresponded with a proportionately large inflow of foreign investment capital.

The fact that the US trade deficit has not abated can thus be seen in terms of the willingness of private investors and central banks abroad to keep buying US assets. At a certain point, they will inevitably demand a higher risk premium (in the form of a more favorable exchange rate), at which point the dollar should decline, and both the current and capital accounts should finally return to equilibrium. Until then, the United States will likely continue to import more than it exports in the aggregate, and invest more than it saves.

Gross Domestic Product

The most basic measure of economic performance is *gross domestic product* (GDP), which is the sum of all goods and services produced (read: bought and sold) within a given country's borders. There are various approaches to calculating GDP, all of which use different inputs to arrive at what should be the same number.

The *income approach* is exactly as it sounds—a sum of all income earned within a country's borders by individuals and businesses/corporations. The theory is that the existence of income implies the production of goods and services. While generally accurate, the income approach is not very useful for analytical purposes, and it has been superseded by the *expenditure approach*, which divides GDP into four component parts: consumption, investment, government spending, and the balance of trade.

For most advanced economies, *consumption* accounts for the largest share of GDP (over 70% in the case of the United States) and has come to be seen as a barometer of overall economic health. (That much of this consumption is fuelled by debt is not a factor in GDP calculations.) Consumption is further broken into goods (durable and nondurable) and services, the latter of which is the largest subcomponent of US GDP, as shown in Figure 3-11.

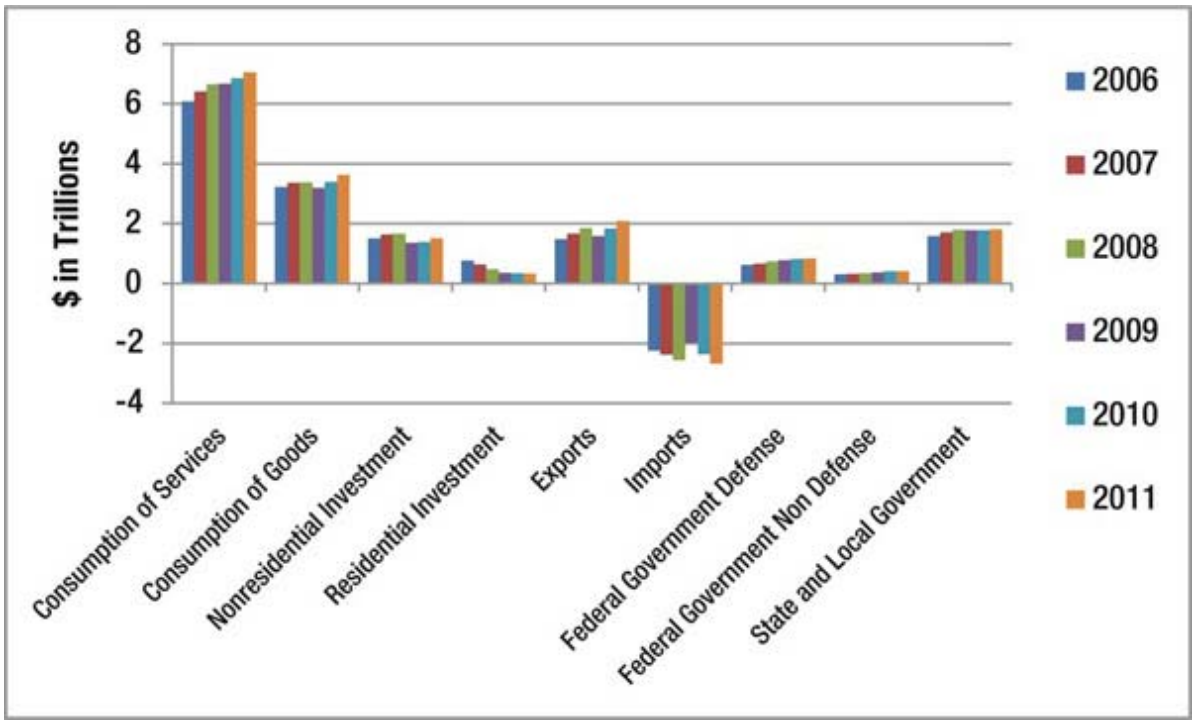


Figure 3-11. US GDP component parts and change over time

Investment refers to business investment in plant and equipment, and inventory (goods and services that have been produced but not yet sold to end users), as well as purchases of homes for residential use. You can see from Figure 3-11 that residential investment has fallen by more than half in the US as a result of the recent collapse in home prices.

As an aside, investment does not include the purchase and sale of financial assets, of which a staggering $1 quadrillion in notional value changes hands every year in the United States. Instead, the common gripe that the financial sector occupies a disproportionately large share of the US economy refers to "rents" (i.e., commissions, fees) that financial companies earn for their role in packaging and facilitating the exchange of financial instruments. For instance, a $300,000 mortgage might only contribute $10,000 to GDP (equivalent to the underwriting cost), while a single share of Google stock that trades hands one hundred times over the course of a year might contribute $500 to GDP in the form of broker commissions. In short, the equity in Google and the mortgage on a home do not contribute to GDP in and of themselves, and all economic value is derived from creating them and facilitating their exchange.

Government spending, meanwhile, can be broken down among different government levels and into different types of spending. Interest payments on government debt, transfer payments (such as Medicare and Social Security), and subsidies are not included, as they represent the movement of money rather than the production of a good or service. It is only when the Medicaid recipient visits a doctor, for example, that real economic activity is said to have taken place.

The *balance of trade*—exports minus imports—represents the final component of GDP. In accordance with the expenditure approach, at first glance it would appear that a country that experiences a trade deficit would incur a curtailment of its economic growth. A better way to conceptualize this, however, would be to say that imports need to be subtracted from consumption (or from the production of exports) in order to accurately calculate GDP. In other words, the expenditure approach accounts for all production and consumption before subtracting out the portion that was sourced from outside the country.

On a related note, a country that runs a consistent trade deficit, such as the United States, can still derive a net economic benefit from trade. That's because US companies earn tremendous profits on goods that are imported. In fact, it's common knowledge that only a small portion of the profit from selling an imported good is earned by the manufacturer. The rest of the markup is captured by the (US) companies that own the intellectual property, handle marketing, sales and distribution, and so forth. Returning to the example of the iPhone, one analysis concluded that it provides a tremendous boon to the US economy, its contribution to the trade deficit notwithstanding.

There are a few additional facets of GDP of which you should be aware. First, there is a distinction between GDP (gross domestic product) and GNP (gross national product). The former refers only to economic activity that takes place within a country's borders, while the latter figure is used to calculate all production by the citizens of a given country, regardless of where they reside. For whatever reason, GDP is most commonly cited by the media and is most likely to be used for comparative and analytical purposes.

Second, it is difficult to compare economies based on nominal GDP figures. Due to differences in wage/price levels as well as distortions in exchange rates, it might appear as though one economy is radically bigger than a neighboring economy. For example, imagine if the price of a computer was $500 in the United States and only $300 in Mexico. In this case, the sale of one thousand computers would seem to make a bigger contribution to GDP in the United States than it would in Mexico. Economists correct for such price differentials by quoting GDP on the basis of purchasing power parity. China, for instance, has a nominal GDP of approximately $5.9 trillion, compared to $414 million for Norway. After adjusting for differences in PPP, however, China's nominal GDP rises to $10 trillion, while Norway's GDP is reduced to $277 million.

In practice, the financial markets usually don't pay attention to nominal GDP figures. They are more interested in relative changes, such as the percentage by which a country's GDP changes from quarter to quarter and from year to year. Moreover, the percentage is always quoted in real terms, which is to say that it is adjusted for inflation. If US GDP expanded 5% in 2010 and price inflation was 2%, the resulting change in output was actually only 3%, which needs to be taken into account when quoting GDP.

Keep in mind that while GDP does not directly bear on exchange rates, it does exert a strong indirect influence on currencies. For example, a strengthening economy will most likely create more opportunities for portfolio and foreign direct investment and spur capital inflows. More output should also lead to increased government tax revenues and a lower risk associated with buying government bonds. Finally, that the persistent gap in GDP growth between emerging economies and advanced economies (Figure 3-12) has corresponded with a similar gap in currency performance is not purely coincidental.

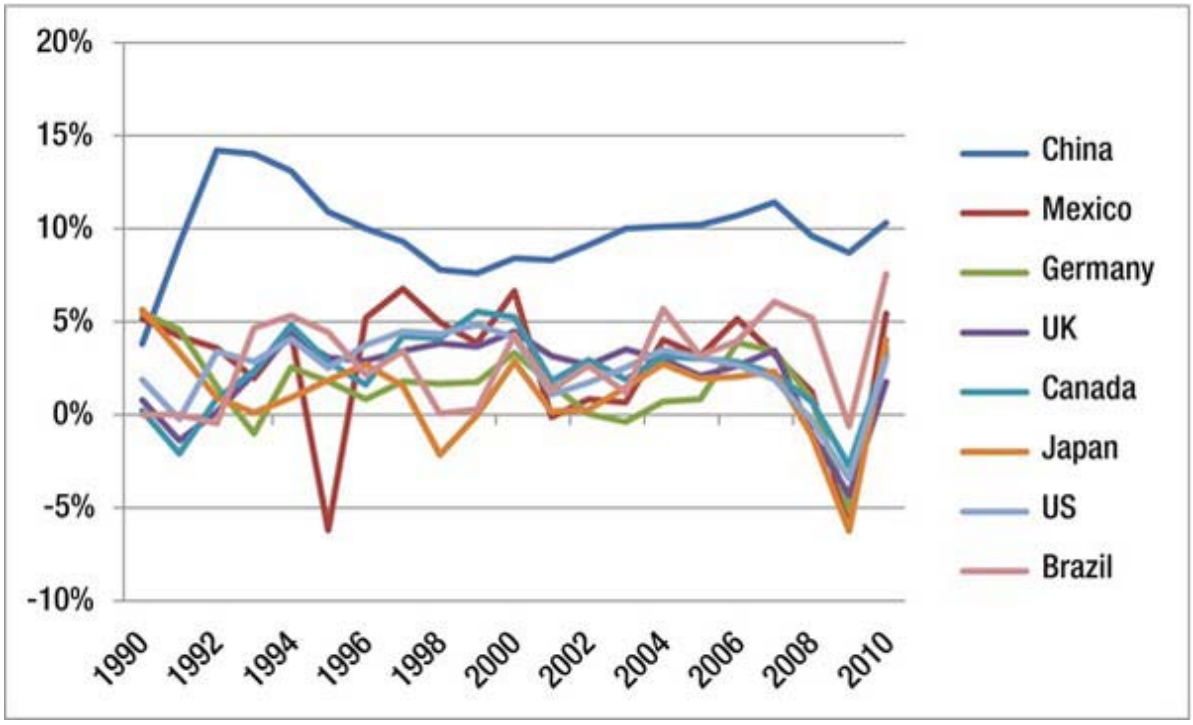


Figure 3-12. Comparison of GDP growth over time

Theory Meets Reality

A theoretical framework is useful for understanding exchange rates, but it can only take you so far. That's because exchange rates don't adjust automatically to changes in underlying economic conditions. Rather, they must be adjusted by the market, which is really only an obtuse way of saying that they must be adjusted by the participants of the forex market. In other words, theory can explain where exchange rates *should* stand—but not necessarily where they actually do stand.

Investors act immediately to price changes in certain economic fundamentals into their exchange rate models. If the Federal Reserve Bank were to raise interest rates, for example, US dollar forward exchange rates would instantaneously decline in order for covered interest rate parity to be maintained. The increase in interest rates would also trigger a decline in spot exchange rates, as short-term investors lower expectations for future exchange rates. This is what *should* happen. Of course, it's also possible that there would be no change in the spot rate if investors had already priced in the rate hike. Or there could be an increase in the spot rate if short-term speculators respond to the rate hike by transferring capital into higher-yielding US securities.

Changes in other fundamentals will be reflected in exchange rates after a lag. For example, when a trend in high inflation begins to take form, forward-looking corporations will start to mull over changes in sourcing/production, but it will take years before these changes are reflected in changing patterns of trade, changes in money supply, etc. Shrewd individuals, however, might respond to such future changes by purchasing currency today. As a result, the spot exchange rate will also change today, even though the fundamentals underlying such a change might not emerge for years!

Market Microstructure Analysis

In contrast to macroeconomic models, which only offer an explanation of how economic variables *should*

influence exchange rates without taking into account how this process actually takes place, market microstructure analysis looks at how real-life buy and sell orders actually drive prices. As such, market microstructure analysis examines completed transactions only and ignores the forces that may be driving the supply and demand behind them. (This is a subtle distinction between macroeconomic models and market microstructure analysis, but an important one.)

Market microstructure analyses have found that order flow is an important variable in exchange rate determination in that it is unique from the information that underlies it. In other words, the order flow is itself informative. In fact, empirical studies have found that broker-dealers exert some of the strongest short-term pull on prices. This finding is not altogether surprising, since a broker almost always wants to offset all long and short positions, especially at the end of every trading day. In order to achieve this, he may have to adjust the bid/ask spread that he is offering in order to attract more buyers or sellers. If a broker wants to neutralize a long EUR/USD position, for example, he may raise the bid price in order to encourage more EUR/USD sellers. If enough brokers find themselves in the same position, it could create a shortage of euros and a sudden, seemingly inexplicable rise in the EUR/USD rate. This is known as the *inventory control effect.*

Sometimes an unwanted position will be passed from broker to broker to broker, around the entire forex market, until it reaches a counterparty that is willing to hold it indefinitely. This phenomenon has been nicknamed the "hot potato effect." Along the way, its price may be bid up (or down) repeatedly. This is a result of market inefficiency—the failure to find a perfectly compatible buyer for every seller.

Likewise, the *asymmetric information effect* occurs when a broker-dealer receives a large directional order from a client (rather than from another broker-dealer) and automatically assumes that the client is placing that order because he has certain information that supports such a directional movement. As a result, the broker-dealer will raise his prices in order to discourage other clients from making the same directional bet. You could also say that, in this way, the broker-dealer is hedging against the possibility that he will be forced into taking an undesirably large one-sided position.

Technical Factors

The role of technical factors in exchange rates has long been disputed. The Efficient Markets Hypothesis (EMH) argues that asset prices necessarily reflect all available public information and adjust instantaneously to changes in such information. As a result, adherents to this theory hold that asset prices move randomly and that past prices provide no indication of future prices. Technical analysts, on the other hand, counter that prices move in trends, that the present mimics the past, and that (as a direct consequence of efficient markets theory) fundamental analysis must necessarily also be of dubious value. (In Chapter 4, I will explore the plausibility of technical analysis in greater detail, but for now, let's accept that there is indeed evidence of detectable patterns in prices. Whether it is possible to profit from them is certainly a different story, but suffice it to say that these patterns really do exist.)

In fact, prices certainly *appear* to trade in trends, which seem to unify otherwise random, back-and-forth spikes. Sometimes these trends are upward or downward, while other times they are flat. Of course, a currency rate will rarely move linearly; instead, it will move in a direction that is generally identifiable, but then deviate from that direction frequently. In order for the trend to be maintained, the price must *revert back toward the mean* from time to time in order to eliminate opportunities for arbitrage. It often appears that that every time there is a strong deviation in the price of a given currency, traders quickly jump in and nudge that currency back toward the trend line. For example, the Japanese yen appeared to move in a very clear, upward trend against the dollar in the months leading up to the 2011 earthquake. Every time the yen deviated substantially from this trend line, it appeared to run into *support* or *resistance* (indicated by the upper and lower bounding lines in Figure 3-13) and quickly resumed its

original path. This trend was so strong that it remained perfectly intact following the twin disruptions of an earthquake and a massive central bank intervention!

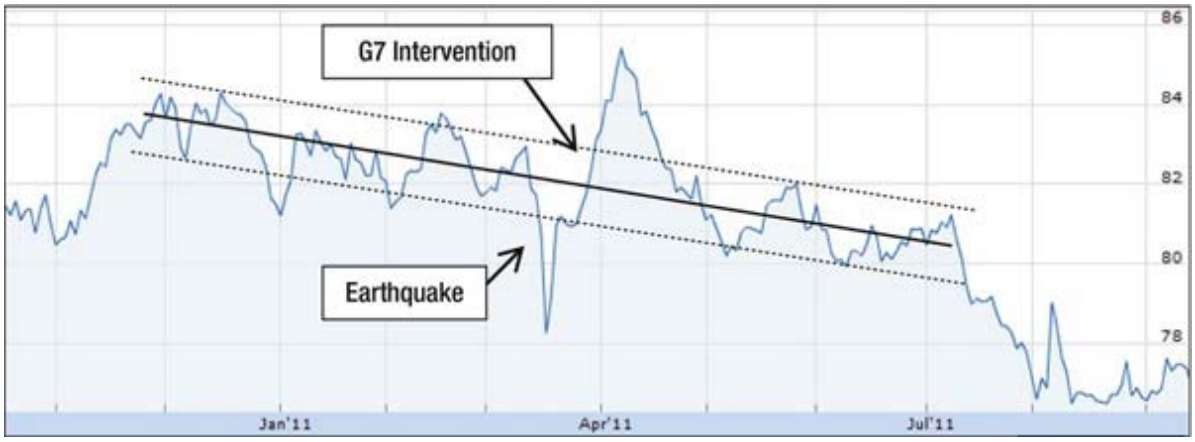


Figure 3-13. USD/JPY: Establishment of trend, disruption, and post-earthquake resumption

Economists have conjectured that these trends are caused by *confirmation bias*, which refers to traders' tendency to both overestimate the accuracy of their models and to actively seek information from the market that justifies their continued use of these models. In this way, trends can become self-fulfilling, as they are spotted by technical analysts and then traded to exhaustion. It is only when the actual rate becomes severely out of kilter with the rate justified by economic fundamentals that a major price correction will take place. In fact, economists have shown that this phenomenon can spur both momentum in trend continuation and equally strong reversals. The fact that central banks and their billion-dollar intervention chests are powerless to break such trends is a testament to the strength of confirmation bias.

Market microstructure analysis might be able to shed additional light on patterned fluctuations in forex prices, which appear to take place irrespective of changes in underlying fundamentals. Trends, for example, might be a result of feedback loops between broker-dealers and their customers. A customer may initiate buying, to which a broker-dealer might respond by raising his ask price, which in turn might generate more buying in anticipation of even higher prices, and so on. A large deviation from the underlying trend signifies that broker-dealers have aggregately developed a large one-sided position. Consequently, broker-dealers may adjust their prices to encourage orders in the opposite direction, and the deviation should correct itself.

Returning to support and resistance, it is not difficult to understand why such levels would exist and why they can be predicted with some degree of accuracy. Perhaps it's because such levels tend to take place at round numbers—the rounder the better! In the case of the USD/JPY, 78.5 might be a major price point, 79 would be more important, and 80 would be the most important! That's because humans tend to think in terms of round numbers and develop their forecasts accordingly. After all, who would bother predicting that the yen will hit a wall at the precise level of USD/JPY 79.4387? Just like trend lines, these support and resistance levels can become self-fulfilling and explain some of the short-term fluctuations in (forex) markets.

Politics and Government

History has shown a positive correlation between political stability and currency stability, but since most major currencies tend to have stable governments, this relationship is usually taken for granted. When it

comes to emerging economies, however, don't forget that every sudden regime change, violent protest, and period of political instability can result in an exodus of investors and capital flight. For example, when massive protests erupted in Egypt in early 2011, the Egyptian pound spiked downward on multiple occasions, as did the Egyptian asset markets (Figure 3-14).



Figure 3-14. Impact of political instability on USD/EGP rate

Of course, most political developments tend to be mundane. Elections may bring changes in economic, fiscal, and tax policy. A newly elected politician might be more of a protectionist than his predecessor. A conservative might promise to cut spending. When the US Congress temporarily refused to raise the federal debt ceiling in July 2011—a development that could have potentially caused the United States to default on its sovereign debt obligations—the currency markets preemptively sold the dollar. As soon as the ceiling was raised, however, the dollar quickly recovered (Figure 3-15).

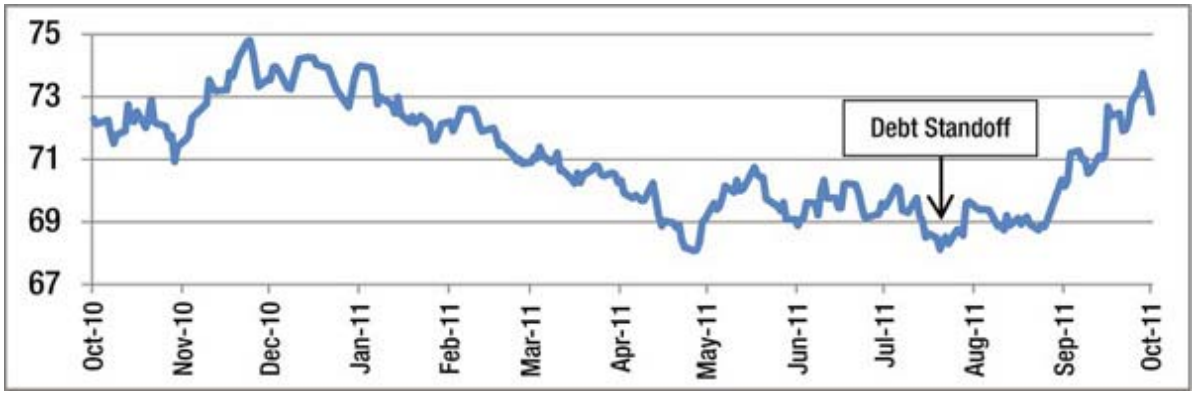


Figure 3-15. Impact of "US Debt Standoff" on (trade-weighted) US dollar

On a related note, the currency markets take fiscal policy very seriously. Shifting political winds can bring deficit spending and an increase in debt. In accordance with portfolio balancing theory, this increase in supply will result in a depreciating currency, all else being equal. The ongoing Eurozone fiscal crisis has illustrated this phenomenon perfectly, as reflected in the EUR/USD chart shown in Figure 3-16.



Figure 3-16. Reflection of Eurozone fiscal crisis in EUR/USD

At the end of 2009, for example, as financial markets were moving past the credit crisis, Ireland's sovereign credit rating was downgraded. All of a sudden, attention shifted to the burgeoning debt in Greece. Due to economic decline and continuing budget deficits, it looked as if a full-blown Eurozone crisis had arrived. Bailouts were hastily assembled, the Greek government promised "austerity" in spending, and the euro stabilized. Before long, however, investors began scrutinizing Spain and Portugal—which were suffering from similar problems—and credit downgrades and rising credit default swap rates followed. The European Central Bank moved in to stabilize the situation, providing liquidity and conducting stress tests on banks, and the euro once again recovered. The very fact that these stress tests were needed, however, unnerved investors as it signaled that the fiscal crisis was erupting into a full-blown financial crisis. After all, a default on the PIGS' sovereign debt obligations would cripple the European banks that had lent heavily to them during the boom years. More bailouts followed, and the European Central Bank announced a surprise hike in interest rates, which reassured investors and precipitated a rally behind the euro.

The crisis again took a turn for the worse at the end of 2011, as Greek austerity plans had started to backfire and plans to further expand the bailout fund were met with resistance. Going forward, it's difficult to predict what will happen, but at the very least, you can be sure that any and all economic developments will be reflected in the currency markets.

News

News can be divided into two types: the *unexpected* and the *scheduled*. Unexpected news developments—whether political, economic, financial, or just plain newsworthy—can exert a massive tug on the forex markets. As the news itself is unexpected, sometimes, so too is the response. When the story of the 2011 earthquake in Japan first broke, the yen should have plummeted. On the contrary, the Japanese yen rose to a record high as investors bet that Japanese insurance companies would need to repatriate massive amounts of yen to fund the country's rebuilding efforts. This theory was quickly abandoned, however, and the yen sank. Less than a week later, the world's major central banks announced a (surprise) historic intervention on behalf of the yen, and the yen immediately fell by 5% in a single trading session.

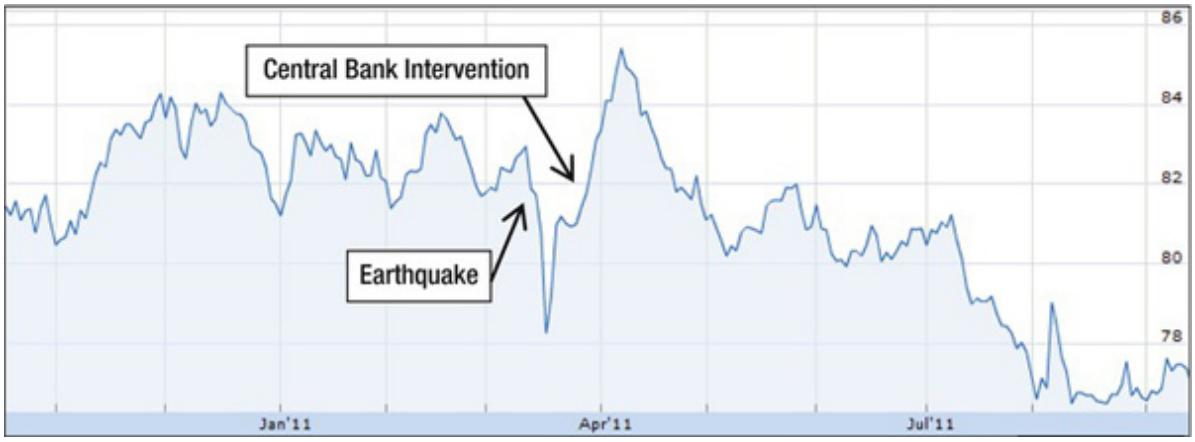


Figure 3-17. USD/JPY: market response to 2011 earthquake

On the other hand, the release of most economic indicators takes place in accordance with a fixed schedule—not the whims of statisticians. Given the dozens of indicators that are released every day, it would be impossible for the market to pay heed to all of them, especially since some are bound to be contradictory. As for the handful that are deemed important, they will be watched with bated breath. Investors will typically take up speculative positions in advance of scheduled news releases and, immediately following, it's not uncommon for large price swings to occur as the implications of the data are priced in. It matters not whether the data point was inherently good or bad, but rather how it compared to expectations. For example, if US GDP growth was measured at an amazing 5% but the consensus estimate was for growth of 6%, the dollar could very well fall!

With both types of news, the market has a propensity to overshoot, hence the expression, "Buy the rumor, sell the news." The implication is that (forex) market investors can get carried away, both before and after news releases. In fact, *overshooting* is such a common phenomenon that economists have incorporated it into exchange rate theory. Consider a central bank that cuts interest rates, for example. In order to maintain short-term equilibrium, it could be argued that it is in fact necessary for the spot rate to rise faster than the forward rate. As prices rise over time (due to the interest rate cut), the spot rate should slowly converge with the forward rate.

Correlations

Powerful correlations abound in the forex markets. As I explained in Chapter 2, the most precise correlations are in cross-rates. Since the dollar (and a handful of other major currencies) tends to drive the forex markets, many cross-rates tend to move only insofar as to eliminate triangular arbitrage with the US dollar. In other words, the THB/BRL rate is probably not fluctuating independently because there is not enough direct transfer of Thai baht for Brazilian real. In this case, understanding the THB/BRL rate is as simple as obtaining quotes for the USD/BRL and USD/THB and simply calculating the cross-rate.

There are also plenty of instances in which a comparatively unimportant currency will take its cues from a related, more liquid currency. Or both currencies might have similar fundamental profiles and move in tandem. The Australian dollar and the New Zealand dollar are certainly correlated. Emerging market currencies, especially those in the same region, tend to mirror each other. The Mexican peso and the Brazilian real have come to epitomize this kind of relationship, as seen in Figure 3-18.

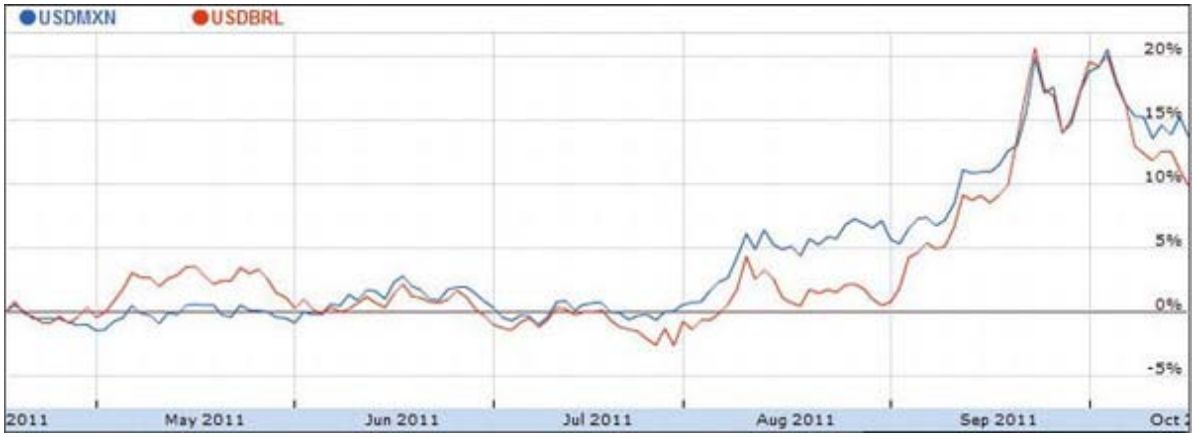


Figure 3-18. Tight correlation between MXP and BRL

There are also correlations between the forex markets and other financial markets. Sometimes, the USD/EUR will take its cues from equity markets, which are a good proxy for investor risk appetite. So-called commodity currencies may closely track prices for a specific commodity. The performance of the South African rand, for instance, may mirror the price of gold, while Australian dollar and Canadian dollar speculators have been known to take their cues from a broad basket of commodity prices (Figure 3-19).

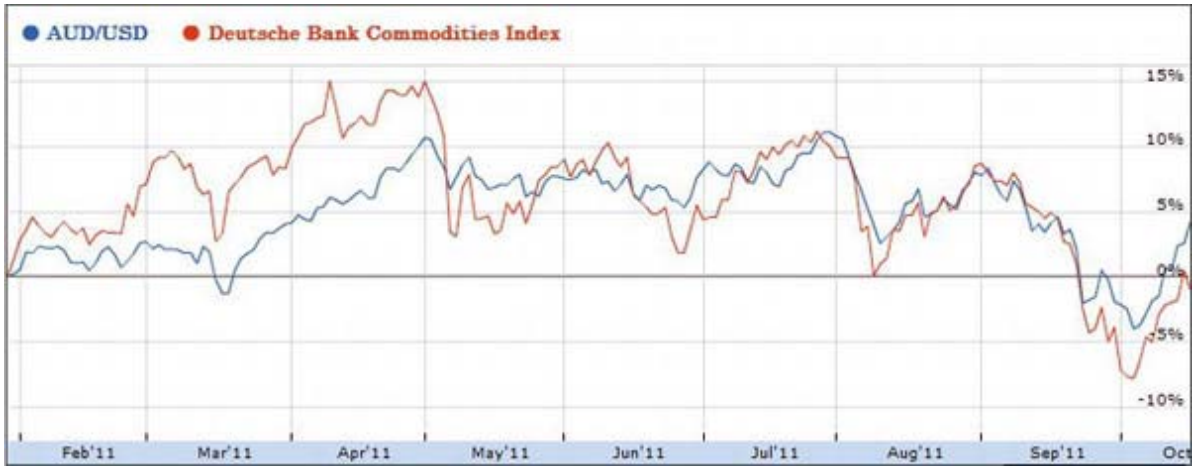


Figure 3-19. AUD/USD mirrors commodity prices

Risk-Driven Trading

Over the last decade, a trend toward risk-based speculation has taken shape. For example, in the years leading up to the 2008 financial crisis, the *carry trade* had begun to define the forex markets. Speculators bought high-yielding currencies against low-yielding currencies and pocketed the interest rate spread. In order for this trade to be profitable, however, the underlying exchange rate needed to remain basically stable. That's because extreme fluctuations make carry trades too risky, and in the worst case scenario, they can completely wipe out returns.

With the collapse of Lehman Brothers and the inception of the global credit crisis, an opposing trend immediately took hold; investors flocked to the least risky assets denominated in the lowest-yielding (and theoretically least risky) currencies—the yen, franc, and dollar. When stability returned to the financial

markets, investors were quick to transfer funds out of these proverbial *safe havens* and back into higher-yielding currencies. Whenever there was a minor crisis and/or a sudden uptick in volatility, the movement of funds went into reverse. This cause-and-effect relationship has persisted today, as is depicted in Figure 3-20. Here, it can be seen that rising/spiking (falling) volatility in the forex markets often precedes an appreciation (depreciation) in the Japanese yen.

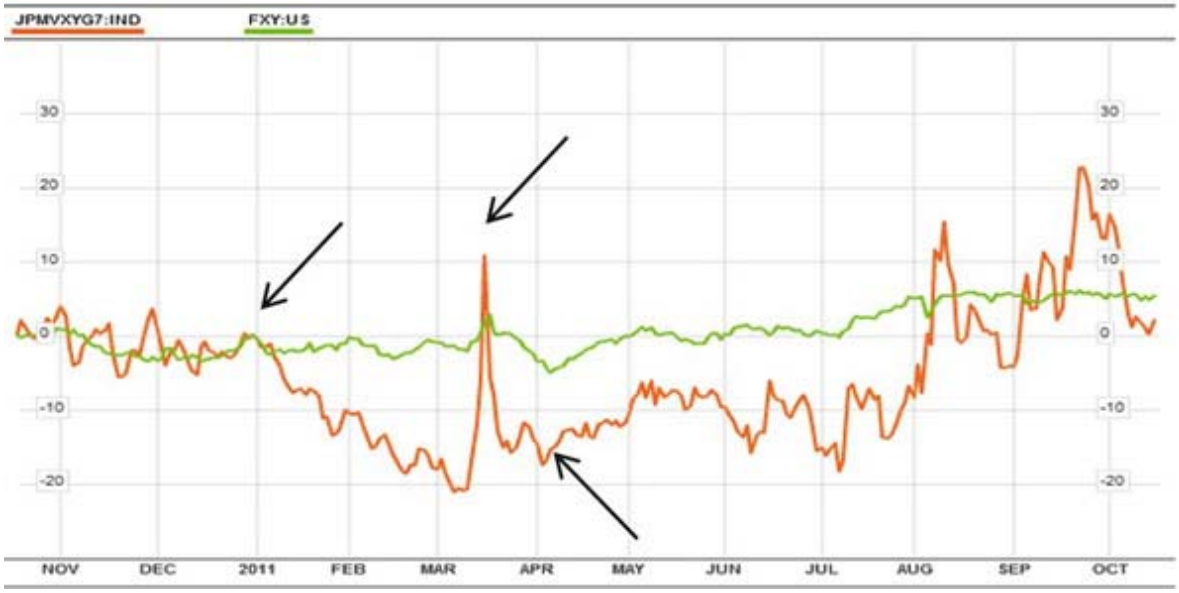


Figure 3-20. Volatility fluctuations and JPY/USD

Conclusion

All of the theoretical and observed forces that I introduced in this chapter go part of the way toward explaining the fluctuations in forex markets. However, economists have yet to come up with a unified framework that takes all of these variables into account. The literature is filled with contradictions (as are the theories themselves) and studies of explanatory power have yielded conflicting results.

That's not altogether surprising. The forex markets are dynamic and complex, and no one would expect a solitary variable to be capable of explaining all fluctuations, both large and small. From my point of view, it's only necessary to be aware of the handful of factors that are dominating the narrative at any given time, particular to the currency pair, time horizon, and strategy that one has chosen.

CHAPTER

4

Forex Analysis
An Introduction and Comparison of Fundamental and Technical Analysis

By this point, you should have a thorough understanding of the different instruments and currencies that are available to you as a forex investor. You should also be familiar with the dynamic forces that cause currencies to rise and fall against one another over time. The logical next step, then, is to apply this knowledge toward the development of both a personalized approach to analyzing currencies and, ultimately, a trading strategy.

Analytical Schools of Thought

The distinction between so-called *fundamental analysis* and *technical analysis*—which I alluded to in the introduction to this book—represents the most important dividing line in forex strategy. Fundamental analysts concern themselves with content while technical analysts focus primarily on charts. Fundamental factors range from the economic to the financial to the political, most of which were outlined in Chapter 3. Technicals refer to the patterns inherent in price movements, some of which can be discerned visually and others that are revealed only with the aid of computers.

This distinction can also be seen in terms of the external and the internal. Fundamental analysts are partial to the former; they posit that fluctuations in exchange rates are the result of phenomena that exist outside of the currency markets. Their goal is to ascertain both the relationships that exist between exchange rates and the complex macroeconomic forces that drive them. Technical analysts, in contrast, operate entirely within the foreign exchange market and view present exchange rates purely in terms of past rates, and future rates in terms of present rates. They see the currency market as a self-contained system and presume that all fluctuations are primarily the result of patterned buying and selling. The broader factors that drive participants to buy and sell are viewed as irrelevant or even unknowable.

For example, a fundamental analyst might observe that the euro is rising against the US dollar and attribute this to changes in comparative inflation and interest rates. A technical analyst, meanwhile, is content to merely identify the uptrend in the EUR/USD. In constructing a strategy, the fundamental analyst must apply his hypothesis to the future and develop a forecast as to how changes in the fundamental variables that he has identified will drive proportional changes in the EUR/USD. The technical analyst uses both visual and quantitative analysis to determine if the trend is substantial, and whether it is likely to continue.

Another crucial difference between the two types of analysis is the corresponding time horizon that their practitioners typically adopt. Technical analysts focus their microscopes on extremely short time intervals, from days to hours to mere minutes. While technical analysts will concede the existence of long-term price patterns, the majority operates solely within the realm of the short term and effectively fit the profile of *day traders.* Fundamental analysts prefer to see changes in prices unfolding over weeks, months, and years. Macroeconomic and monetary variables tend to fluctuate in accordance with long-term business cycles of 5–10 years, and exchange rates are perceived to fluctuate accordingly.

In Chapters 5, 6, and 7, I will offer more concrete examples and strategies, but for now, I simply want to clarify this distinction.

Trading vs. Investing

Fundamental analysis and technical analysis are not mutually exclusive, but in fact are two sides of the same coin. A trend in prices can be seen in terms of past prices, or it can be seen in terms of external variables. The ultimate goal of both types of analysis is to identify such trends, forecast their direction, and profit from them.

In practice, forex traders tend to practice either technical or fundamental analysis exclusively. This isn't to say that technical analysts won't have any idea of what's happening macroeconomically, or that fundamental analysts can't recognize that a long-term fundamental trend has been interrupted by a short-term counter-trend. Rather, the point is that speculators in the forex markets tend to fall very clearly on one side of the line that divides fundamental analysis from technical analysis.

As I intimated in the introduction, most forex participants would call themselves *traders*. They operate over very short time horizons. Positions remain open for a few minutes or a few hours and span multiple days only on rare occasions. They trade at very specific price points and have equally specific profit goals and limits to the amount of losses that they will accept. Positions are monitored constantly. Leverage of 10 times or greater is a de facto requirement. They stay out of the market when there is a major news release and are indifferent to the direction of a trend, as long as they are sure that it exists. Above all, they are technical analysts. They spend hours scrutinizing charts. The best traders memorize dozens of price formations with obscure Japanese names. Trends are confirmed using a handful of quantitative indicators, without any input from economic variables.

A small portion of forex participants fall under the heading of *investors*, with a time horizon measured in weeks or months or longer. Only under extreme circumstances would a position be opened and closed on the same day. Forex investors have higher profit hurdles, measured in hundreds of PIPs. As a result, they are also typically prepared to accept paper losses in the short term. Positions are checked a couple times a day at most for the purpose of fine-tuning strategy. Leverage is ultimately unnecessary, though it can be employed on a modest scale if it's consistent with one's particular strategy. Most importantly, investors are usually fundamental analysts. Forex investors won't blindly trade a trend unless they think that they have an idea as to what's causing it. Quantitative measurements of trend strength are less important than identifying the financial economic variables that underlie said trend.

You can see then that investors and traders are very different. The analytical prisms through which they view the forex markets drive very different approaches to trading.

Where Do You Fit In?

It seems silly to ask you to decide, once and for all, whether you are a trader or an investor, especially because there is some synergy between the two. At the same time, I think it's important to determine which type of analysis you find more attractive and, consequently, which approach to forex is most appropriate for you.

For now, why not at least acknowledge your knee-jerk reaction? Did you enjoy the discussion of the macroeconomic variables in Chapter 3? Are you eager to untangle the fuzzy connections that exist between financial markets and fundamental variables? Are you a big-picture thinker that likes to theorize about how everything fits together? Simply, do you enjoy the study of economics, reading economic reports, etc.? If so, then you are probably a fundamental analyst.

On the other hand, perhaps you found the first half of Chapter 3 arcane and boring. Did your eyes gloss over during the discussion of interest rate parity and capital flows? Are you skeptical that the fundamental connections between economic fundamentals and exchange rates can be discerned with any accuracy, if they exist at all? Are you the kind of person that enjoys looking for patterns in information

sets? Do you have a quantitative mind? If so, then you are probably a technical analyst.

One's chosen approach to analysis must also be consistent with personality and trading strategy. For example, are you attracted to the fast pace of the forex markets, or are you more interested in watching trends slowly unfold? Are you impulsive? Patient? Which currencies are you interested in trading? What are your profit goals? Are you seeking a supplemental income or a padded retirement account? What is your tolerance for risk? How much time do you plan to devote to trading forex? Do you intend for it to be a hobby or a full-time pursuit? How much equity capital are you prepared to commit?

You can work backwards from your answers to these questions to determine which type of analysis is more suitable for you. If you have a few hours a week, $5,000, and you are looking to diversify an existing financial portfolio, you're almost certainly an *investor*. If you intend to pour all of your savings into forex (which, incidentally, is not really advisable) and plan to spend every night after work parked at your computer; if you would get bored by a slow market and would call yourself impatient; if you are comfortable with competition and attracted to leverage, then you are a *trader*.

Superior Efficacy of Fundamental Analysis

I am often asked the question, "Which type of analysis is better: technical analysis or fundamental analysis?" As I explained in the introduction, I am personally inclined toward fundamental analysis, due primarily to what I believe is its superior efficacy. The fact of the matter is that there are demonstrable and observable connections between exchange rates and underlying economic data. Sometimes, these relationships are only obvious in hindsight. Other times, they are plagued by contradictions and manifest themselves in counterintuitive ways. They disappear frequently, and reappear just as frequently.

However, exchange rates do not behave arbitrarily, appearances aside. Significant movements are closely correlated with actual, perceived, or expected changes in underlying fundamentals. Those who are able to correctly discern these connections will be rewarded for their efforts, both financially and intellectually.

Unlike technical analysis, fundamental analysis doesn't become less profitable when competition increases. If market dynamics are such that rising interest rates are causing a currency to rise proportionately, this relationship will not be undone if too many people are aware of it. On the contrary, it will become even stronger. If too many traders detect the emergence of a technical trend, on the other hand, it may be arbitraged away before it can fully emerge.

That's not to say that technical analysis can't be profitable. On the contrary, for a small minority of traders it can be tremendously profitable. From the standpoint of its practitioners, its appeal lies in its economy (no pun intended). While fundamental analysis posits airy connections between economic variables and exchange rates, technical analysts purport to operate in a more scientific realm. Trades are not based on whims, but on quantifiable and observable patterns in prices. Trends are confirmed based on concrete principles, and trades are executed only when quantitative indicators support them.

In addition, the forecasting power of technical analysis is often self-fulfilling. For example, if every trader expected the EUR/USD to *plunge* when it hit the psychotically important level of $1.50, then a flurry of anticipatory sell orders would all but ensure such a result. In addition, if a steep rally in a currency pair brought the rate well above what fundamentals justified, it would probably be reflected in various technical indicators. Technical analysts would respond by selling the pair, and a correction would become self-fulfilling.

Perhaps the strongest argument in favor of technical analysis is that it is flexible and broadly applicable to most asset and securities markets. By now, you must have realized that if you fancy yourself as a

fundamental analyst, you will need to learn a unique framework for analyzing currencies. Throw out everything you learned about the stock market and the bond market, and start from scratch. On the other hand, if you were a technical analyst in your previous life as a commodities trader, making the transition to trading currencies should be fairly uneventful. That's not to say that you won't need to spend some time acquainting yourself with the peculiarities of forex. At the very least, though, you don't need to learn an entirely new analytical approach.

As will become clear in Chapter 6, however, technical analysis can be quite arbitrary. It is impossible to devise cut-and-dried trading rules since market conditions are always changing, and since patterns that repeat themselves are likely to be arbitraged away. An exchange rate is unlikely to behave in exactly the same way over time, despite what technical indicators may imply. In fact, most technical analysts will admit that their goal is to merely be right 60% of the time. After taking transaction costs (spreads) into account, this implies that it can only be slightly more accurate than the flip of a coin.

In addition, technical analysis is intellectually unsatisfying. Why is the euro rising against the dollar? Because fear has reached an apex and greed is rising, of course! As an explanation, this is only slightly more profound than the notion that supply exceeds demand, or vice versa. While this might in fact be relevant within the scope of technical analysis, it lacks punch. Personally, I would feel much more comfortable betting on a rising euro if I understood that it was being driven by changes in specific economic variables, rather than by the abstract idea that it was previously "oversold." It reminds me of Plato's Allegory of the Cave: technical analysts are chained to the wall and see only the shadows—the prices—while fundamental analysts live in reality and try to see what's actually causing those shadows. But I digress.

Most importantly, the recent track record of technical analysis does not inspire much confidence. According to publicly available data, only 25% of retail forex accountholders earn a profit in any given quarter. (This figure ranges from 20%–40%, by quarter and by broker. If the same survey were conducted on an annual basis, the overall figure would no doubt be even lower!) Given that the overwhelming majority of accountholders are day traders, this does little to boost the case for technical analysis.

This fact was reinforced by a 2011 Federal Reserve Bank research paper titled "Technical Analysis in the Foreign Exchange Market."[1] The paper compared the results of nearly 100 academic studies from the modern financial era and came to the following conclusion: "Technical Trading Rule profitability has been declining since the late 1980s. . . . Major currencies no longer trend reliably but markets in newly trading currencies appear to display some profit opportunities from technical rules. This finding suggests that traders in major currency markets have arbitraged away technical patterns but those patterns still exist in emerging markets." As a result of the "financial arms race," profits inure to those with the fastest computers and smartest algorithms: "The excess returns to relatively simple rules based on filters or moving averages had disappeared by the early 1990s, but returns to more complex or sophisticated rules have persisted."

Technical analysts should be alarmed by these conclusions. Where competition is high (for major currencies), technical trading rules tend to be unprofitable. The same can apparently be said for trading rules that are too simplistic. The implications are straightforward enough: to earn consistent profits in technical analysis, you should stick to obscure corners of the market (where spreads are higher) and/or develop more complex trading rules.

Blending Technical and Fundamental Analysis

Ultimately, I think the smartest strategies should incorporate aspects from both schools of thought. Technical and fundamental analysis alike can claim concrete strengths and weaknesses. Whether they are

effective at any given time depends on prevailing market conditions, one's time horizon for investing, etc. Let's face it: exchange rates are influenced by both technical and fundamental factors, and investors that focus exclusively on one type of analysis do so at their peril.

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[1] Christopher J. Neely and Paul A. Weller, "Technical Analysis in the Foreign Exchange Market" (Working Paper 2011-001B, Federal Reserve Bank of St. Louis, January 2011), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1734836.

In Chapter 7, I will introduce a strategic approach to currency investing that is based on both types of analysis. For the sake of simplicity, I will first introduce each one separately, beginning with fundamental analysis.

CHAPTER

5

Fundamental Analysis
Analyzing Exchange Rates Based on Fundamental Factors

Fundamental analysis deals with the external factors that move currencies. These factors might be quantifiable, like those that fall under the umbrella of economics or finance. There are also numerous qualitative factors, such as investor sentiment, political developments, and crises of various kinds. As I explained in Chapter 3, all of these factors can influence exchange rates, and determining just how this takes place is the job of the fundamental analyst.

At the heart of fundamental analysis is the notion of equilibrium. At any given time, a currency pair should trade at a particular rate that balances trade and investment flows. Of course, fluctuations in market risk appetite and unexpected developments may imply a rate that is well above or below what financial-economic conditions justify. If you accept the *efficient market hypothesis* in its weak form—the idea that all public information has already been priced into the exchange rate—then this isn't a major concern.

Fundamental analysis is ultimately more art than science. As you'll see from the pages that follow, competing narratives abound in the forex markets, and this makes fundamental analysis difficult even in the most stable market conditions. Still, those that are able to read the tea leaves correctly (and are able to develop good forecasts) will find fundamental analysis of exchange rates to be a rewarding pursuit.

Interest Rate Analysis

There are two overarching forces which describe how changes in central bank interest rates impact exchange rates: *interest rate parity* and the *carry trade*. Emerging (growth) currencies tend to trade in *direct* proportion to relative interest rate levels since higher rates attract speculative investors. Recall that investors in the carry trade seek to profit from positive interest rate differentials; hence, the higher the interest rate, the more attractive the corresponding currency. Currencies backed by stable (slow growth) economies generally fluctuate against one another so as to preserve interest rate parity, especially over the long term.

In other words, interest rate adjustments lead to *inverse* changes in the exchange rates between major currencies. For example, a hike in the US federal funds rate should cause the US dollar to fall against the British pound, unless the Bank of England takes similar action. Recall from Figure 3-5 in Chapter 3 that, from 2004 to the present, changes in the US/UK interest rate differential presaged corresponding changes in the GBP/USD rate. In order for interest rate parity to be maintained, a decline in US interest rates (relative to UK rates) should spur risk-averse investors away from the pound and toward the US dollar. The same logic can be applied to the Swiss franc, Japanese yen, euro, and Canadian dollar.

This relationship is not set in stone. The actual impact will depend on investor sentiment and the prevailing market narrative. When risk appetite is extremely high, for example, investors might treat major currencies like emerging currencies. In the early 2000s, when the carry trade came into vogue, the US dollar rose rapidly against the yen in conjunction with a series of federal rate hikes. Similarly, when the Federal Reserve Bank, or commonly, the Fed, began cutting rates in 2007, investors moved to unwind their carry trade positions and the US dollar plunged against the yen. As a result, the USD/JPY underwent a massive correction (Figure 5-1) and interest rate parity was restored.

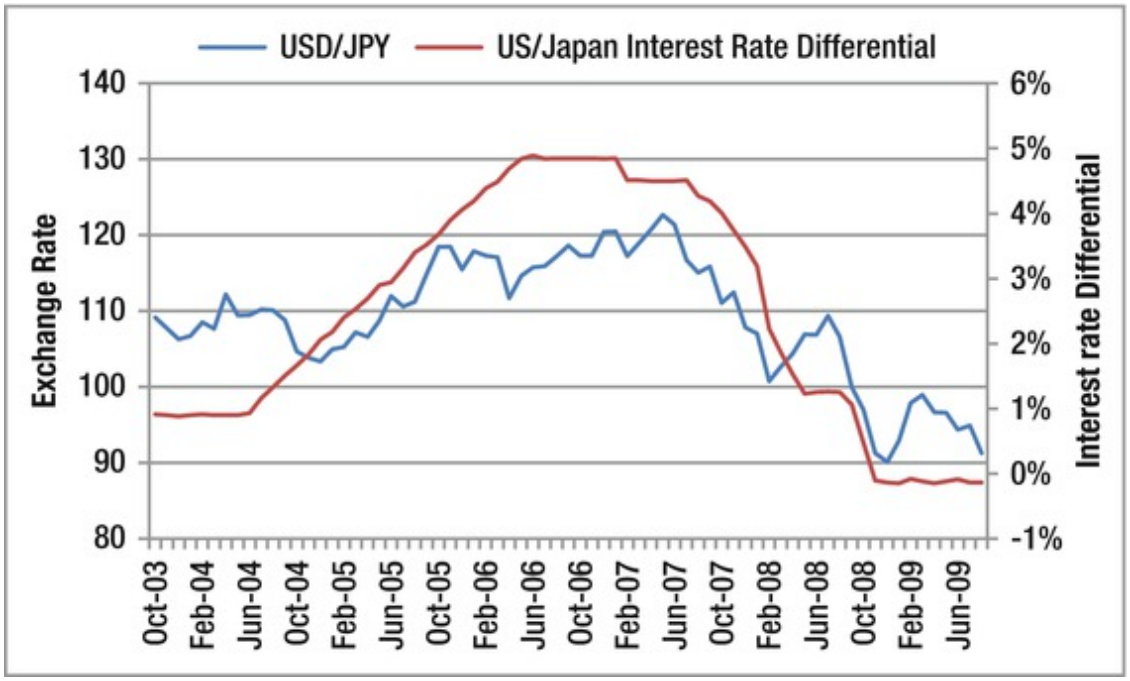


Figure 5-1. USD/JPY response to changing interest rate differential

One way to conceptualize this is that, due to high appetite for risk, spot market traders were willing to violate covered interest rate parity in order to secure immediate short-term profits. When risk appetite tanked (in the lead up to the 2008 credit crisis) and the US/Japan interest rate differential simultaneously narrowed, the short-term benefit of holding the US dollar against the Japanese yen was eliminated. Another way to understand this is that the spot market (which was betting on the dollar) fell out of equilibrium with the forward market (which implied a weaker dollar, in accordance with covered interest rate parity) and was only restored when speculators in the spot market retreated.

You can see from Figure 5-1 that both the long-term uptrend (from 2004 to 2007) in the USD/JPY and the long-term downtrend that followed (from 2007 to present) were preceded by changes in the interest rate differential. (To be fair, the downtrend was much due to the inception of the global financial crisis, and falling US interest rates were probably more of an effect than a cause. I will explore this idea later in greater detail.) A fundamental analyst, then, might have seen an opportunity to buy the USD/JPY in 2005 and a basis for selling in 2007.

In fact, the carry trade has become one of the most reliable trades in forex. When investors buy a high-yielding currency against a low-yielding one, they can capture an interest rate spread. Their expectation is that the underlying exchange rate will remain stable so that adverse changes don't erode interest earnings. When market risk appetite is strong, a flood of speculative capital into carry trade strategies actually forces the underlying exchange rate to rise, and profits from currency appreciation become an added bonus for those seeking low-risk interest. When the tide turns, however, the whipsaw of money flowing out of carry trades can be just as ferocious. This is typically triggered by a change in risk appetite rather than a change in interest rate differentials.

Emerging market currencies represent the primary targets for carry traders since their corresponding short-term interest rates are perennially high. Their industrialized counterparts, on the flipside, are known for low rates and are better utilized on the short end of the carry trade as *funding currencies.* Of course, emerging market currencies are also plagued by higher volatility, monetary instability, lower liquidity, and logistical issues related to trading them. The benchmark interest rates of Angola and Kenya, for

example, are perennially among the highest in the world, but, for many reasons, their currencies are not well suited for carry trading, let alone normal currency speculation.

Before we get ahead of ourselves, consider that there are in fact many different interest rates, depending on which entity is performing the calculation. For example, most central banks control a base interest rate that they determine outright or merely target (as in the case of the Federal Reserve Bank). The Fed has its *federal funds rate* and *discount rate*. The European Central Bank has its *refinancing rate*. The Bank of England uses a *repo rate* while the Bank of Japan prefers an *overnight call rate.* While the nuts and bolts of each country's rate mechanism are slightly different, the objective is always the same: to achieve economic stability. For example, when an economy is expanding too quickly and price inflation picks up, the central bank will raise its benchmark interest rate in order to make saving more attractive than borrowing and spending. During a recession, the central bank will lower interest rates in order to make saving unattractive (at the expense of immediate consumption) and borrowing inexpensive.

The central bank base rate is the rate at which banks lend to each other using deposits held with the central bank. It is typically the lowest rate throughout the entire financial system. Moreover, it is typically utilized in exchange rate models because it is the easiest to compare across different countries and over time. (See Figure 5-2.)

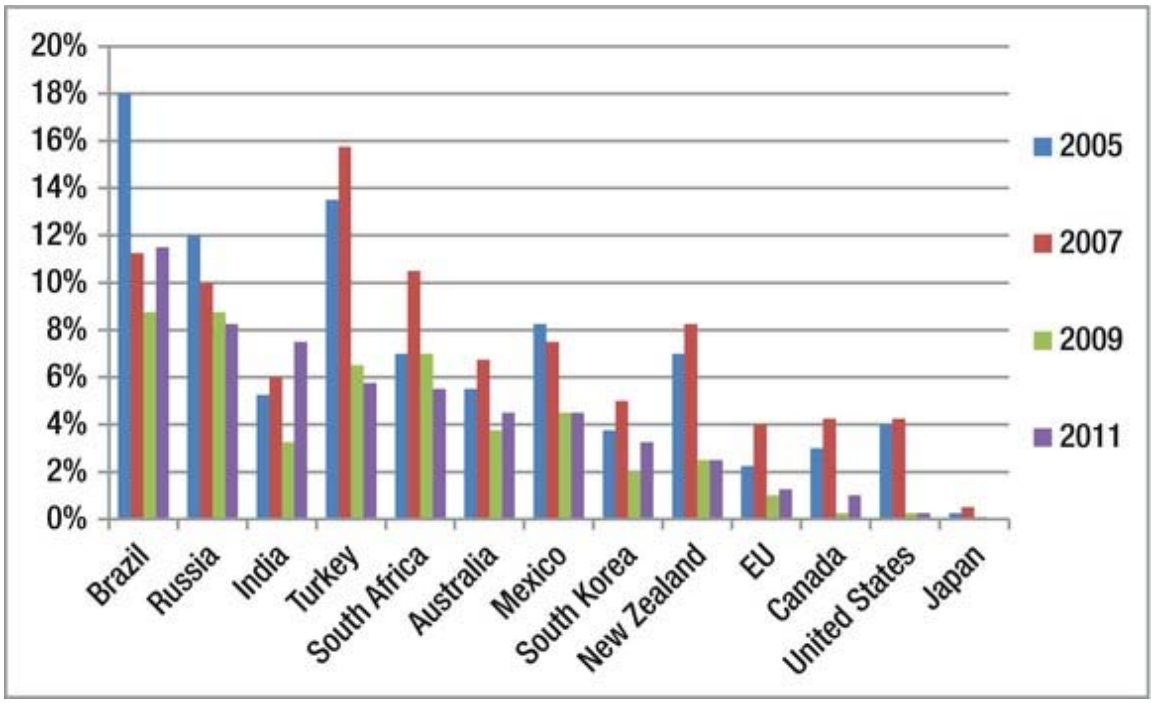


Figure 5-2. Central bank base interest rates for selected economies, change over time

As one moves down the pyramid of size and liquidity, from large bank to small business to consumer, interest rates can be expected to rise incrementally in order to compensate for the perception of greater credit risk.

You can also utilize London Interbank Offer Rates (LIBOR) rates, which are used for interbank loans and are determined by market forces. Comparing sovereign bond yields—like the US 10-year Treasury Bond Rate versus the UK 10-year Guilt Rate—is yet another option, though these rates reflect differences in government creditworthiness as much as differences in price inflation and economic growth and are hence less applicable.

Except in rare circumstances (such as during crises), interest rate adjustments are carried out by central banks only at regularly scheduled meetings. At the conclusion of these meetings, all changes in monetary policy (including rate changes) are announced to the public through written press releases and/or via live press conferences. Fundamental analysts pay especially close attention to these meetings, which are the focus of tremendous short-term speculation in the credit and forex markets. (Technical analysts are also keenly aware of the meetings' significance and may avoid all trading during the volatile periods immediately before and after the announcement.) Most central banks will also release the *minutes* from their meetings, detailing what took place, how board members (also known as *governors*) voted on proposed changes in monetary policy, and so forth.

Central banks usually telegraph their intentions in advance to avoid shocking the markets. Press releases may thus contain insight into the near-future direction of monetary policy and are the subject of intense analytical scrutiny. In fact, every investment bank employs a research team whose sole responsibility is to develop interest rate forecasts, which are then channeled into bets in the credit markets. As a result, interest rate futures prices can be used as a basis for assessing the "probability" of interest rate hikes and are an important tool for fundamental analysts. (In fact, research has shown that futures markets slightly underestimate changes in the federal funds rate, but they are nonetheless the best insights into where investors believe rates are headed.)[1]

Per Figure 5-3, the Fed is not expected to raise the federal funds rate from the current level of 0.0%–0.25% at its upcoming December meeting. The markets wavered slightly from this assumption in July, but have since settled on a 0.0% probability.

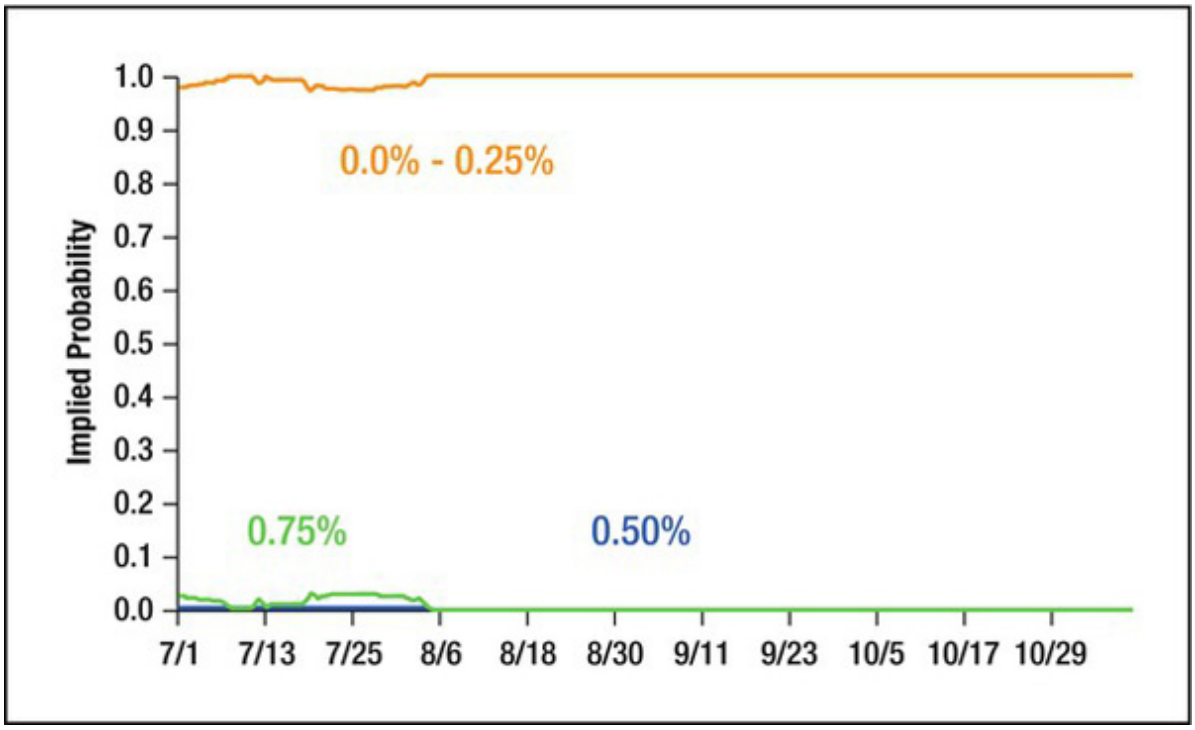


Figure 5-3. Implied probability of federal funds rate change at December 2011 meeting (Source: The Cleveland Fed)

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[1] Ed Nosal, "How Well Does the Federal Funds Futures Rate Predict the Future Federal Funds Rate?"

Economic Commentary, October 2001, http://199.169.201.130/research/commentary/2001/1001.pdf.

As for how central bank interest rate adjustments impact the forex markets in real-time, that depends on investors' expectations and specific market conditions. If the actual change is consistent with analysts' forecasts, relevant exchange rates probably won't jump by much. If the rate change fails to accord with expectations or comes as a complete surprise, you would expect instant 50–100 PIP moves across the board.

Furthermore, in an atmosphere that is considered hospitable to the carry trade, a rate hike will make the corresponding currency more attractive to speculators and should cause immediate or near-term appreciation. The opposite should be true for an interest rate cut. When risk appetite is weak, rate changes will be ignored by markets or result in *inverse* changes to the respective currency in line with purchasing power parity. Of course, there are exceptions to this rule. When the European Central Bank announced a surprise cut in its benchmark rate in November 2011, investors responded by selling the euro. That's not because the euro suddenly became a more attractive funding currency for the carry trade, but because the cut triggered concerns that the Eurozone sovereign debt crisis had become more serious.



Figure 5-4. Spot market reaction to November 2011 surprise European Central Bank rate cut

Inflation Analysis

From the standpoint of fundamental analysis, the importance of inflation is twofold: it directly erodes the value of currency *and* is one of the primary drivers of monetary policy.

Remember from Chapter 3 that *purchasing power parity* is one of the central tenets of exchange rate theory. And for good reason! Inflation makes currency less valuable in both absolute and relative terms. As a medium of exchange and store of value, a currency is only useful/valuable insofar as it can be used to purchase goods and services, both now and in the future. If prices are rising by 5% per year, then one unit of currency will necessarily be worth 5% less one year from now!

Given that currencies are valued in terms of one another, inflation rates are mainly applicable to the forex markets on a comparative basis. (For instance, consider the possibility that inflation rates were synchronized at 5% throughout the entire world. In that case, the relative value of their currencies would not change, even though domestic consumers would suffer a 5% decline in domestic purchasing power.) This is one of the main reasons for the steady appreciation of the Japanese yen against the US dollar over the last several decades, which has taken place despite a handful of contradicting factors. Likewise, several emerging market currencies have stagnated because of inflation, their strong economies notwithstanding. As I explained, that's because inflation has the same effect as currency depreciation. If macroeconomic fundamentals justify a 10% appreciation in the Brazilian real, but the Brazilian rate of inflation exceeds 10%, then the real should remain roughly in place in order for economic equilibrium to be maintained.

While purchasing power parity is a reasonable guide for making multi-year exchange rate forecasts, its explanatory power is fairly limited over the short term, where the sway of inflation is mainly psychological. As long as the inflation rate remains at an acceptable level (which varies from 0%–10%, depending on the country and the strength of its economy), it tends to elicit little response from consumers and investors. That's because moderate inflation has been shown to be crucial to proper economic function. If inflation were too low (or even negative), it would offset the balance between saving and investing, induce consumers to hoard cash, and interfere with the ability of central banks to conduct monetary policy, among other things. On the other hand, high inflation can quickly spiral into *hyperinflation,* causing economic disruption, loss of savings, and even social unrest. None of the major currencies has experienced hyperinflation in the modern era of forex. Similarly, more than two decades have passed since a bout of hyperinflation has plagued any of the top-tier emerging currencies. While some paranoid gold bugs would certainly disagree, hyperinflation is not a likely possibility in any of the currencies that are discussed in this book.

At the same time, inflation is problematic for investors because it eats into investment returns. When inflation ticks up without a corresponding change in interest rates, the *real* interest rate (also known as the *inflation-adjusted* interest rate) is said to decline. Likewise, a 10% return on an equity investment is not so attractive if the rate of inflation is also hovering around 10%.

Emerging market investors are especially sensitive to sudden upticks in inflation. That's because currency appreciation has historically accounted for more than half of the returns earned by investors in emerging markets.[3] When inflation ticks up rapidly, emerging market investors will respond by shifting money back into industrialized economies until the responsible central bank takes steps toward monetary and price stability. By way of example, consider the case of the Brazilian real, whose speedy recovery in the wake of the financial crisis slowed to a halt in 2010, due in part to fears of rising inflation. The Brazilian real resumed its ascent in 2010, when the Bank of Brazil finally raised its benchmark Selic rate. This appreciation took place in spite of capital controls that were imposed by the central bank to deter speculators. (Note Figure 5-5.)

Of course, the principal application of inflation to the currency markets involves its role as a guide for

monetary policy decisions. Most central banks have an overarching mandate to control inflation. The Federal Reserve Bank has slightly more latitude as it is charged both with maximizing employment and maintaining price stability. When inflation rises, central banks respond by *tightening* monetary policy in the form of interest rate hikes and other adjustments. (At the very least, they will acknowledge inflation in their press releases and offer some indication as to whether it is viewed as a problem.) This should cause prices to stabilize and economic growth to cool. When inflation begins to fall, the central bank will respond by taking necessary action, like cutting rates. Indicators of inflation thus receive tremendous attention from the financial markets as they tend to presage changes in interest rates.

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[3] Steve Johnson, "Push to Tap into EM Currency Returns," *Financial Times*, February 27, 2011, www.ft.com/intl/cms/s/0/1170ed2e-4112-11e0-bf62-00144feabdc0.html#axzz1tlpZ6PJ8.

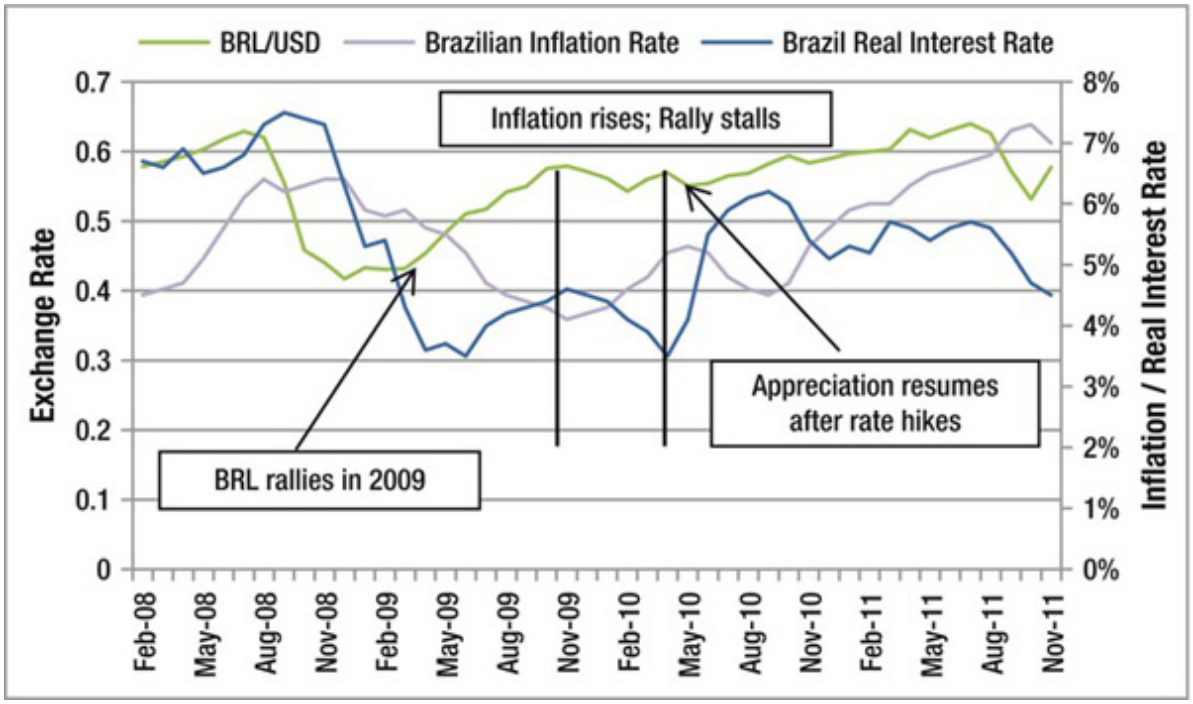


Figure 5-5. Impact of rising inflation and falling real interest rates on the Brazilian real

This relationship does break down from time to time. In the wake of the financial crisis, emerging market currencies had fallen to multi-year lows. Emerging market central banks were happy about this development because lower exchange rates made their exports relatively cheaper. The downside of this currency depreciation was import inflation. If the price of oil is $90 per barrel, for example, South Africa will pay 720 rand per barrel at an exchange rate of 8 USD/ZAR, but 810 if the Rand depreciates to 9 USD/ZAR. There will also be a trickle-down impact across the entire economy.

As inflation picked up, then, emerging market central banks pondered raising interest rates. They feared, however, that rate hikes would invite speculative capital inflows from risk-driven investors eager to shake off the pall of the credit crisis. The resulting currency appreciation would affect exports and endanger their fragile economic recoveries. Sure enough, falling real interest rates caused emerging market currencies to stagnate in early 2010. Inflation rose further as emerging market central banks played monetary chicken with one another, opting to raise reserve requirement ratios rather than adjust interest rates. The Bank of Brazil finally broke down and hiked its benchmark Selic rate in late 2010, and other

central banks followed suit in 2011. Their currencies resumed their appreciation shortly thereafter.

There are a handful of ways in which inflation is measured. Most governments have a branch that computes economic statistics. (In the United States, this task is delegated to the Departments of Labor and Commerce.) The *Consumer Price Index* (CPI) is perhaps the most comprehensive measure of inflation in an economy. Composed of a basket of tens of thousands of goods and services, it is designed to mimic the spending patterns of a broad spectrum of consumers. Of course, some items/sectors are weighted more heavily than others, such that a rise in the price of car tires will probably impact overall CPI less than a rise in home prices. CPI data is released once a month and is reported on both an overall basis and regional bases. It is often modified to exclude certain items, such as food and energy, which are considered too *volatile*. The end product is known as *core inflation* and represents one of the most important guides of monetary policy. (Conspiracy theorists will assert that this exclusion is intended to understate inflation, but to be fair, it also corrects for sudden declines in food and energy prices, as can be seen in Figure 5-6 below.)

There are a handful of secondary inflation indicators, such as the *GDP deflator* and the *producer price index* (PPI). The former is computed by the US Department of Commerce and is used as a basis for converting *nominal GDP* into *real GDP*. The latter measures inflation as experienced by manufacturers. As is evident from Figure 5-6, producer price indexes are closely connected with exchange rate fluctuations, since most manufactured goods are assembled with overseas components. Secondary inflation indexes include the *Commodity Research Board (CRB) Futures Index*, which consists of prices for 21 commodities, as well as the *Employment Cost Index* and *Import Price Index* (IPI). (In fact, the Federal Reserve Bank's statistical database contains more than 1,000 different measurements of inflation, segmented by economic sector, geographic region, end user, and so on.) Most indexes are seasonally adjusted, annualized, and converted into percentage form for ease of comparison.

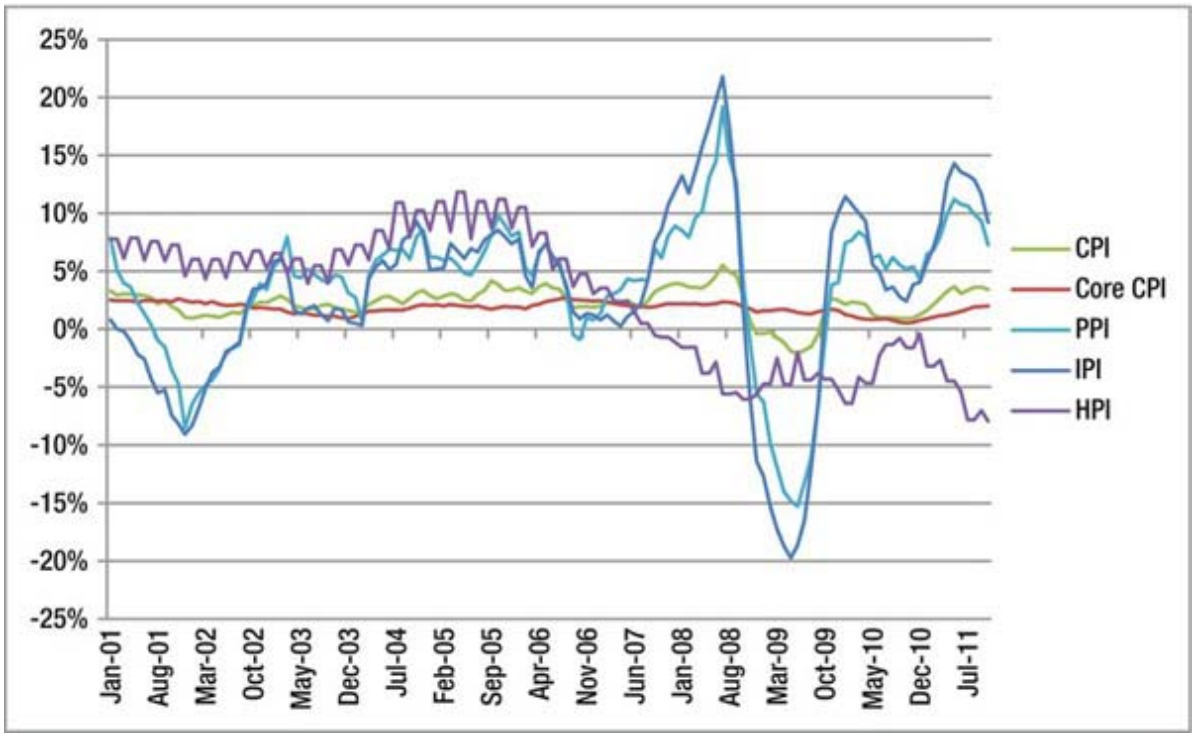


Figure 5-6. Various indicators of US inflation from 2001 to the present

Some analysts pay close attention to the *Housing Price Index* (HPI) under the belief that home prices play

a critical role in guiding monetary policy. While the Fed certainly pays lip service to asset prices (including housing prices), however, it has insisted that these are outside of its mandate. In the past, the Fed has only been influenced by asset bubbles insofar as they threaten to affect the economy as a whole and price levels, broadly.

Component indicators are monitored because they inform predictions for future inflation. As this book goes to press, the federal funds rate stands at 0%, and history suggests that the Fed won't hike rates until core inflation rises. In this case, rising inflation will probably be preceded by an increase in producer prices and/or a recovery in housing prices.

Some economists—Milton Friedman, notably—have argued that price inflation is a function of growth in the money supply. The theory goes that, if new money enters circulation, the value of existing currency declines. When the Fed increased the money supply in 2009 as part of its *quantitative easing* program, for example, critics argued that it would trigger hyperinflation and lead to a crash in the US dollar. Chairman of the Federal Reserve Bank Ben Bernanke steadfastly responded that if and when inflation creeps upward, the Fed would simply withdraw the newly printed money from circulation. (Thus far, Bernanke's position has been upheld.)[2] In fact, it has always been the Fed's policy to ignore money supply. In 2006, it caused quite a stir when the Fed ceased collecting data on M3 (M2 plus large and long-term deposits) which is perhaps the broadest measure of US money supply. Fundamental analysts that disagree with the Fed's interpretation can still access M1 (physical money such as coins and currency plus demand deposits) and M2 (M1 plus time-related deposits and savings deposits). Other central banks publish comparable data. Given the link between a continuously growing money supply and a declining US dollar (Figure 5-7), these data series might be worth paying attention to!

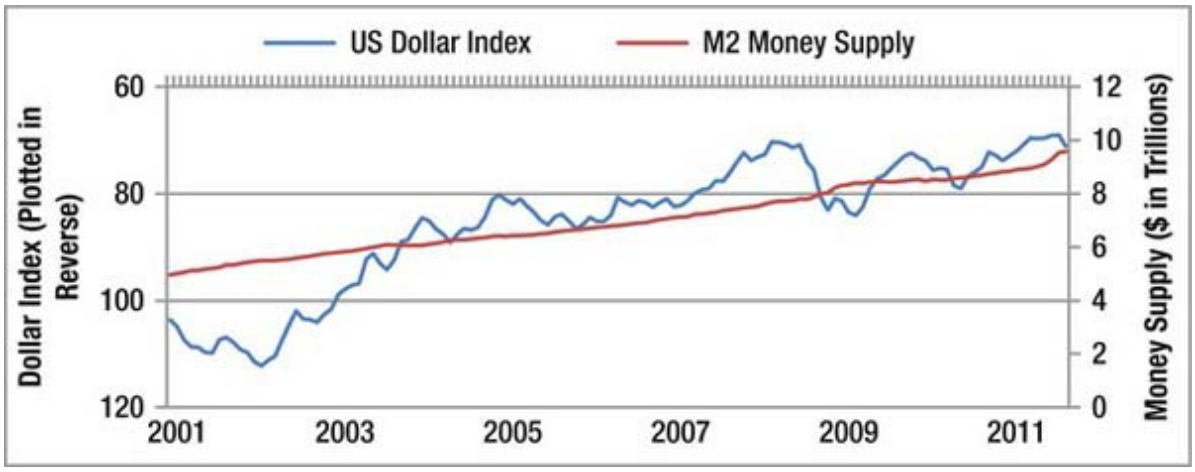


Figure 5-7. Correlation between rising M2 and declining (trade-weighted) US dollar

For guidance on where the markets think US inflation is headed, analysts should look at US Treasury Inflation Protected Securities (TIPS). TIPS are similar to US Treasury bonds, except that principal and interest payments are tied to the CPI. By calculating the *breakeven* point between TIPS and normal Treasury securities, it's possible to determine inflation expectations for the next 5, 10, 20, and 30 years. For example, if the current 10-year US Treasury yield is 4.5%, and the yield on an equivalent TIPS bond is 7.5%, then the "breakeven" inflation rate is 3% per year. (This calculation ignores the liquidity/uncertainty premium built into TIPS, which is generally insubstantial.) If inflation expectations rise, this premium will also rise, even controlling for changing perceptions of US creditworthiness. Ignoring the 2008 volatility—which was an anomaly caused by the credit crisis—the expected inflation rate for the next 5 years has hovered around 2.5%–3%. (See Figure 5-8.) If you perform this calculation on the equivalent Japanese securities, in contrast, you will see that expectations there are for negative

price inflation (also known as deflation).

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[2] Ben S. Bernanke, "What the Fed Did and Why: Supporting the Recovery and Sustaining Price Stability," *Washington Post*, November 4, 2010, www.washingtonpost.com/wp-dyn/content/article/2010/11/03/AR2010110307372.html.

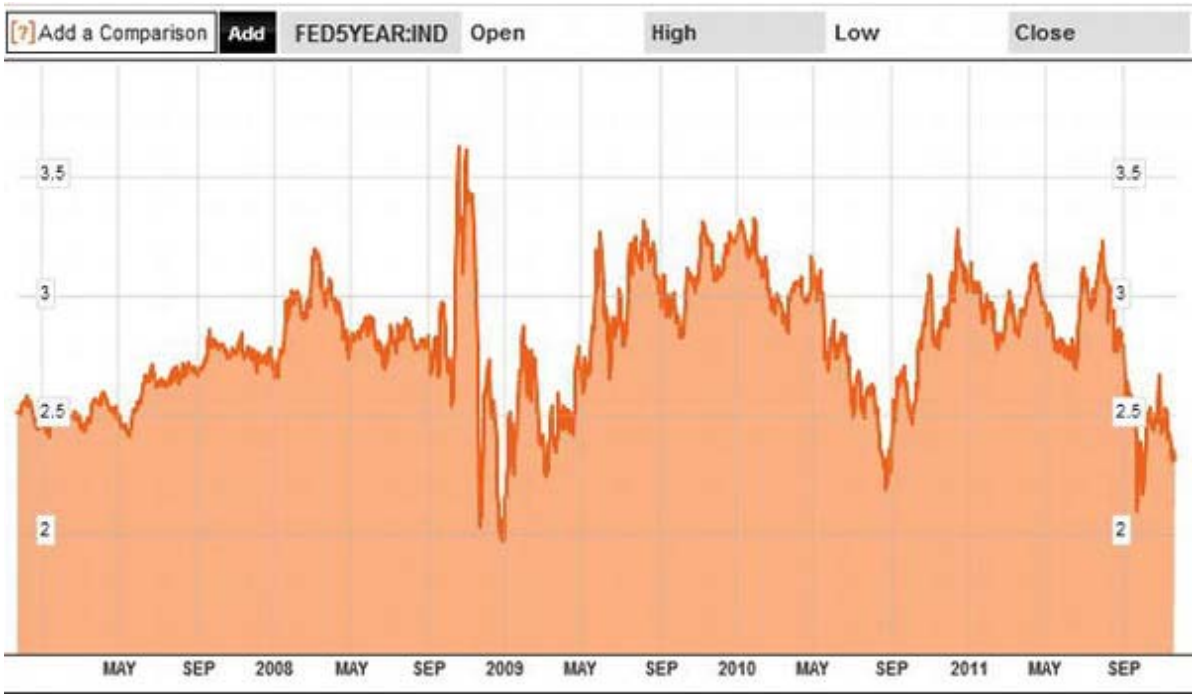


Figure 5-8. Market expectations for 5-Year CPI inflation based on "breakeven" rates (Source: Bloomberg L.P.)

Economic Indicators

After inflation, gross domestic product (GDP) is the most important economic indicator, at least as far as the forex markets are concerned. The GDP growth rate—or rather, the *real* GDP growth rate, which controls for inflation—is a comprehensive barometer of the health of an economy. If the number is positive, it means that economic output is expanding, while a negative number implies a contraction. Real GDP is especially useful for comparative purposes. In a nutshell, the currencies of high-growth emerging economies should outperform major currencies, whose economies tend to exhibit slower growth.

Unfortunately, that's probably the most profound generality that can be made. For example, there is only a slight connection between real GDP growth differentials and long-term exchange rate movements between Canada and the United States, as seen in Figure 5-9. Generally speaking, the US dollar has risen against the Loonie when the US/Canada differential was positive, and fared less well when the differential turned negative. At the same time, the Loonie has appreciated by more than 40% since 2002, even though the economies of the US and Canada have grown at roughly the same rate (the real GDP growth differential has hovered around 0) for the same period. In short, it might be difficult to establish an actionable trading strategy based on GDP alone.

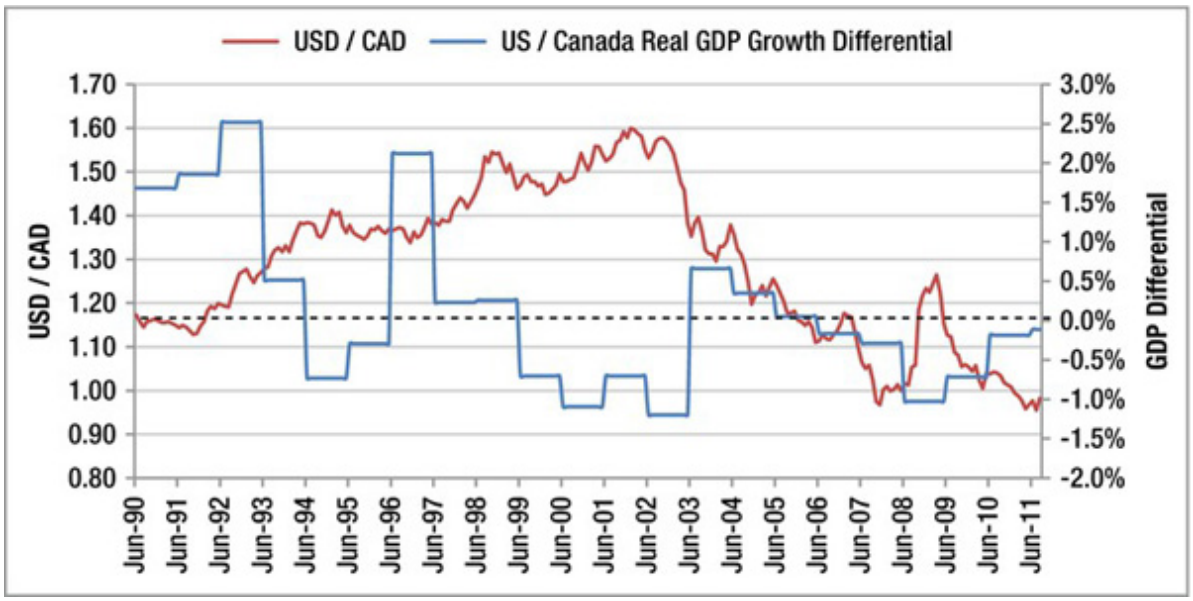


Figure 5-9. USD / CAD exchange rate and real GDP growth differential

That's not to say that the currency markets don't take GDP seriously. On the contrary, GDP figures are probably secondary only to inflation indicators in their ability to create a stir and drive instantaneous reactions. This can be seen especially in the frantic trading that takes place in the minutes leading up to and immediately following their official release.

The same can be said about most of the various other economic indicators, which are absorbed into the currency markets either right away, not at all, or indirectly through other indicators. As for which indicators are important (those that have the power to move the market), that depends on the market *narrative* at any given time. In the wake of the 2008 housing market collapse, for example, housing indicators suddenly acquired tremendous influence as the financial markets looked to the housing sector to lead the economic recovery. There are indicators that measure supply, by way of housing starts and *construction permits and inventory*, as well as those that measure demand, by way of *mortgage applications, residential sales,* and *vacancy rates.* And of course, there are dozens of indexes that measure nothing but price, segmented by type of dwelling, price-range, region, and so forth. The most famous index is probably the *Case-Shiller Home Price Index,* though it is not necessarily the most comprehensive.

There are some commentators who would insist that there are certain indicators that are always important, but my experience suggests that this is not actually the case. That's probably due to the fact that there are thousands of indicators covering every facet of every economy. To try to monitor more than a handful with any level of dedication would be futile at best and counterproductive at worst. That's not just because most indicators are irrelevant, but also because many are contradictory. For trading purposes, it's best to stick to a few of the most prominent *leading indicators*. These indicators precede changes in the economy and must be distinguished from *lagging indicators,* which follow changes in the economy.

Most forex news websites (and most financial news websites, for that matter) compile a calendar of all economic indicators, along with a description of each, scheduled release/date time, previous value, and consensus forecast (like the one in Figure 5-10). Some editors will go one step further and attempt to gauge the relative importance of each indicator. From monitoring these lists, forex forums, and media coverage, it's usually fairly easy to determine which indicators are worth paying attention to at any given time.

Time	Cur.	Imp.	Event	Actual	Forecast	Previous
Sunday, November 20						
18:50	JPY		Monetary Policy Meeting Minutes			
18:50	JPY		Trade Balance	-0.46T	-0.20T	-0.01T
19:01	GBP		Rightmove House Price Index (MoM)	-3.1%		2.8%
20:00	SGD		Singaporean GDP (YoY)	6.1%	6.0%	1.0%
21:00	NZD		Credit Card Spending (YoY)	7.9%		5.3%
23:30	JPY		All Industries Activity Index (MoM)	-0.9%	-1.0%	-0.3%

Figure 5-10. Sample Economic Calendar (Source: ForexPros.com)

A good rule of thumb is that if CNBC and Bloomberg News are not featuring live coverage of the indicator's release, it probably won't sway the markets much. As with inflation, interest rates, and GDP figures, the number that is reported is not significant in and of itself, but only relative to market expectations. It's not uncommon for a speculative buildup in advance of the release to drive a 50 PIP move in one direction, only to reverse completely when the indicator fails to conform to expectations. It should also be noted that all initial data releases are preliminary and are always accompanied by modified final numbers for the previous period.

As for why indicators' relative significance varies over time, the answer is that the markets are capricious and that significance is self-fulfilling. Sometimes the rationale is indirect. Employment indicators, for example, would seem to have very little direct bearing on currencies. Because they can influence monetary policy (such as when a high unemployment rate prevented the Fed from hiking interest rates despite the onset of economic recovery in 2010) one must still pay attention to them.

Practitioners of technical analysis should also be aware of economic indicators' scheduled release times. The spikes in volatility that they tend to produce can confound technical strategies and trigger massive losses among those caught unaware.

Balance of Payments Analysis

As I explained in Chapter 3, the impact of payments imbalances on exchange rates is anything but straightforward. In theory, a perennial trade deficit (when imports exceed exports) should cause currency depreciation so that long-term equilibrium can be restored. You can see from Figure 5-11, for example, that the release of UK trade figures in November 2011 touched off an immediate 150 PIP decline in the pound and seemed to catalyze an even bigger correction in the weeks that followed.



Figure 5-11. Impact of trade deficit on British pound

That's because the figures showed a growing trade deficit and a goods deficit that was at the highest level since 1998. In other words, the markets concluded that at its current level, the pound was hindering both the recovery of the export sector (still languishing after the 2008 economic downturn) and the broader economy. To add fuel to the fire, the trade figures were even worse than the most pessimistic forecasts.

Naturally, the opposite should be true for any currency that boasts a trade surplus. South Korea and the rest of the so-called Asian Tigers, for example, have long experienced currency appreciation as a (undesirable) byproduct of their perennial trade surpluses.

Most countries release trade data broken down into goods and services, imports and exports, and on a monthly basis. Current account data, meanwhile, is typically released on a quarterly basis. In addition, there are an inexhaustible number of data streams for cross-border capital flows (classified by region, financial security, type of transaction, and so forth) which make excellent fodder for fundamental analysis!

In practice, it is tremendously difficult to derive the equilibrium exchange rate from a trade imbalance alone because the exchange rate is necessarily already at equilibrium. Recall that the difference between exports and imports should approximate the difference between savings and investment as well as the net change in ownership of domestic assets. This is basically another way of saying that trade deficits must

be offset by net investment inflows, and vice versa. From this perspective, the relevant question is not whether net exporters are willing to subsidize net importers, but whether investors from net exporting countries are able and willing to deploy this difference into investment opportunities in the net importing economy at current exchange rates. In the words of one economic columnist, "When it comes to the U.S. trade gap, how many refrigerators the U.S. sells overseas is far less important than how many dollars the rest of the world wants."[6]

Figure 5-12, for example, shows that foreign entities purchase trillions of dollars of US securities (on a gross basis) every quarter, which provides a strong counterbalance to the trade deficit.

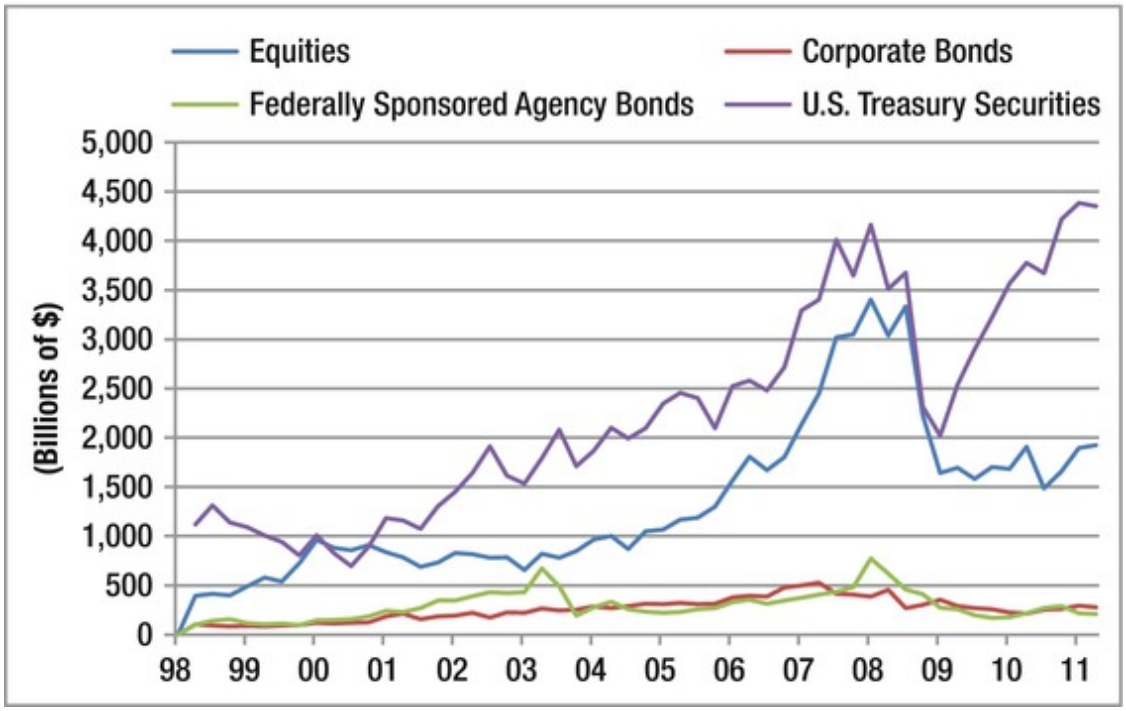


Figure 5-12. Gross quarterly purchases of US financial securities by foreign residents (Source: Bureau of Economic Analysis)

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[6] Frank Ahrens, "U.S. Trade Imbalance Widens Slightly: So What?" *Washington Post*, May 13, 2009, http://voices.washingtonpost.com/economy-watch/2009/05/us_trade_imbalance_widens_slig.html.

As an aside, current account deficits sometimes lead to bubbles in net importing countries, while other times it leads to currency depreciation. In the case of the US dollar, the perennial US current account deficit has caused both outcomes.

Another problem with analyzing the impact of trade data on exchange rates is that, by definition, they describe the past. As trade and investment flows reflect fundamental (non-speculative) shifts in demand for particular currencies, these shifts must necessarily have already happened prior to the release of the data. In other words, the fact that the United Kingdom experienced a large trade deficit last month doesn't necessarily offer any clues into what will happen in the future.

Fortunately, this is almost irrelevant as far as you and I are concerned. Since forex trading is dominated

by speculators, the fact that the markets adjust to trade and investment flows only after they have taken place (when they are reported) is not really a problem. In this way, these movements of money can be said to affect exchange rates twice: first, when they actually take place and, secondly, when the markets become aware of them. The first adjustment takes place gradually and often imperceptibly, while the second happens in large thuds.

Moreover, trade and investment flows typically follow easily identifiable trends. While deficits may spike from time to time, they typically move up, down, or sideways, and they do so for sustained periods of time. A structural shift from surplus to deficit (or vice versa) might signify that a currency is undervalued (overvalued), especially if it isn't offset by a comparable shift in investment flows. In 2011, the Japanese yen rose to a record high against the US dollar, and its trade surplus steadily narrowed. The budding fundamental analysts out there might want to look for further clues that the yen might soon follow the dollar downward. (See Figure 5-13.)

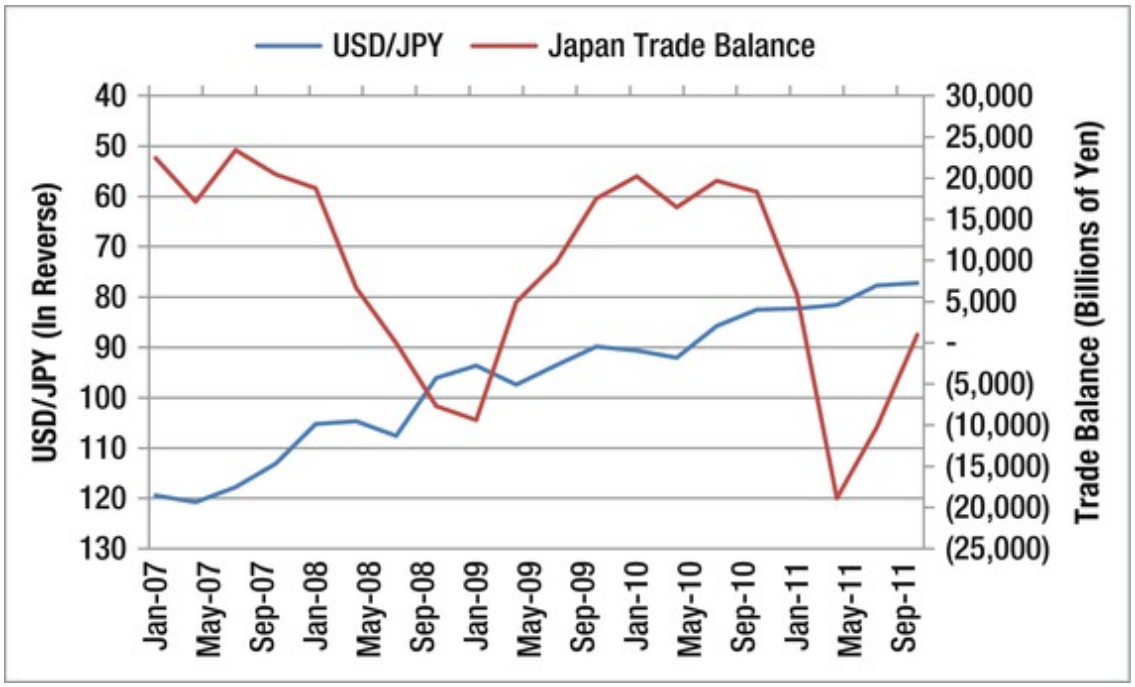


Figure 5-13. (Potential) impact of changing trade patterns on USD/JPY (Source: Japan Ministry of Finance, Bank of Japan)

Sentiment Analysis

The theme of risk aversion was thrust to the forefront of investor consciousness in 2008 with the collapse of Bear Stearns and Lehman Brothers. As the banking crisis morphed first into a credit crisis and then into a full-blown financial crisis, the markets became transfixed by credit risk and moved to shed any assets for which there was even a slight possibility of default. This phenomenon manifested itself with especial intensity in the forex markets, where investors fled all emerging and peripheral currencies and migrated en masse into the US dollar. (Note Figure 5-14.) That's because the United States is *perceived* as one of the safest places in the world to invest, due to the size of the US economy and depth of US capital markets. With this, the notion of the *safe haven* currency—one that is seen as preferable during times of crisis—was born.

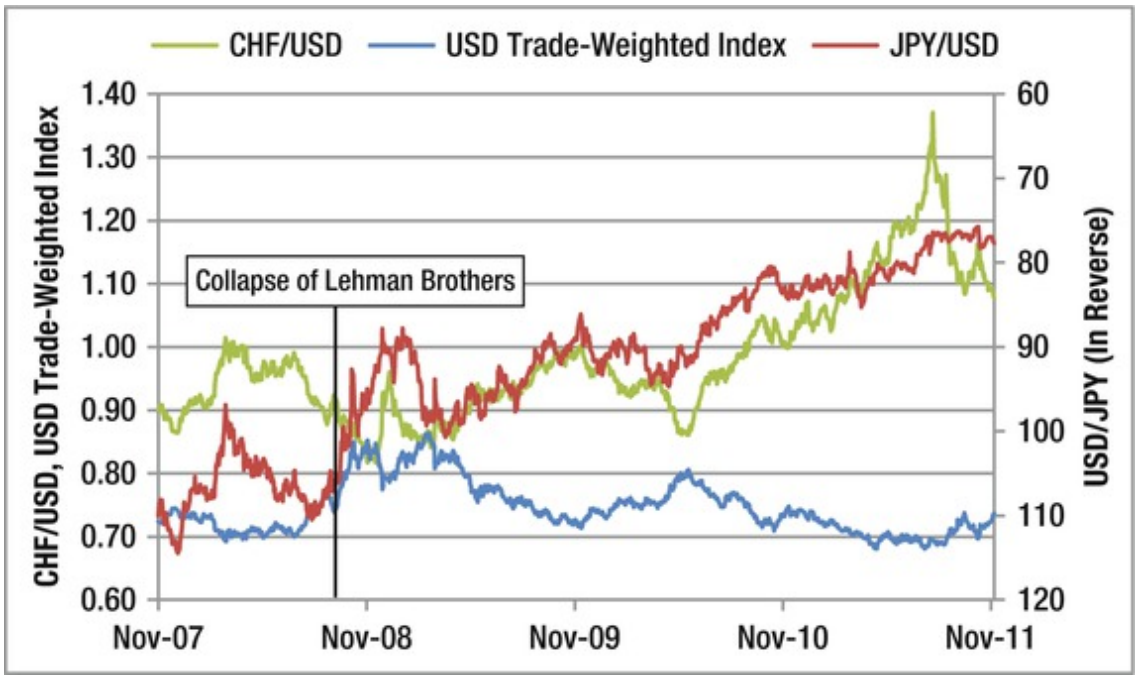


Figure 5-14. USD, CHF, JPY: 2008 financial crisis and aftermath

Even after the markets recovered in 2009 and 2010, risk aversion was never far away. The sudden ignition of the European sovereign debt crisis, the earthquake in Japan, the downgrading of the US sovereign credit rating, and more all fueled investors' fears. With each negative development, the markets responded in kind. The Japanese yen and the Swiss franc, which had also developed reputations as *safe haven currencies*, both rose to record highs. Simply, their capital markets are not deep enough to absorb sudden influxes of money without putting strong downward pressure on their exchange rates. The US dollar held up well, too. Throughout this period, there were plenty of developments that generated optimism. Each caused the flight of capital into safe havens to reverse. This manifestation of bipolar disorder was dubbed by one commentator as "risk-on, risk-off."[9]

In fact, risk aversion has long been a driver of currency markets, though previously it was risk appetite that hogged the spotlight. During most of the 2000s, record-high risk tolerance (some would call it complacency) led droves of investors into growth currencies. They came in search of higher yields, and the potential for currency appreciation was merely an added bonus. In 2011, the carry trade began to make a comeback, as investors were lulled back into a sense of security by rising interest rate differentials and economic recovery.

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[9] Matthew Brown, "'Risk On-Risk Off' to Remain Key to Currency Markets for Months, HSBC Says," Bloomberg News, August 17, 2010, www.bloomberg.com/news/2010-08-17/-risk-on-risk-off-to-remain-key-to-currency-markets-for-months-hsbc-says.html.

From the standpoint of fundamental analysis, there are a few good quantitative indicators that are useful for forecasting risk. The first is simply forex volatility, which measures the extent of fluctuations in exchange rates and is used interchangeably with *risk*. Most forex portals offer volatility data on specific forex pairs, in absolute and percentage terms. In Figure 5-15, you can see how volatility in the EUR/USD has ebbed and flowed over time.

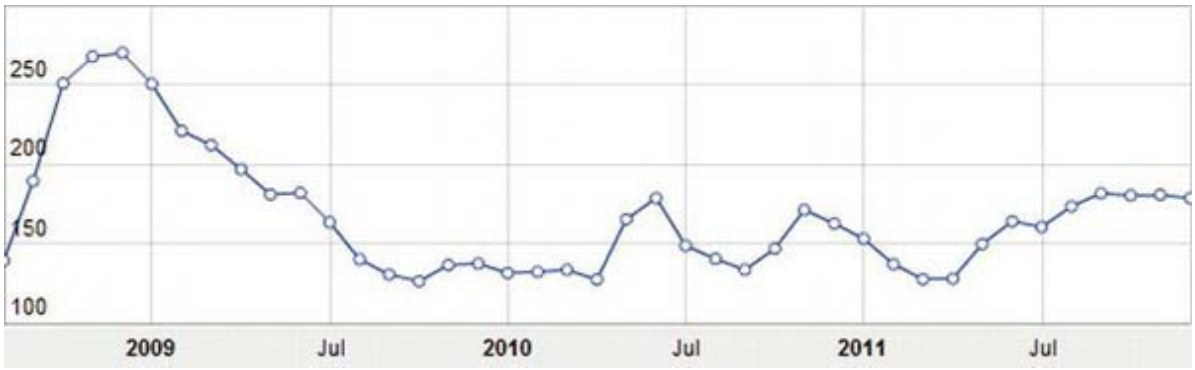


Figure 5-15. Average daily fluctuation in EUR/USD, number of PIPs (Source: Forexticket.co.uk)

The JP Morgan G7 Currency Volatility Index (shown in Figure 5-16) meanwhile offers the most comprehensive snapshot of overall forex volatility. A spike in volatility will typically precede a spike in risk aversion. That's because an increase in volatility implies more variable (and therefore less dependable) returns.

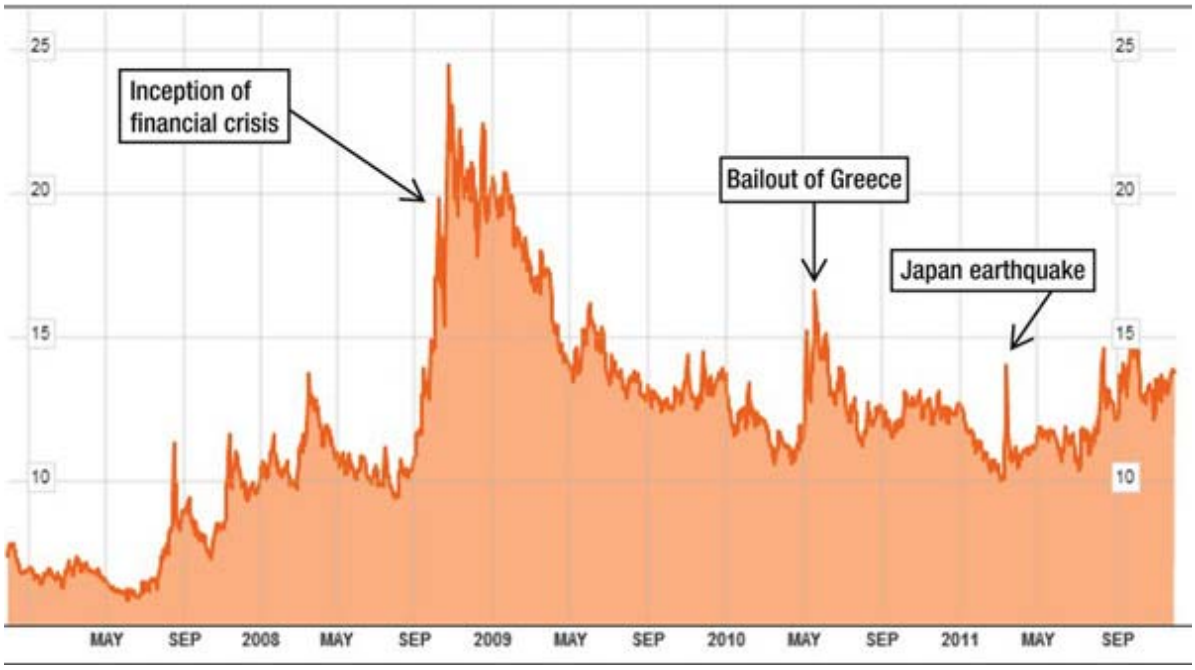


Figure 5-16. JP Morgan G7 Currency Volatility Index, 2007–2011 (Source: Bloomberg L.P.)

Implied volatility in options contracts represents market expectations of volatility going forward. One can look at specific contracts in order to determine how volatility expectations differ across different currency pairs, time periods, and so on. With the Black-Scholes options pricing model, it's possible to plug in all of the known variables and deduce the volatility that is *implied* by the price of the option. Most integrated quote/trading platforms (or a subscription to *OptionVue*) can perform this calculation automatically based on the other known parameters and display the implied volatility for any security/currency that has a corresponding option. Additionally, the New York Federal Reserve Bank regularly publishes data on implied volatility for major currencies, as shown in Figure 5-17. For example, the implied volatility of the JPY/USD in February 2012 was 10.1% (annualized) on a weekly basis and 13.5% on an annualized basis. When statistical theory is applied to these numbers, they imply a 68% chance that one year from now, the USD/JPY will be within 13.5% of the current exchange rate, and there is a 95% chance that it will fall

within 27% (2 times implied volatility).

	1WK	1MO	2MO	3MO	6MO	1YR	2YR	3YR
EUR/USD	10.1	10.5	10.6	10.8	11.5	12.1	12.1	12
JPY/USD	10.1	9.8	9.8	10	10.6	11.5	12.6	13.5
CHF/USD	10.1	10.7	10.8	11	11.7	12.3	12.3	12.2
GBP/USD	7	7.4	7.6	7.9	8.5	9.3	9.8	10.2
CAD/USD	7	7.4	7.7	8	8.8	9.6	9.9	10
AUD/USD	10.8	11	11.4	11.8	12.8	13.7	13.8	13.6
GBP/EUR	7.7	7.7	7.7	7.8	8.2	8.7	9.1	9.7
EUR/JPY	12.4	12.6	12.6	12.8	13.3	14.1	15.6	16.5

Figure 5-17. Implied volatility (%) for major currencies in February 2012 (Source: The New York Fed)

As for measuring the markets' appetite for risk, the best proxy is probably the S&P 500 Index. When risk appetite is high, equities tend to outperform bonds, and growth currencies tend to outperform the majors. Similarly, the shift of capital from bonds into stocks (which is measured and released periodically by the mutual fund industry) also reflects an increased risk appetite. In fact, 2010–2011 witnessed a strong inverse correlation between the EUR/USD and the S&P 500. Each new revelation that the European debt crisis was deepening led investors to sell both US stocks and the euro. (See Figure 5-18.) As this correlation tightened, investors actually began to see the S&P 500 as a proxy for risk. As a result, big moves in the S&P 500 often preceded—not mirrored—changes in the EUR/USD.

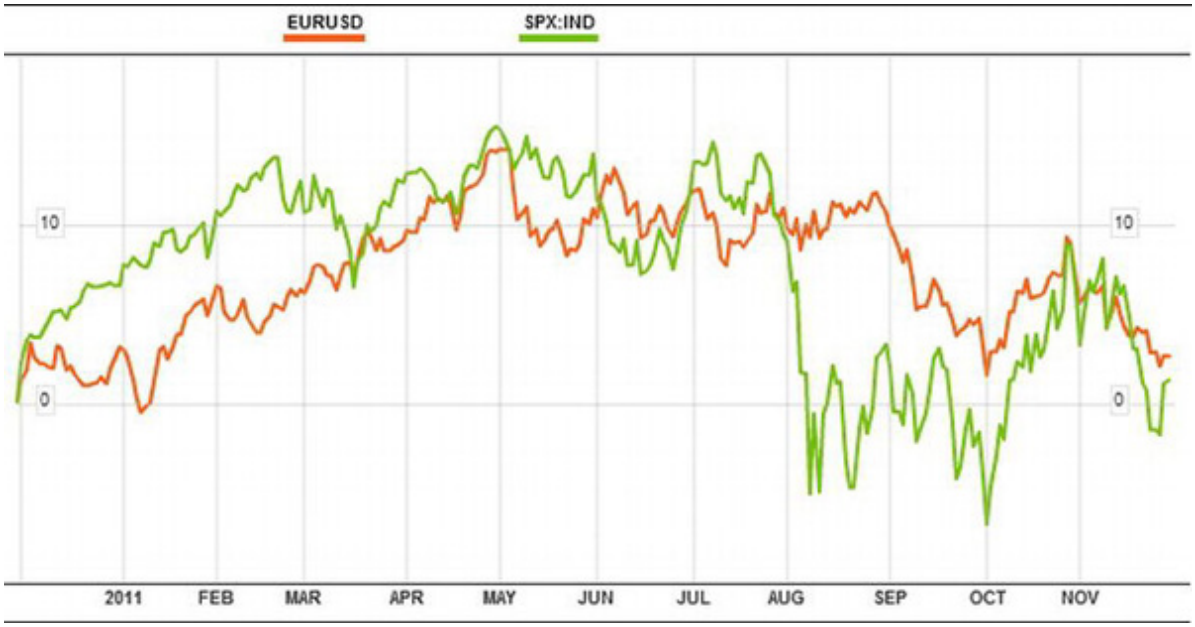


Figure 5-18. Correlation between the EUR/USD and S&P 500

Market Correlations

Speaking of correlations, the currency markets are full of them. There are correlations between currencies and commodities, between currencies and financial securities, and between multiple currencies. Correlation can be discerned both through visual comparison and quantitative analysis. Sometimes, it's enough to look at a chart of two different indicators (as with Figure 5-18) and immediately determine whether there is a relationship. Other times, it's helpful to know the exact *correlation coefficient*, which, for statistics junkies, is the covariance of two data streams divided by the product of their standard deviations. A coefficient of 1 (or 100%) implies a perfect *direct* correlation, and a coefficient of -1 (-100%) implies a perfect *inverse* correlation. If the coefficient measures 0, then there isn't any relationship between the two variables. While there is certainly disagreement over what the threshold is for *significance*, most would agree that a figure over 80% demonstrates a reasonably strong correlation and over 90% demonstrates a very strong correlation.

Of course, correlation does not imply causation. Just because two variables track each other very closely doesn't mean that one necessarily causes the other. As with the observable relationship between the S&P 500 and EUR/USD, it could merely be that an external factor (risk appetite, in this case) is driving both to behave identically rather than implying that fluctuations in one are actually causing fluctuations in the other. This is a very important distinction because only instances of causation are actionable. Correlations can help us to understand the markets but are not entirely useful for plotting strategy. On the other hand, if I can determine that a rising S&P 500 Index is directly causing a rising EUR/USD, then I can buy the EUR/USD when the S&P rises and sell when it falls.

With that in mind, let's look at some specific examples of correlation. Commodity prices tend to manifest themselves in currency markets in several different respects. Commodity currencies may take their cues directly from commodity prices, especially during periods of economic expansion. Canada, for example, is dependent on the United States for energy exports while China's demand for coal and iron ore drives the Australian economy. As a result, the Canadian Loonie and the Australian Aussie are buttressed during commodity price booms. In the past, the South African rand has exhibited a correlation with gold prices, and the New Zealand dollar has always benefited from rising agricultural prices.

The role of oil prices in forex is slightly more complex. While there are a handful of economies around the world (namely, members of OPEC) that are completely dependent on oil, most are plagued by political instability and their currencies are not actively traded in the forex markets. The main exceptions are Norway and Mexico, whose respective krone and peso are both tied closely to the price of oil.

Much has been written about the relationship between oil prices and the US dollar. For most of the modern financial era, there was very little correlation between the two, probably because the price of oil didn't fluctuate much. That changed around 2003 when oil prices began a 5-year, 400% climb, and the downtrend of the US dollar simultaneously accelerated (Figure 5-19). It was originally hypothesized that the latter caused the former. Since oil was priced in USD and the dollar was depreciating, oil producers had to raise their prices in order to offset the foreign exchange losses. Economists later determined that it was actually the other way around.

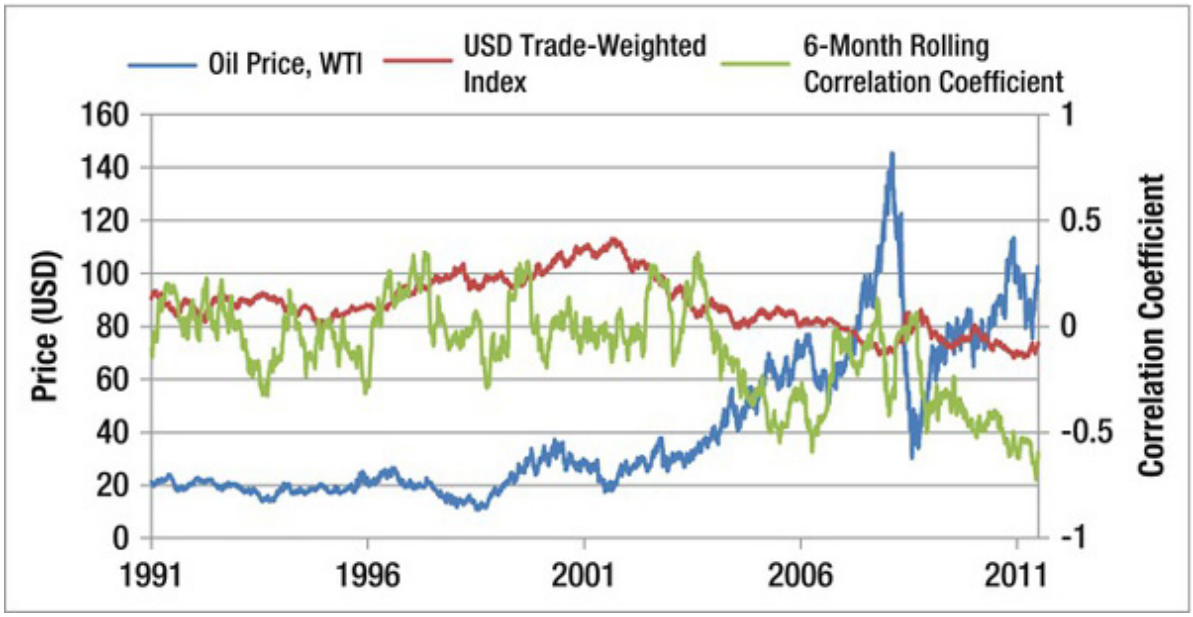


Figure 5-19. Rolling 6-month correlation between oil prices and trade-weighted USD (Source: U.S. Energy Information Administration, Federal Reserve Bank)

High oil prices negatively impact economic growth in the United States. In addition, the Fed's core inflation index excludes food and energy prices, which means that rising oil prices will not likely be followed by higher interest rates, another negative in the short-term for the dollar. Finally, trade between the United States and OPEC is largely one way, unlike trade between OPEC and the rest of the world, which means that US oil imports are not offset by increased exports. The upshot is that in the short term, significant changes (increases) in the price of oil can explain 50% (based on a correlation of -0.5) of subsequent changes (decreases) in the dollar, as seen in Figure 5-19.

Correlations between two or more currencies are the most interesting and the strongest quantitative relationships in forex. As I explained in Chapter 2, while there are dozens of liquid currencies, there is simply too much information for all of them to trade independently of one another. As a result, most currencies (especially those outside of the majors) tend to fluctuate relative to the US dollar. Emerging market currencies, in particular, behave similarly, especially during times when risk appetite is very strong or very weak. As can be seen in Figure 5-20, emerging market currencies rose and fell in lockstep for the first half of 2010. In the second half, risk appetite strengthened and growth/inflation differentials began to diverge, as did emerging market currencies.



Figure 5-20. Correlations in emerging market currencies break down

As far as correlations between individual currencies go, they tend to fluctuate in proportion to market conditions. As a general rule, however, currency correlations have been getting stronger over time. In Figure 5-21 it can clearly be seen that the correlation between the Canadian and Australian dollars has been relatively strong for most of the last decade and is currently nearing 100%!

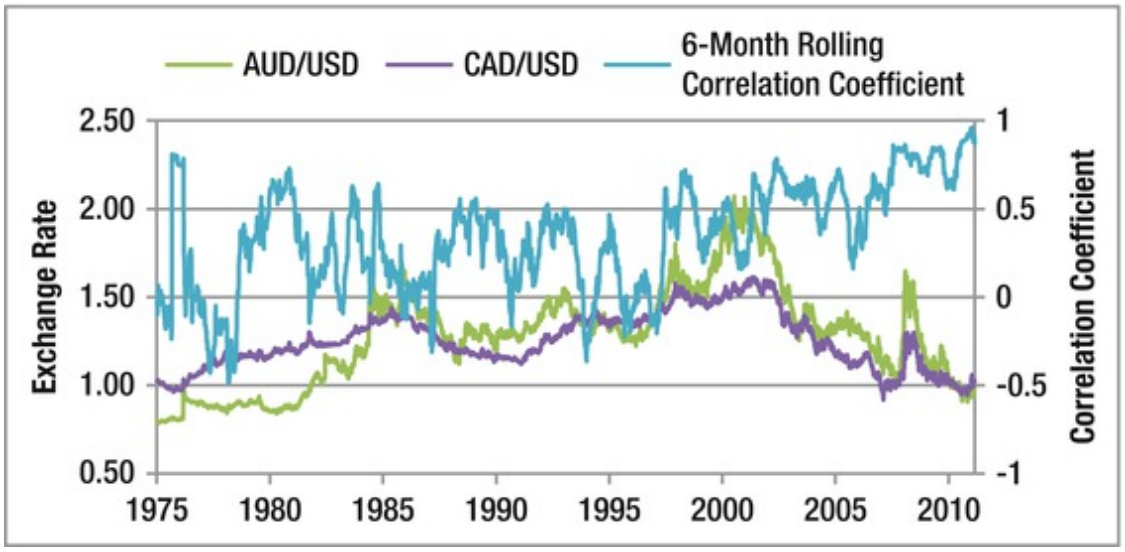


Figure 5-21. Strengthening correlation between the AUD/USD and CAD/USD

There are a few theories for why this is the case, but the consensus is that currency markets are converging with other financial markets. Despite tremendous volume, forex trading was previously relegated to a quiet corner of finance. As more sophisticated traders expand into forex, they are bringing pre-existing trading mindsets with them. Many hedge funds, in particular, are connecting all of their trading operations under the umbrella of one broad strategy. The result is that algorithms may buy and sell the Canadian and Australian dollars together when commodity prices are rising, causing the

correlation between these two currencies to become self-fulfillingly strong. Finally, the rising popularity of index funds (which consist of a basket of securities designed to represent a particular segment of the markets) has caused assets that were already correlated to become even more so.

There are a handful of online forex portals that publish real-time correlation data for the major currencies over different intervals of time. This information can be used toward a handful of strategic ends, which will be covered in Chapter 7. For now, consider that they serve as useful gauges for the strength of various fundamental indicators. For example, let's say that one has a theory that rising interest rates are causing the Loonie to rise against the US dollar. Based on the matrix of correlations displayed in Figure 5-22, however, it seems that the USD/CAD is quite strongly correlated (greater than 80%) with most of the other major currency pairs. This tells us, then, that the apparent rise in the CAD is better interpreted as a decline in the USD, and that one should probably look to US factors to explain the performance of the USD/CAD.

	AUDUSD	EURJPY	EURUSD	GBPUSD	NZDUSD	USDCAD	USDCHF	USDJPY	
AUDUSD	100.0	63.0	88.6	85.8	90.8	-93.7	-95.4	-82.1	AUDUSD
EURJPY	63.0	100.0	84.4	77.1	60.2	-70.0	-63.8	-29.3	EURJPY
EURUSD	88.6	84.4	100.0	92.4	82.3	-85.2	-89.0	-75.9	EURUSD
GBPUSD	85.8	77.1	92.4	100.0	80.8	-85.8	-85.2	-71.4	GBPUSD
NZDUSD	90.8	60.2	82.3	80.8	100.0	-80.4	-84.7	-74.1	NZDUSD
USDCAD	-93.7	-70.0	-85.2	-85.8	-80.4	100.0	90.8	67.6	USDCAD
USDCHF	-95.4	-63.8	-89.0	-85.2	-84.7	90.8	100.0	81.3	USDCHF
USDJPY	-82.1	-29.3	-75.9	-71.4	-74.1	67.6	81.3	100.0	USDJPY
	AUDUSD	EURJPY	EURUSD	GBPUSD	NZDUSD	USDCAD	USDCHF	USDJPY	



Figure 5-22. Weekly correlation between Canadian dollar and other major currencies (Source: Forexticket.co.uk)

Debt Analysis

The efficacy of debt as a fundamental analysis tool varies. During periods of economic growth, the markets tend to pay scant attention to rising debt levels. As long as the ratio of debt to GDP stays constant, investors operate under the implicit assumption that the economy will be able to grow its way out from under the burden of increased debt. As government spending is a component of economic output, it can even have a positive impact on currency performance, especially if it doesn't *crowd out* private investment. When growth slows down, however, debt ratios tend to increase relative to GDP. This is exacerbated by declining tax revenues, the propensity of governments to increase spending during recessionary periods, and by consequent cuts in sovereign credit ratings.

Any time this happens, default can quickly become a self-fulfilling prophecy as governments find it impossible to take out new debt and refinance existing debt at affordable interest rates. Investors get nervous and respond by moving money offshore, causing rapid currency depreciation. In fact, this is exactly what transpired during the credit crisis. Debt had already risen to alarming levels, but it wasn't until growth slowed down in 2008 that investors took stock of the bubble years. Iceland was singled out for its imprudence, and it wasn't long before its banks were declared insolvent, its government defaulted on its debt, and the krona had to be temporarily replaced by the euro.

As far as fundamental analysis goes, there are a couple of ways in which debt is relevant. First of all, it can be used to forecast the likelihood of full-blown financial crises. *The Economist*, for instance, uses three indicators (budget deficit, net debt, and GDP growth minus the cost of finance) to rank countries in terms of the sustainability of their debt. Unsurprisingly, the four PIGS countries of Europe were near the top of the 2010 rankings. Then again, so were Japan and the United States! (See Table 5-1.)

Table 5-1. Countries Ranked by Sustainability of Debt Position in 2010 (Source: *The Economist*, Bloomberg L.P., EIU, OECD)

	Budget Balance % of GDP	Net Debt % of GDP	GDP Growth Less Cost of Finance	Sovereign Debt, Years to Maturity
Greece	-4.6	94.6	-3.2	7.7
Ireland	-7.0	38.0	-5.1	6.8
Britain	-6.7	59.0	-1.5	13.7
Japan	-5.9	104.6	0.1	5.4
Portugal	-2.7	62.6	-2.3	6.5
Spain	-4.3	41.6	-3.0	6.7
France	-3.8	60.7	-0.7	6.9
United States	-7.0	65.2	1.4	4.8
Poland	-5.3	32.4	-0.7	5.2
Italy	2.2	100.8	-1.0	7.2
Hungary	4.2	62.1	-3.5	3.3
Norway	-7.8	-143.6	2.4	4.9
Canada	-2.7	32.6	2.0	5.2
Switzerland	0.4	11.0	0.5	6.7

In this case, however, it is not debt itself which presages a crisis, but the ease with which such debt can be financed. The currency markets thus tend to view bond yields as being most representative of a country's ability to deal with debt. A sudden increase in yields can signal the start of a potential crisis, and currency depreciation tends to follow. In addition, yields adjust in real-time while debt levels change incrementally. In the case of the Eurozone, sudden spikes in bond yields have often corresponded with depreciation in the euro. (See Figure 5-23.)



Figure 5-23. Portugal's 10-year bond yield and EUR/USD, relative change (Source: Bloomberg L.P.)

Some pessimists have argued that both the actual and the potential increase in US debt levels could threaten the long-term viability of the US dollar. Alas, neither credit nor currency markets have priced in the possibility of US federal government default. And the historic downgrade of the US sovereign credit rating in August 2011 was met with yawns.

Finally, debt level comparisons have been used to buttress the case for buying emerging market currencies, whose net debt levels are much lower than their developed world counterparts. To be sure, this is yet another reason why emerging market currencies will continue their steady upward march over the next decade.

Monetary Policy and Central Bank Intervention

I've already talked about the role that central banks play in setting interest rates and tweaking money supply. Here I want to examine some of the other ways in which they can influence the forex markets.

First are the central banks' open market operations. Open market operations are now arguably the most prominent weapon in a central bank's arsenal. During periods of recession, when inflation is low, central banks can literally print money in order to fund purchases of financial securities. The central bank holds these securities on its balance sheet with the intention of selling them off once the economic pump has been fully primed and inflation has taken hold.

In the wake of the credit crisis, the world's major central banks stunned the markets with the scope of their open market operations. The Fed's program was particularly ambitious. In a process known as *quantitative easing*, the Fed purchased almost $3 trillion worth of financial securities in two discrete blocks. (See Figure 5-24.) Critics worried that the bank had sacrificed its independence, that it was enabling record US government borrowing, and that it would foment asset price bubbles and inflation. As a result, the currency markets punished the dollar severely after each round of quantitative easing was

announced. Whether their concerns were justified ultimately depends on whether the Federal Reserve Bank can unwind the program (by selling the securities on its balance sheet back to private investors) when inflation picks up.

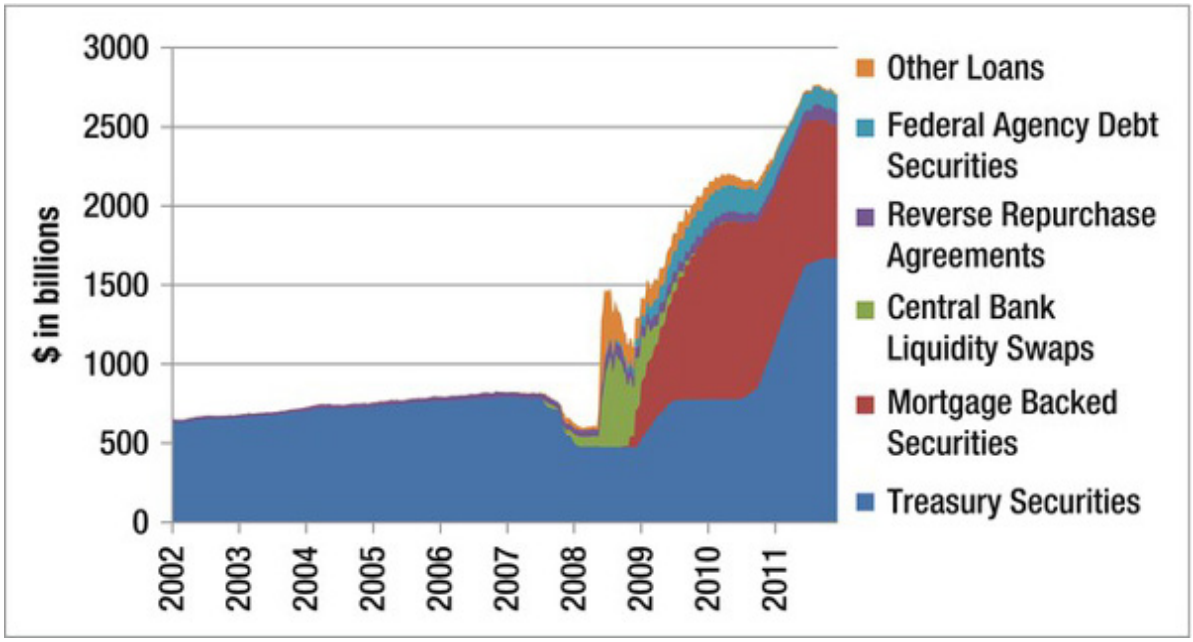


Figure 5-24. Federal Reserve Bank balance sheet

From the standpoint of fundamental analysis, there is an edge to be gained from correctly reading the tea leaves and predicting both the beginning and end of quantitative easing programs. Those that guess right and invest accordingly will be rewarded with profits. More importantly, fundamental analysts should understand how quantitative easing can indirectly impact forex markets in various ways, via a stronger stock market, lower bond yields, and potentially higher inflation.

Central banks can also attempt to guide their exchange rates through forex intervention. Most emerging market central banks are active (to varying degrees) in taking steps to push down their respective currencies, though countries in Latin America and Asia have been particularly aggressive. This is typically achieved by selling large chunks of their home currency on the spot market and can be supported with measures that penalize speculation by foreign investors. Some central banks have fixed intervention programs in place. Others spend large amounts on discrete occasions in a bid to overwhelm the markets. Still others engage in “verbal intervention” without ever directly entering the markets.

Beginning in 2009, central banks began intervening, one after another, in vain attempts to prevent their currencies from returning to pre-credit crisis levels. Even the major central banks contributed with a coordinated intervention on behalf of the yen, which had strengthened after the March 2011 earthquake. In November 2011, the central banks intervened again with a program of liquidity swaps that was designed to prop up the ailing euro. The Swiss National Bank, meanwhile, keeps threatening to renew its failed program to hold down the franc. After a multi-day appreciation, it intervened verbally and caused the CHF/EUR to raise by an unprecedented 1000 PIPs in a single trading session! (Note Figure 5-25.) To be sure, all intervention is doomed to fail over the long term. Over the short term, however, it can quite spur magnificent spikes.



Figure 5-25. Immediate and medium-term impact of SNB franc intervention

When central banks intervene, they inadvertently provide support for opposing currencies. In other words, a central bank cannot simply sell its home currency; it must simultaneously buy an opposing currency. As I explained in Chapter 3, this drives the accumulation of currency reserves. That most central banks disproportionately prefer USD-denominated assets is a huge source of support for the US dollar. While there are frequent indications that this could change, problems with the other major currencies (most recently with the euro) favor a continuation of the status quo. Emerging market currencies meanwhile remain subject to liquidity and other logistical complications that hinder their broad adoption as reserve currencies. Nevertheless, central banks collectively represent one of the largest long-term players in the forex markets, and fundamental analysts must closely monitor this situation for any signs of change.

Political Factors

The role of politics in financial markets has always been difficult to quantify. Generally speaking, elections and changes in political administrations tend to have only a psychological impact on forex markets. This is especially true in the case of the United States, where economic policy has not changed significantly over the last few decades. Free trade has been gradually embraced, tax rates have edged down slightly, corporations have become more profitable, budget deficits have become the norm as spending has surged, the business cycle is increasingly driven by financial factors, and so forth. To be sure, policy may shift to the right or to the left depending on which party holds power. For the most part, though, the overall trend has remained intact. As a result, elections tend to offer very little insight into how a particular currency will perform during the years that follow. Instead, financial-economic factors tend to carry more weight. As can be seen from Figure 5-26, former President Bill Clinton can claim the dubious distinction of being the only US president to witness an overall rise in the US dollar while in office. This was probably less due to the nuances of his economic policy, however, than the economic and stock market boom that began in the late 1990s and carried over into the presidency of George W. Bush.

That’s not to say that politics are irrelevant. On the contrary, the whims of governments can cause significant gyrations in the forex markets. For example, the US dollar suffered mightily when the US Congress temporarily balked at raising the US borrowing limit in May 2011. Meanwhile, political developments in Europe continue to drive the euro, whose very existence seems to hinge on political life support.

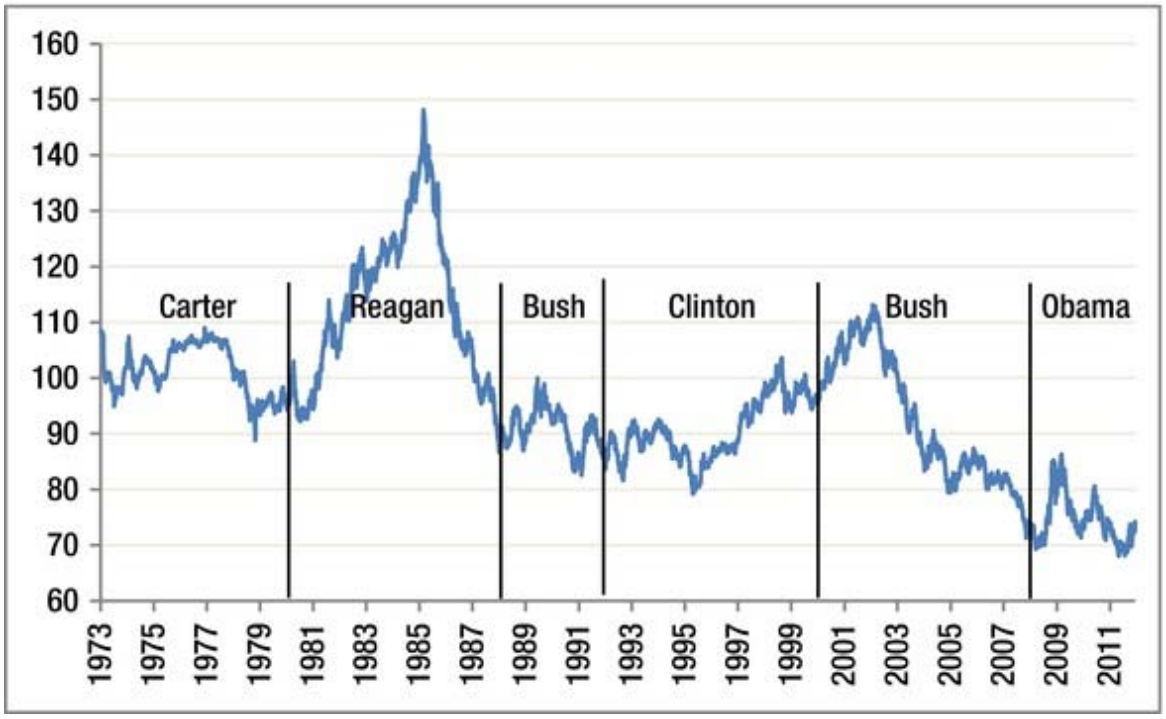


Figure 5-26. USD Trade-weighted index and corresponding US president

Emerging market currencies are perhaps most sensitive to political developments, because their governments are more likely to pay attention to and take steps to influence the value of their currencies. While this task is supposed to be delegated to independent central banks, in practice it is subject to political meddling. For example, if the incumbent government of Brazil makes a strong export sector the cornerstone of its economic policy, it may instruct the Bank of Brazil to actively take steps to hold down the real. This practice reached an extreme from 2010–2011, as cash (spurred by loose monetary policies in industrialized countries) began to pour into emerging markets, causing their currencies to appreciate rapidly. Emerging market central banks fought back and, one after another, sought to devalue their respective currencies. Before long, a full-scale *currency war* had erupted, and emergency meetings of the G7 and G20 were convened. It wasn’t until late 2011 (when the European sovereign debt crisis flared up and risk appetite cratered) that the currency wars began to fade, once again underscoring that political factors are less important than financial-economic factors.

Conclusion

If there is any lesson to be learned from the preceding discussion, it is that there are no cut-and-dried rules in fundamental analysis. In understanding how numerous variables impact exchange rates, one must first understand the particular narrative that is guiding the markets at any given time. Whether risk appetite is strong or weak, whether a currency has or has not been targeted by carry traders, whether an interest rate change has been anticipated in advance are all factors that will ultimately determine the market reaction. Fundamental analysis merely provides a framework for understanding these narratives.

CHAPTER

6

Technical Analysis
Analyzing Exchange Rates
Based on Technical Factors

Technical analysis is grounded in the notion that price data alone is all that is needed to forecast future price movements. While simple in theory, technical analysis is extremely complex in practice. There are dozens of basic technical trading strategies, incorporating hundreds of tools and thousands of different iterations. To master (let alone attempt to utilize) more than a handful of these tools would be unrealistic or even counterproductive. Accordingly, in the sections that follow, I have tried to pare down the vast spectrum of technical analysis strategies into a manageable number, with an emphasis on those that are easy to use, quantitative, and compatible with fundamental analysis.

Charts

A trader's best friend is his chart, and this is especially true for technical traders. With time on the x-axis and price on the y-axis, a chart is the most basic visual representation of the historical exchange rate performance for a given currency pair. If only it were that simple! One must first select the chart type, variously depicted in Figure 6-1. Line charts and area charts connect individual price points over a given period of time. Technical traders prefer bar or candlestick charts—which show opening, closing, high, and low prices for each unit of time, and are color-coded to distinguish upward and downward movements—because of the depth of information that they contain.



Figure 6-1. Examples of different chart types

In fact, there is a branch of technical analysis devoted to the study of candlestick formations, with a system of Japanese nomenclature to boot. Individual formations (some of which are depicted in Figure 6-2) can be interpreted as being bullish, bearish, or stable, and series of formations can potentially indicate good times to buy and sell. Alas, candlestick analysis is exceedingly intricate, and it extends beyond the scope of this book. For those of you interested in learning more, I would recommend consulting one of the numerous books that have been written about the subject.

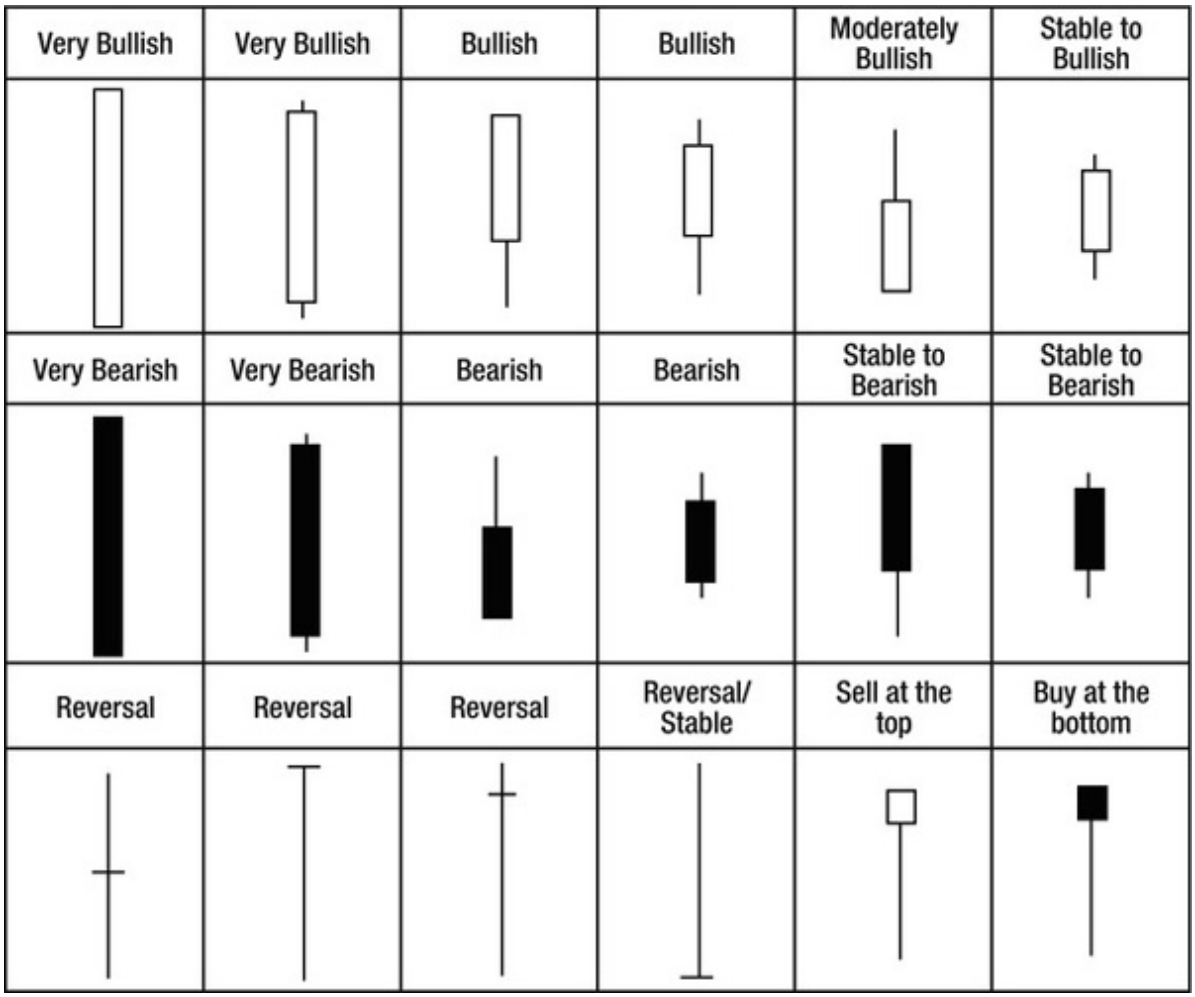


Figure 6-2. Basic candlestick formations and their interpretations

Anyway, the next step in setting up a chart is to select the overall time frame (e.g., one year, one month, one day, one hour) and the unit of time (e.g., one day, five minutes, one minute). While seemingly trivial, the time frame of your chart is actually a very important consideration. Different lengths of time may show different—and sometimes contradictory—trends. Naturally, it's best to select a time period that is consistent with your trading horizon. If you plan to follow the swing trading approach advocated in this book, it makes sense to look at price data over a 3–12 month time frame. If, in contrast, you are an aspiring day trader, you probably won't be able to glean anything useful from a chart covering anything longer than one week.

In fact, as you can see in Figure 6-3, selecting the wrong time scale for your chart could yield disastrous consequences. Specifically, if you bought the EUR/GBP based on your interpretation of the 30-minute inset chart, you probably would have lost money on the trade. If you instead had taken the time to examine a medium-term (five-hour) chart, you would have clearly noticed that the overall trend was still bearish. Sure enough, the EUR/GBP resumed its downward arc immediately after the slight correction. The lesson here is that it's important to have a broad perspective when performing any kind of analysis.



Figure 6-3. Multiple time scale analysis

Some charting software also includes data on volume and open interest. Due to the decentralized nature of spot forex trading, however, both are calculated based primarily on activity in the futures or options markets. Volume tends to ebb and flow in accordance with daily and seasonal patterns; the open and closing of the main markets, as well as the middle of the week (go figure!), tend to see the greatest volume. Volume spikes during news releases and falls off around major holidays and during the summer when traders are away from their desks. This is also reflected in terms of lower volatility. (See Figure 6-4.)

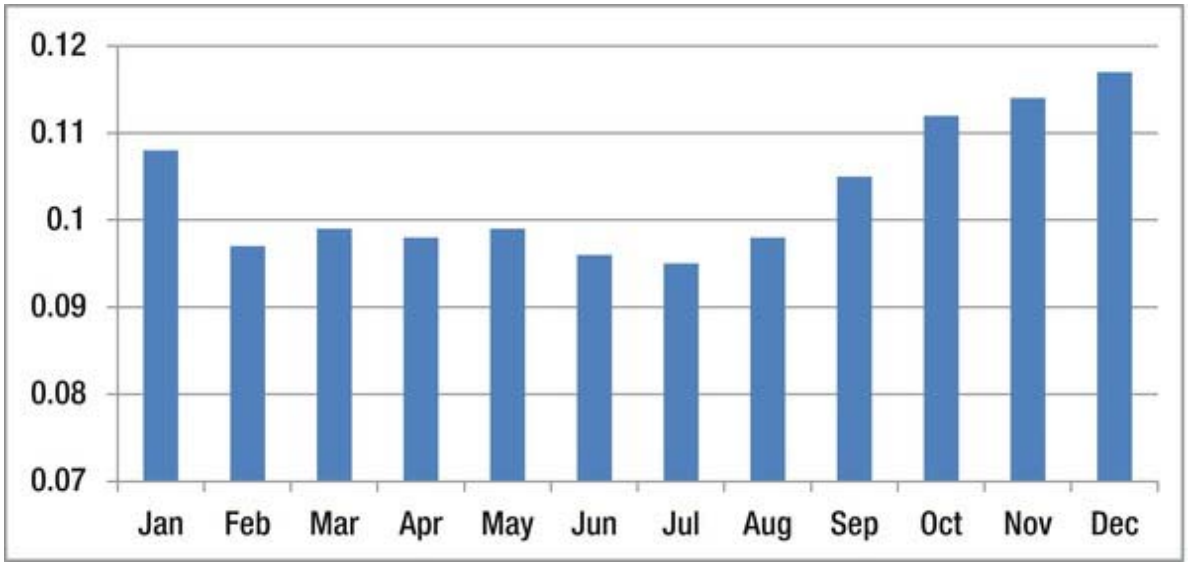


Figure 6-4. Average USD/EUR volatility, by month

Volume can also be used as proxy for momentum and to confirm the existence of trends. For instance, if the EUR/USD suddenly experiences an upside break-out after a period of flat trading, you might see a corresponding surge in volume as traders rush to buy the EUR/USD before it loses its upward momentum.

Open interest, meanwhile, reflects futures positions that have not yet been settled by offsetting positions. When a new long position is opened, open interest rises while the closing of a long position (or the opening of a short position) will cause open interest to fall. Since real-time open interest is available only through futures and options brokers, most spot forex portals will use the *Commitments of Traders* (COT) data as a proxy. Every Friday afternoon, the Commodity Futures Trading Commission (CFTC) releases its weekly COT report, which shows long and short positions for various financial and commodity futures and options contracts. Overall open interest for each contract is calculated, and data is further broken down among the different types of participants. As can be seen from Figure 6-5, there is often a tight relationship between open interest and spot prices. In this case, the longest sustained rise in the New Zealand dollar in 2011 was preceded by a bottoming out of open interest.

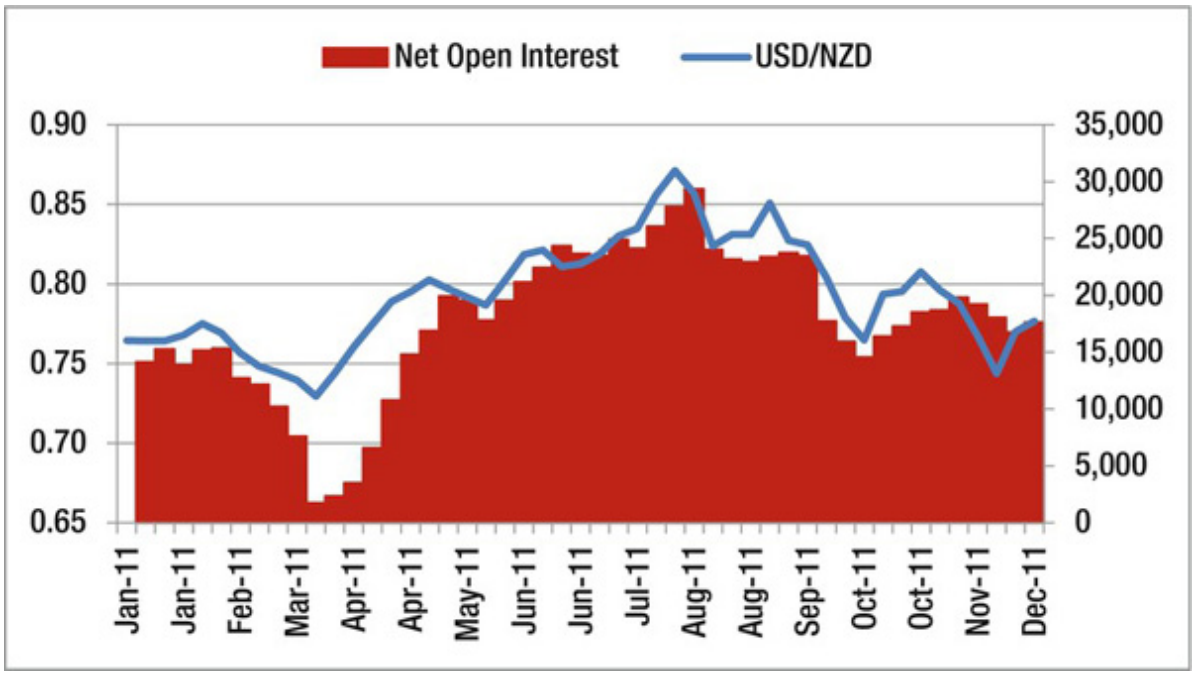


Figure 6-5. Open interest in the New Zealand dollar, relative to NZD/USD spot price (Source: CFTC)

Trend Analysis

"The trend is your friend" is one of the oldest adages in technical analysis. Without trends, technical analysis would be meaningless and trades would be random. The goal is to determine whether a currency pair is currently caught in an uptrend, downtrend, or sideways trend. Profits accrue to those that are able to anticipate the beginnings and ends of trends and trade accordingly.

The most basic level of trend analysis involves a visual inspection of the chart. Those with well-trained eyes will immediately notice any trends. It can also be helpful to draw lines (which most charting software packages enable) directly onto the chart. You can see from the chart in Figure 6-6, for example, that there are a handful of trends that seem to both dictate and delimit movement in the EUR/CHF. Over one and a half years, there were several medium-term trends apparent to the naked eye. Sometimes, the trends were so robust that even after sudden upside or downside aberrations, the original trend was restored. This was the case in September 2011. Other times, the pair is prevented from falling or rising by *support* or *resistance* lines, respectively. Recall from Chapter 3 that while somewhat arbitrary, these levels often represent real barriers to momentum in one or both directions. They tend to form at round numbers, and their existence can be confirmed when rates (repeatedly) "bounce" off of them upon contact. When there is both support and resistance, the pair is said to be trading in a *channel*. The breaching of the channel walls signals the potential start of a significant uptrend or downtrend. This phenomenon is known as a *breakout*.



Figure 6-6. Trend spotting in the EUR/CHF

There are also a handful of shapes and chart patterns that provide guidance for spotting trend continuations and reversals. Double tops, double bottoms, head and shoulders, and other patterns are grounded in the notion that before a trend reverses, it will usually hesitate and do a slight about-face (or two). As can be seen in Figure 6-7, the change in the AUD/JPY from long-term uptrend to long-term downtrend was heralded by a double top. Other times, trends will reverse suddenly and squeeze those that are caught on the wrong side of the trade. These sudden reversals are usually accompanied by a surge in volume and indicated by a V-formation on the chart. Triangles, wedges, and pennants, on the other hand, usually imply trend continuation. These formations are caused when positions are consolidated in the midst of a strong trend, causing price gyrations to get smaller and smaller until a continuation becomes inevitable. In this case, we should expect the AUD/JPY to resume its downward trend following the triangular consolidation.



Figure 6-7. Trend reversal and continuation patterns in the AUD/JPY

Admittedly, spotting trends is more of an art than a science; hindsight is 20/20. To be sure, drawing crude shapes onto charts may seem a little silly. Still, the ideas of trends, support, and resistance have strong underpinnings in human psychology. For example, the crowd mentality and dealer complicity can turn slight directional momentum into veritable trends. Remember also that correlations within the financial markets are strengthening, and investor risk appetite is becoming the dominant driver of asset prices. Frequent changes in risk appetite are causing prices to slide up and down in movements that most observers would call “trends.” Finally, support and resistance can become self-fulfilling, as certain levels become psychologically important and trigger sudden surges in buying and selling. In this case, the goal is not to outsmart the market but to simply ride the wave that others may be creating.

Pivot Points

Pivot points represent the starting point for trend forecasting. A pivot point is simply the average of a currency pair’s high, low, and closing prices for a given period of time (typically one 24-hour trading session). From this one number, three separate support and resistance levels can be calculated using standardized methods and then plotted directly onto a forex chart. The idea is that in the following trading session, the currency pair should meet support and/or resistance at these pre-defined levels. If a pair moves easily through these levels, it probably signifies particularly bullish or bearish sentiment.

Traders prize pivot points for their simplicity and, as a result, many professional analysts include them in the daily technical reports that they make public. In addition, since pivot points are calculated objectively, they will appear the same on all charts and may thus become self-fulfilling. Therefore, it shouldn’t come

as a surprise if a currency actually meets support or resistance at the levels “predicted” by the pivot points. Sure enough, it is at “Support 2” that the USD/CHF depicted in Figure 6-8 encounters resistance.



Figure 6-8. Pivot Points in the USD/CHF

Elliot Wave Principle

Elliot Wave Principle (EWP) attempts to bring something akin to a scientific perspective to charting. Trend spotters are content with simply identifying trends, so they are liable to take them at face value. For Ralph Elliot who formulated EWP, this was not enough. After years spent analyzing stock market gyrations, he concluded that asset prices move in smooth waves. Ranging from multi-century “grand supercycle” waves to “subminuette” waves that last mere minutes, these fluctuations are theoretically caused by the swing of investor energy between optimism and pessimism.

EWP holds that all waves follow a predictable pattern, which can be seen in Figure 6-9. In the first upward swing of a bullish, dominant trend (1), investors remain hesitant, and the asset price will soon hit resistance and move back downward. Due to declining bearishness, opportunistic investors will enter the market (2), and the price will find support above the uptrend’s initial starting point. Here, a surge in bullish sentiment and the recognition of an uptrend (3) will carry the asset price to a new high. At some point it will meet resistance and trend sideways or downward (4), sometimes for quite a while. However, bullish investors will continue to pile in and the asset price will once again surge upward (5). At this point, it’s not uncommon for bearish investors to begin sounding the alarm, setting the stage for the end of the uptrend. After peaking, the asset price will retrace downwards (A), the first move in the corrective trend. Fragments of bullishness will prevent the asset price from falling indefinitely; after finding

support, it will turn right around (B). However, the corrective trend has already started to form, and the asset price will now trend downward in five separate waves (C).



Figure 6-9. Elliot Wave Principle in action.

EWP has plenty of critics, which is perhaps why it remained unknown for more than three decades after it was initially developed. Many financial economists have argued that there is no evidence of it in financial markets and that its appearance is purely coincidental. In addition, EWP was initially developed for the stock market, which rises over the long term. It's unclear whether it is compatible with the forex market where every bull market must be offset by a bear market.

On the other hand, the theory makes intuitive sense, and there are many forex traders that swear by it. There are hundreds of websites and newsletters devoted exclusively to EWP, and it has given rise to many unique trading strategies.

Fibonacci Analysis

EWP is consistent with and commonly used with a mathematical phenomenon known as the Fibonacci sequence. Named after the Italian mathematician that popularized it, this idea is quite simple. The first two numbers are 0 and 1, and every number that follows is merely the sum of the previous two, as follows: 0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, and so on. It turns out that this mundane sequence has some interesting properties. Namely, when you take it out far enough, the relationship between all of the numbers converges toward hard ratios. For instance, any number in the sequence divided by the number that precedes it is always 1.618 (e.g., 55/34) while any number divided by the one that follows it is

always .618 (e.g., 34/55). Any number divided by the second number that follows is always .382 (e.g., 34/89), and so on. As a result, mathemeticians have developed a handful of golden ratios: 23.6%, 38.2%, 50%, 61.8% and 100%.

While this may seem irrelevant, it turns out that these ratios appear frequently in biology and explain everything from the way that branches form on trees to the mating habits of certain animals. It should come as no surprise then that somebody (none other than Ralph Elliot!) thought to apply it to the fluctuation of asset prices.

Elliot observed that the second wave in the dominant trend of EWP should *retrace* less than 61.8% from the peak of wave 1. Wave 3, meanwhile, should *extend* 1.618% from the bottom of wave 2, and wave 4 (you guessed it) often *retraces* 38.2% from the top of wave 3. Similar patterns appear in the A, B, C waves of the corrective trend in Figure 6-9. Sure enough, you can see from Figure 6-10 (the same one I used in Figure 6-9 to diagram the main wave formation) that the EUR/USD appears to bump up against several of the support/resistance lines predicted by the Fibonacci sequence and EWP.



Figure 6-10. Application of Fibonacci retracement and extension to EUR/USD chart

The application of the Fibonacci sequence to the financial markets has become a staple of technical analysis. Both *Fibonacci retracements* and *Fibonacci extensions* can easily be layered onto charts with the mere click of a button using the most basic charting software. In this case, you can see that the EUR/USD finds resistance in wave 2 at exactly the 50% level and meets support at the 100% level at wave 3. For practitioners of Fibonacci analysis and subscribers to EWP, these levels represent obvious points to buy and sell, respectively.

Of course, the identification of specific waves and the overlay of Fibonacci lines still require some guesswork. Some technical analysts thus grow immediately frustrated with the inherent subjectivity of charting. Fortunately, there are numerous quantitative indicators that can be used to enhance or supplement visual analysis.

Moving Averages

The most basic quantitative indicator is the *moving average* (MA). Just like it sounds, an MA shows how the average price of a security (or in this case, a currency pair) changes over time. As a technical tool, it is useful for a few key reasons. First of all, it smooths price data. Because it is an average calculation, significant fluctuations in the underlying exchange rate generate smaller fluctuations in the moving average. By eliminating noise, an MA may provide a clearer picture of a trend than a plain price chart. Secondly, MAs can guide position entry and exit. When compared to the underlying currency pair (or to other MAs) it may confirm the start of a bullish or bearish trend. Of course, it's important to understand that an MA is intrinsically a *following indicator*. That means that it will only generate trading signals after potential trends have already begun to take shape.

There are a handful of different types of MAs. While conceptually the same, they are calculated using slightly different methods in order to satisfy different objectives. The *simple moving average* (SMA) is an arithmetic average of prices. Since all prices in the series are given equal weight, an SMA line is usually the smoothest type of MA. On the other hand, since old prices are treated the same as new prices, SMAs take longer to register sudden changes in underlying prices. Indeed, you can see from Figure 6-11 that it takes longer for the SMA (represented by the dashed line) to reflect the start of both the uptrend and the downtrend in the EUR/USD.



Figure 6-11. Comparison of SMA, EMA, and SMMA

In contrast, a *weighted moving average* (WMA) assigns the greatest importance to the most recent price and incrementally decreases the weight to every point thereafter, such that the oldest prices receive the least weight. An *exponential moving average* (EMA) takes a similar approach, but weightings decrease exponentially rather than in even increments. EMAs register shifts in trends almost immediately. This hypersensitivity can be a strength—because it enables traders to profit from trends at their inception—but also a weakness, in the form of false signals. Finally, *smoothed moving averages* (SMMAs) aim to further eliminate noise (aberrant price spikes) so that only the raw trend remains. Of the three main types of MAs, SMMAs are the smoothest but are also the slowest at registering trends.

Most charting software is programmed to calculate MAs based on closing prices, though some can be rejiggered to incorporate high/low price data as well. The only parameter that these programs will ask traders to supply is the duration/number of prices. Including more points will result in a flatter MA. This is immediately apparent in Figure 6-12, which shows 5-day, 20-day, and 60-day MAs for the same underlying currency pair.



Figure 6-12. Altering the number of prices affects the moving average's appearance

MAs can be calculated for any interval of time. Changing the chart's time unit (from five minutes to one day, for example) will naturally produce a different MA. As I explained in the previous section, you should focus on a length of time that is consistent with your trading time horizon. Even if it produces stronger signals, an MA based on five-minute data will not really help you if you are planning to hold positions for a month. As for the ideal number of price points that should be included in the moving average, there is no right answer. Some forex gurus swear by the set of 4, 9, and 18. Others prefer 7, 21, and 90. What's most important is that when looking at multiple MAs, the different periods should be spaced out so that they can produce clear signals.

In fact, the best way to utilize the MA as a trading tool is to look at multiple time periods simultaneously. Figure 6-12 shows how the EUR/USD was range bound for several months before it dropped precipitously. If I had developed a rule to sell whenever the short-term MA (5 days) dips below the long-term MA (60 days), I would have received an excellent signal just as the EUR/USD had begun to drop. On the other hand, this rule also produced two false signals and would have basically prevented me from capturing any part of the massive 1000 PIP upside correction that followed! While it might be possible to tweak the number of days in each MA to improve robustness, this example shows that there is no such thing as a surefire technical trading rule.

Moving Average Envelopes and Bollinger Bands

There are a handful of other technical indicators that are derived from the MA. The MA envelope, for example, is grounded in the idea that MAs can be used to identify points of support and resistance. The

theory is that asset prices will never stray too far from a trend, designated in this case by the MA itself. When a currency pair rises too far above or falls too far below its MA, it could be an indication that a reversal is imminent. In addition, when a pair completely breaches the walls of the envelope, it could signal a breakout.

To plot an MA envelope, the first step is to plot the MA itself. In Figure 6-13, I used a 10-day SMA. Next, select the percentage above and percentage below the MA that will form your envelope. The exact percentage will depend on your investing horizon and the volatility in the currency pair that you are observing and will most likely be arrived at through trial and error. (There are no golden numbers for MA envelopes that apply universally to all currencies.)

Of course, you need to select percentages that are meaningful. If the pair bumps up against the envelope too frequently, you will receive false signals. If the envelope is too wide, however, the currency pair will never breach it, and you won't receive any signals at all. I solved this problem by plotting two envelopes in Figure 6-13. The two dashed lines are respectively 1.5% above and below the 10-day moving average, which is represented by the centermost solid line, while the solid outer lines delimit a 2% envelope.

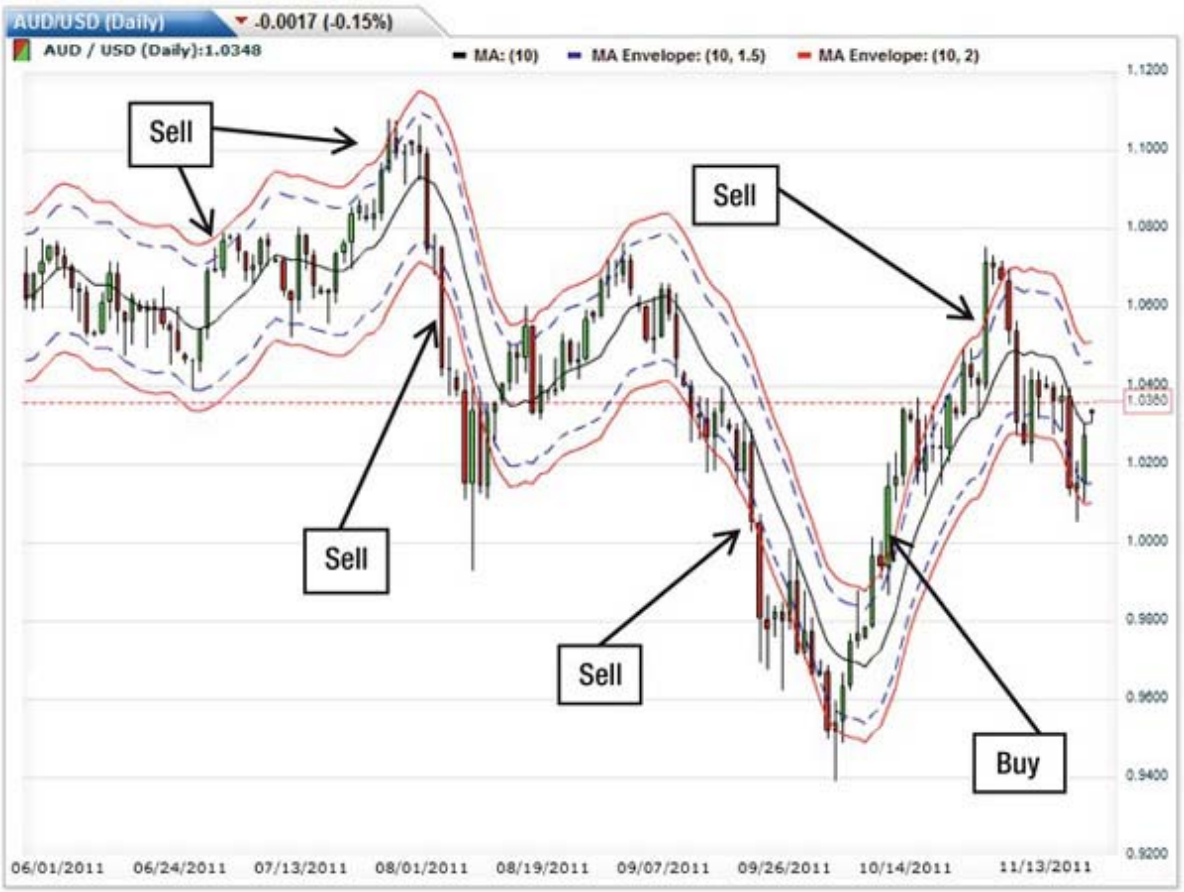


Figure 6-13. AUD / USD with 10-day MA envelopes

Based on this configuration, the MA envelopes produce an abundance of sell signals. For the first two months, when the pair is range bound, the AUD/USD moves through the 1.5% resistance but bounces off the 2% resistance. For whatever reason, the lower envelope doesn't provide such strong support. Then the pair completely smashes through this support on two separate occasions, providing two good opportunities to sell. On the way back up, it smashes through the resistance the first time around but

bumps up against it the second time.

Bollinger bands take the idea of the MA envelope one step further. Since the upper and lower bounds of an MA envelope are fixed in percentage terms, the width never changes. Bollinger bands, in contrast, narrow and expand in synch with actual market conditions. That's because they are configured as a function of volatility. When a pair is range bound, the Bollinger bands form a tight envelope around it. When a sudden upside or downside move takes place, the Bollinger bands widen proportionately.

This unique characteristic of Bollinger bands is reflected in Figure 6-14, which depicts the same AUD/USD pair as in Figure 6-13. When the pair is range bound, the Bollinger bands provide the same support and resistance as the MA envelopes in Figure 6-13. In Figure 6-14, however, the breakouts are accompanied by a widening of the band (due to an increase in volatility), underscoring the momentum that has coalesced around the new trend. Bollinger bands, then, are especially useful for forecasting breakouts. In general, the steeper the expansion of the band, the stronger the trend.

Bollinger bands can be adjusted just like MA envelopes. Instead of keying in a percentage, however, you need to select the number of standard deviations (also known as volatility) away from the mean that will form the upper and lower bounds of the band. As with MA envelopes, establishing a golden number may take some trial and error.

Despite their overall effectiveness, MA envelopes and Bollinger bands are not without weaknesses. Namely, they are basically useless when trends change suddenly. You may have noticed that the breakouts depicted in Figure 6-13 and Figure 6-14 actually started to take place before they were picked up by the Bollinger bands. On the one hand, the trend reversal that I have pointed out in Figure 6-14 below caused the MA to turn upward almost immediately.

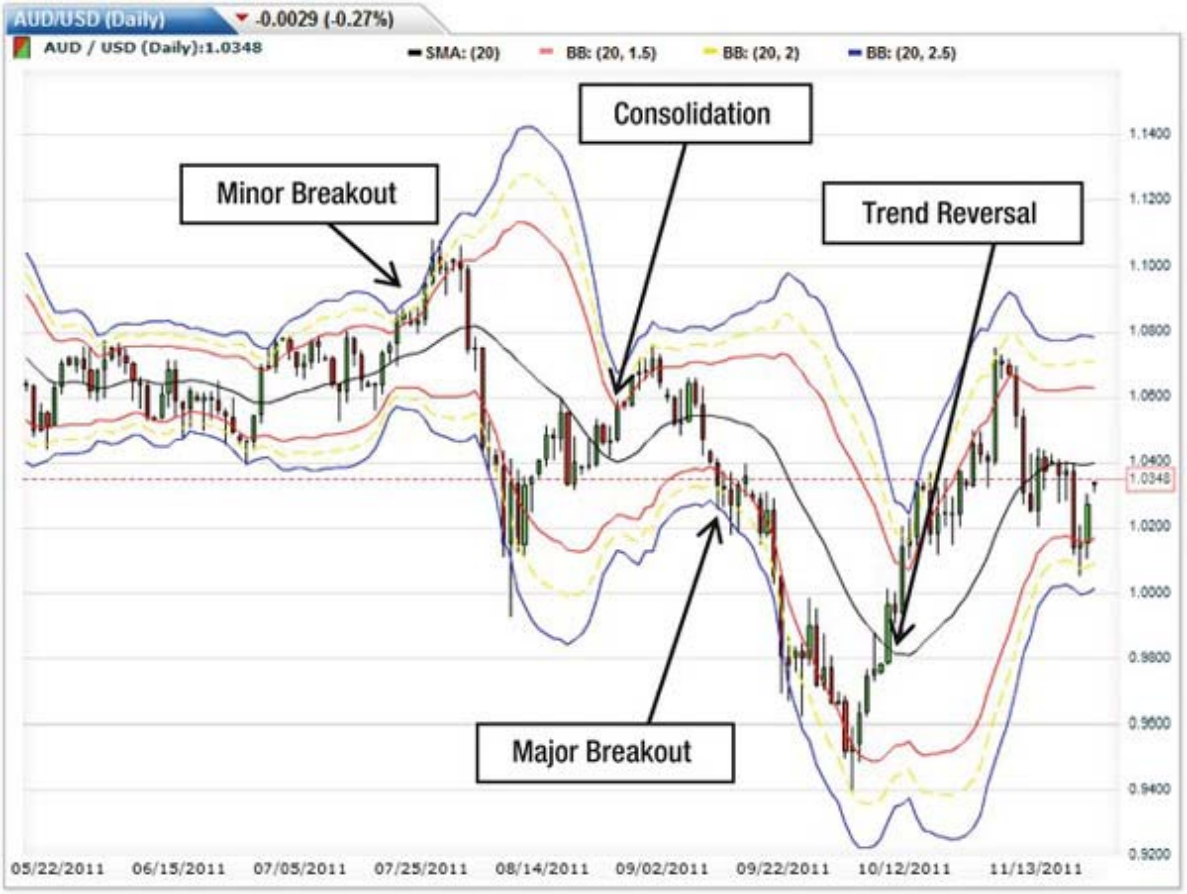


Figure 6-14. Bollinger bands of 1.5, 2, and 2.5 standard deviations

At the same time, it wasn't until the pair had exhausted most of its upward momentum that it finally crashed through the upward bound of the dashed Bollinger band. By this point, most of the profit potential had disappeared.

Parabolic Stop and Reverse

The *Parabolic Stop and Reverse* (Parabolic SAR) is one of the easiest technical tools to understand and interpret, but it is also among the least reliable. It is based on the notion that once trends form, they need to build momentum rapidly. Otherwise, investors will lose interest, and the trend will peter out just as quickly as it started. The indicator uses a complex formula to predict the beginnings and ends of trends, both of which are represented by a series of dots that appear directly on the price chart. Buy at the beginning of an uptrend, where the dots are below the actual price and rising, and sell when the Parabolic SAR switches to downtrend, where the dots are above the price point and falling. To build in a margin of error, perhaps you might consider waiting until the trend has reached three periods (three dots) before acting.

If only it were that simple. In Figure 6-15, the Parabolic SAR has identified seven discrete trends, each of which is separated by vertical lines. As can be seen by the actual and predicted trends (represented by the grey and black lines that I painted on for illustrative purposes), the Parabolic SAR was ultimately more often wrong than it was right!



Figure 6-15. Example of the Parabolic SAR

Oscillators

Oscillators represent a distinct category of technical indicators—one that is more complex and potentially more profound. Oscillators work by normalizing asset price data to a scale (of 0 to 100, for example) so that overbought and oversold conditions can easily be identified. Most charting software will enable you to view multiple oscillators simultaneously by plotting individual oscillators below the main price chart.

There are a handful of ways in which readings from oscillators can be interpreted and utilized. First, when a value reaches an extreme level, it is supposed to indicate that investor sentiment has also reached an extreme level and that a correction is imminent. Second, when an oscillator *crosses over* from positive territory into negative territory (and vice versa), it suggests that a trend is about to reverse. Finally, *divergences* between oscillators and the underlying currency pairs may signal that a trend is about to come to an end. There may also be additional interpretations, but these three are most common.

As for which approach is best, it depends not only on the specific oscillator, the asset in question (in this case forex), and prevailing market conditions, but also on the person that is performing the analysis. Some experts harp on crossovers, while others insist that divergences provide the best signals. Still others may promote the use of oscillators in combination with other indicators. As with other technical analysis indicators, there is no singular or correct way to incorporate oscillators into one’s trading strategy.

With all of this in mind, let’s look at a few of the most popular oscillators.

Moving Average Convergence Divergence

The *Moving Average Convergence Divergence* (MACD), a popular *leading oscillator*, represents the difference between two exponential moving averages (EMAs) of different durations. The theory is that when the short-term MA suddenly crosses a long-term MA, their intersection could signal the start of a trend. In order to enhance the MACD's signaling power, it is plotted against an MA of itself in the form of a histogram.

Before your head starts to spin, let's look at a concrete example. You can see from the USD/CAD chart in Figure 6-16 that when the 12-day EMA crosses below the 26-day EMA, the MACD line plotted below similarly moves into negative territory. By itself, this could be interpreted as a signal to sell. When the MACD crosses below the 9-day MA of itself, the bar chart also undergoes a crossover from positive to negative territory, and this produces yet another sell signal. All of these signals are indicated by vertical dotted lines.

There are several additional observations that can be made about the MACD. First of all, the default settings are 12, 26, and 9 days (for the short-term EMA, long-term EMA, and MACD MA, respectively). You can easily change these parameters using charting software, which will obviously produce slightly different signals. Secondly, the MACD is prone to false signals since it may hover at an extreme level (or move back and forth between positive and negative territory) for many successive periods. Sure enough, the USD/CAD continues rising shortly after the second sell signal in Figure 6-16. Third, the imminent reversal signaled by the MACD may not take place for several periods after sentiment reaches an extreme level, exposing traders to risk in the interim. Any trader that put in a sell order for the USD/CAD following the final sell signal in Figure 6-16 may very well have experienced losses before the CAD/USD began to trend downward.



Figure 6-16. MACD in practice

Stochastic Oscillator

A *stochastic oscillator* uses changes in momentum as a basis for predicting changes in price. Specifically, it seeks to establish where the current price of an asset stands relative to its range over a recent period of time. This calculation (%K) is then compared to a moving average of itself (%D). The chartist must select both the number of periods (typically 14 or 20) for the %K calculation and the number of periods (typically 3 or 5) for the %D calculation. This is known as a *fast stochastic* and is shown in the middle panel in Figure 6-17. Those that are not satisfied with the fast stochastic and/or have longer trading horizons can utilize a *slow stochastic*, which simply uses the fast stochastic as its starting point (also known as its %K) and performs yet another moving average. This *slow stochastic* is typically smoother and should generate fewer false signals. It is displayed in the bottom panel in Figure 6-17.



Figure 6-17. Using fast and slow stochastics to identify buy and sell opportunities

Stochastic oscillators fluctuate between 0 and 100, and most technicians use the thresholds of 20% and 80%, respectively, as basis for identifying oversold and overbought conditions. Since a currency pair may remain at an extreme level for quite some time as a result of sustained buying or selling pressure, it makes sense to wait until the stochastic has reversed—when the %D crosses the %K—before acting. It's also worth looking at where the stochastic currently reads relative to the halfway point. Below 50% implies that the pair is trading in the bottom half of its recent range and suggests bearishness. The opposite is true for readings above 50%.

Consistent with Figure 6-17, fast stochastics typically produce more signals (and more noise) than slow stochastics. That being said, each time the fast stochastic rose above 80 and then contracted sharply, the EUR/JPY followed suit. The dozen or so declines in the fast stochastic to below 20 meanwhile seem to coincide nicely with declines in the EUR/JPY. While the slow stochastic produces even fewer signals—potentially causing its followers to miss good trading opportunities—most of these signals are quite accurate. In short, you should understand that increasing the number of periods should produce clearer but fewer signals.

Relative Strength Index and Commodity Channel Index

The *Relative Strength Index* (RSI) is similar to the stochastic oscillator. The RSI formula normalizes changes in momentum to an index from 0 to 100, where readings above 70 and below 30 represent overbought and oversold conditions, respectively. Whereas a stochastic indicator compares the most

recent closing price with a trading range for a given number of periods, the RSI merely examines only upward and downward movements in price for a given period.

If the number of upward price movements exceeds the number of downward price movements, the RSI will increase. In theory, when the RSI crosses one of its twin thresholds (70 and 30, typically), it signifies that momentum has reached an extreme level and a reversal may be imminent. In addition, the appearance of resistance (support) in an RSI when the underlying currency is sharply rising (falling) implies difficulty sustaining upward (downward) momentum and could similarly herald a correction.

The *commodity channel index* (CCI) also measures momentum, but it does so by comparing the current price level to a simple moving average of itself over a given number of periods. Fluctuations between -100 and +100 are considered normal while movements outside of that band hint toward a reversal. For the best signal, it's advisable to wait until the CCI crosses back through one of the boundary lines before acting.

The only variable traders need to input into their charting software to compute either an RSI or CCI is the number of periods. Naturally, a lower number will generate more sensitive readings. In Figure 6-18, I used 14 periods and 20 periods, respectively, for the RSI and CCI, which are the default settings in most charting software.



Figure 6-18. Downward reversals in the USD/CHF take place when the RSI crosses 70 and the CCI falls back below 100

As you see from the chart above, the accuracy and simplicity of the RSI are impressive, which explains

why it is one of the most popular technical indicators. The two biggest reversals in the USD/CHF coincide with an RSI peak of slightly above 70 (indicated by the vertical black lines). Figure 6-18 also illustrates how using two indicators together can produce especially robust signals. Since the CCI rises above 100 and falls below -100 on several occasions (as indicated by the vertical gray lines), it helps to have another indicator with which to compare it. When used together, the RSI and CCI yield two very strong sell signals, both of which are followed by retracements in the USD/CHF. In fact, these two indicators are beeping loudly at the present (rightmost end of the chart), suggesting that another correction might come soon!

Awesome Oscillator

There are actually hundreds of different technical indicators and an infinite number of iterations and ways to combine them. In fact, when researching this book, I came across a handful that I had never even heard of before, and anyone with an imagination and a basic programming ability could create a new one. How about the *Kritzer Index*?

In fact, the *awesome oscillator* may very well have been invented by a technical analyst with too much time on his hands. It compares the 34-period MA with the 5-period MA, and the result is a histogram that moves back and forth across a 0-line. When the oscillator crosses firmly through this line, it generates a buy signal. The inventor of the awesome oscillator has also suggested that two peaks (or troughs) might also provide a strong signal.

Unfortunately, based on the way the awesome oscillator is constructed, it inherently provides concurrent (rather than advance) signals. In other words, when the 5-day MA crosses the 34-day MA, it may already be too late to buy. This is clearly evident in Figure 6-19; the strongest buying signal doesn't come until *after* the massive 10% correction has already taken place.



Figure 6-19. Awesome oscillator produces signals that lag actual price movements

Summary

As you may have sensed, this overview represents only the tip of the technical analysis iceberg. The indicators that I selected for inclusion in this book are those that I believe are most compatible with trend trading and fundamental analysis. Consider that entire books have been written not only about technical analysis but also about specific aspects of technical analysis. For those of you that plan to approach trading from technical perspective, I would certainly recommend delving deeper into the subject on your own.

I have tried to present technical analysis in a way that is straightforward and intuitive. While it's not necessary to memorize the formulas for calculating the various indicators in your technical arsenal, it nonetheless is important to understand how they are calculated. If you can avoid taking the indicators at face value, you will be rewarded with a fuller understanding of what you are seeing in their readouts.

In concluding this chapter, I would like to offer a couple of caveats regarding technical analysis. First, charts and technical indicators often produce unclear or conflicting signals. For that reason, it's worth using a couple of indicators together in order to optimize their effectiveness. Recall that in Figure 6-18, the RSI and CCI produced incredibly accurate signals when used together. At the same time, don't get carried away and try to develop technical trading rules that are based on too many indicators. Figure 6-20 takes this idea to a comical extreme. The chart is so cluttered that it's hardly even possible to see the underlying movements in the EUR/USD, let alone to make a reasonable interpretation and open a position!



Figure 6-20. Extreme example of a chart with too many indicators

Second, consider that the flexibility of technical analysis is a potential pitfall as much as it is a benefit. While it might seem convenient that technical analysis can theoretically be applied to all asset prices at all times, this could lead to arbitrariness and laziness. In other words, it's important to tweak the parameters of individual indicators and to experiment with different combinations of indicators until you find one that seems to fit the particular currency pair at a particular time, as well as your particular strategy.

Finally, technical analysis is far from foolproof. To be sure, it's very easy to find examples of currency behavior that accord perfectly with the signals produced by technical indicators. However, there are just as many counterexamples. That's because technical indicators are not really designed to predict the future; all they can do is reorient the way that we see the past. They can convert seemingly random currency movements into smooth lines and indexes that are easy to interpret so that you might have a better idea of what is apparently happening in the present. As for what will happen next, well, that is a different story altogether.

CHAPTER

7

Trading Strategy
Using a Combination of Analytical Tools to Develop a Trading Strategy

In Chapter 5 and Chapter 6, I offered overviews of both fundamental and technical analysis. Together, these chapters address the majority of the factors that cause exchange rates to fluctuate. At this point, then, you should have all of the basic tools necessary to make sense of past exchange rate movements and to make well calculated forecasts of future trends. The next step is to incorporate these tools into a concrete trading strategy.

Strategies can be broken down across many different lines. Short-term strategies must be distinguished from long-term strategies. Strategies based on fundamental analysis will be different than strategies based on technical analysis. Trading the news, on the other hand, falls into a category of its own. Leveraged spot trading will require a different kind of strategy from trading currency options. And so on.

Ultimately, the strategy that you adopt should be tailored to your specific circumstances, including financial situation, risk appetite, time horizon, and investment objectives. In order to aid you in your efforts to create a unique, personalized approach to forex, I would like to offer a handful of general strategies, which are outlined in this chapter.

Long-Term Fundamental Strategy

Long-term fundamental strategy is perhaps the easiest to plan and execute. It is akin to the buy-and-hold strategy practiced by many stock and bond market investors. The goal is to identify currency pairs that are fundamentally misaligned on a current and/or projected basis. More specifically, it could be the case that a particular exchange rate seems to be justified by current financial-economic fundamentals but that expected changes in fundamentals would require a proportional change in the exchange rate.

A long-term bet on a currency pair may vary in duration from a few months to a few years, though you should enter any such trade with the expectation of holding the investment for six months to one year. If the projected movement takes place earlier than expected, you might decide to “take profits” and move on to a different bet. If, after a year, the expected movement hasn’t materialized, you might similarly decide to move on. Alternatively, if circumstances suggest that your original forecast remains valid, you might decide to stay the course.

Those of you with a long-term fundamental outlook could engage with the forex market from an existing investment account. If you choose to go this route, you will probably find it easier to square currency trades with pre-existing investment objectives and strategies. Forex will simply become one part of a diversified investment portfolio. The downside is that the range of potential investments will be limited to Exchange Traded Funds (ETFs) and mutual funds. In addition, interest earnings on currency investments will accrue indirectly through trading gains. Still, for those that only check their investment accounts once or twice a week, the hassle from having to log in and make trades through a separate account with a forex broker will outweigh the modest savings from slightly lower spreads.

Long-term bets are suitable for those investors with generalized theories, which may or may not be informed by a close examination of economic data. For example, there are many investors that are concerned that the dollar will collapse, or at least decline markedly across most currencies. This is based on the vague notions that the US twin deficits (trade and government spending) are problematic, that the dollar’s role in central bank reserves is disproportionate with the US share of the global economy, and

that the United States seems to be losing its superior economic position to emerging market economies. For investors with this concern, it wouldn't be unreasonable to make a long-term bet against the US dollar, either by selling a broad index fund or by selling the dollar against another currency (or currencies). Beware that the latter will expose you to additional risk. For example, given the European Union's ongoing fiscal problems, the dollar could very well continue to rise against the euro for reasons that have much to do with the euro and very little to do with the dollar. In fact, if you had bought the EUR/USD in late 2008, when the markets were beginning to rebound, you would have earned a return of about 0% as of January 2012. On the other hand, if you had hedged your bet by selling the dollar against multiple currencies, you might have achieved an annual return of about 10%. (See Figure 7-1.)



Figure 7-1. Between 2008 and 2011, the US dollar fell on an overall basis. Against individual currencies, however, performance varied.

Likewise, there are many investors that seek exposure to emerging market currencies as an asset class. Given that emerging markets boast the lion's share of global GDP growth, strong government finances, and current account and trade surpluses, this probably isn't a bad idea. If you think that there is a strong case to be made for a particular currency, you could buy that one currency (against the dollar) and wait. If, on the other hand, you think that emerging market currencies as a whole will rise, you could buy multiple currency pairs simultaneously. Of course, this latter strategy will lower your expected return, but it will also lower your risk exposure. Considering how much performance among emerging market currencies has varied (Figure 7-2), this probably wouldn't be a bad idea.



Figure 7-2. Emerging market currency returns (against the US dollar) vary considerably

Timing does not usually play a significant role in long-term currency investing. If you have a general theory or investment objective, my advice is to not try and time the market. Over 6–12 months of investing, the idea of trying to tack an extra 1% on to your overall return through shrewd timing is a little bit ridiculous. If market conditions are abnormal or illiquid (such as during the 2008 financial crisis), you might want to adopt a wait-and-see approach. Otherwise, my experience has been that there's no time like the present!

If it turns out that you mistimed your entry and your position is already in the red shortly after you opened it, you can always *scale* your position. Also known as *dollar cost averaging*, this involves adding to your position in order to lower your profit threshold. For example, if you had bought $1,000 worth of the EUR/USD at $1.30 and only one week later it had fallen to $1.25, you could double down on your position with another purchase of $1,000. This lowers your average buying cost to $1.275. As soon as the EUR/USD surpasses this level, your position will be back in the black! If not for this tactic, you would have to wait until the EUR/USD crosses $1.30 before the position would be profitable again. As for exiting a trade, the same logic applies. If the currency pair has already outperformed your expectations, you might want to consider *taking profits* by selling off part of your position. This way, if your position begins to depreciate, you will have locked in a portion of the gains and minimized further risk.

You should continue to monitor and re-evaluate your position for as long as it remains open. Ask yourself, for example, "Have the US twin deficits begun to decline? Has the EU fiscal crisis been brought closer to resolution? Have emerging market economies slipped into recession?" It's fair to have a general belief that a particular currency will rise or fall over the long term, but sticking to such a belief in the face of presently contradictory factors takes real persistence, or even foolishness!

Finally, you should have an idea of when you will close your position. Perhaps it is after a certain amount of time. Perhaps it is only when the currency pair has crossed a certain threshold. Remember: a bull (or bear) market that lasts forever is simply not possible in forex. (For the record, even stock market investors are starting to question this ideal!) In other words, make sure that your strategy has an endpoint built in.

Purely Technical Strategy

Those with larger profit goals and shorter attention spans will probably gravitate toward trading strategies that are grounded in technical analysis. In fact, there is plenty of evidence that the majority of currency traders fall into this category. For example, most forex brokers don't offer long-term charts (with price intervals that exceed one day) and historical price data because most traders aren't interested in them. Technical traders typically pay little attention to fundamental analysis. News developments are not in and of themselves noteworthy but are only relevant insofar as the volatility they generate may threaten trading strategies.

There are two time horizons that are suitable for technical trading strategies: short-term and medium-term. My definition of a short-term duration is anything less than one day, wherein discrete positions remain open for minutes or hours. The advantage of closing all positions at the end of each trading day is that you don't have to worry about how the market is performing when you aren't actively trading. In addition, intraday leverage is basically free, as interest is usually charged only on overnight positions. (How interest is charged varies between brokers.) The downsides of having an intraday time horizon are increased pressure and greater risk. Profits on individual trades may not exceed a few dozen PIPs, which means that trades need to be timed perfectly. For better or worse, tremendous leverage (exceeding 20:1) is also the rule for these kinds of trades, adding to the sense of pressure.

If you choose to adopt a short-term technical trading strategy (otherwise known as *scalping*), you will be

limited to a handful of the most liquid currency pairs during the most liquid hours of the day. Just as profits can be reaped almost instantaneously, losses can pile up with equal speed. In short, this kind of trading is basically akin to gambling, which explains why the majority of day traders wipe out their accounts shortly after opening them. It goes without saying that I don't advocate this approach.

Those with more patience (one full day to a few weeks) will find that technical analysis still has plenty to offer. Less time spent trading means more time spent on research and analysis, which should translate into a higher success rate for individual trades. In addition, a longer time horizon will allow you to target higher profit thresholds (more than 100 PIPs/trade), which require less leverage (less than 5:1). You won't need to worry about planning trades around certain times of the day, as liquidity is less of an issue. While you will expose yourself to potential losses from overnight positions, there are certain tools that you can take advantage of in order to minimize risk. (Such tools include scaling, stop-loss orders, and more. They are touched on throughout this chapter and covered extensively in Chapter 11.) Those that still aren't comfortable with this risk can nonetheless choose to close out some (or all) of their positions at the end of each trading session.

For all technical traders, technical strategy should be rule-based. Here, the contrast with fundamental strategy is most stark. Fundamental analysis admittedly has an abstract quality to it, which can be frustrating. For example, "Given current interest rate levels, the AUD/USD seems undervalued," or, "In light of the EU fiscal crisis, the EUR/USD should continue to decline." Technical strategy, on the other hand, is concrete. For example, "I will buy when the CHF/USD exceeds its 50-day moving average," or, "I will sell when both the fast and slow oscillators indicate oversold conditions." In this way, opening and closing positions takes place in accordance with a clear plan. That's not to say that this plan guarantees success and profits. Instead, the idea is that a scientific approach to analysis demands an equally scientific approach to trading.

In fact, many trading platforms now support the development of automated strategies. You can select from a list of pre-defined strategies or manually create your own strategies. For example, a so-called *5 × 5 system* will generate a buy signal when the close price is above a specified simple moving average (SMA) and the Relative Strength Index (RSI) is above the mid-line 50. A sell signal will be generated when the close price is below the SMA and the RSI is below the mid-line 50. Through the same platform, you can instantly *backtest* this strategy for specific time periods and currency pairs. (*Backtesting* will be covered in detail in Chapter 9.) With any automated trading system, you must decide whether or not computer-generated trading signals will trigger automatic trade executions. In other words, you can choose to receive signals automatically but to manually execute trades, or, if you have confidence in your system, you can check the box for automated execution.

There will always be technical traders that bristle at the lack of flexibility inherent in *mechanical trading systems*. For these traders, technical indicators are an important guide for making trades but are no substitute for experience. These traders might try to adhere to a handful of technical trading rules. At the same time, they abide by the adage that "rules were made to be broken." They may ignore the indicators and enter a trade prematurely or not at all, wary that a potential *breakout* may turn into a *fake out*. They may take profits early or ride out a trend even when their indicators show that a pair has reached an overbought or oversold level. They may open a chart, apply a few technical studies, and simply make an assessment about what will happen next. Above all else, these technical traders trust their intuition.

As with most other aspects of strategy, there is no right answer to which approach is better. My advice is that, when you are just beginning to trade, you should err on the side of trusting the rules that you have developed. Without experience, you really don't have much of an alternative. At this point, you are more likely to confuse emotion with intuition, which could lead to expensive mistakes early on. As you hone your strategy and begin to achieve success, you might relax the reins slightly and allow yourself some

flexibility in the way that you execute your trading system.

But let's not get ahead of ourselves. Before we can decide how much faith to put in our trading system, we must first create such a system. There are a few of ways to go about this. The first involves simply opening up a chart, using your preferred time horizon as a basis for selecting the time scale—and try to loosely identify the current pattern that applies to the pair. Is it trending upward, downward, or sideways? From here, you can layer on your favorite technical indicators and see if any signals pop out at you. The next step would be to fine-tune your indicators—perhaps some of the parameters need to be tweaked—and to analyze how this pair performed the last time that the indicators flashed in such a way. Based on your level of confidence, you should determine the position size and the amount of leverage. If you're not entirely sure, you might want to leave some of your equity capital on the side so that you can scale in and/or minimize any potential losses. If you decide to open a position, you will naturally need to have an exit plan—one that probably incorporates the same indicators that guided your decision to enter.

By way of example, let's say that you happen to be looking at the first frame of the USD/CAD (five-hour interval) chart depicted in Figure 7-3. It looks like the USD/CAD has been range bound over the last five weeks, with especially tight consolidation over the last week. However, it just pierced the upper limit of your chart's Bollinger Bands (at the last candlestick on the left-hand panel), which means that a breakout could be taking place! Furthermore, the commodity channel index (CCI) just crossed above 0 and has already spiked above 100. Unfortunately, the Moving Average Convergence Divergence Indicator (MACD) isn't giving you a very strong signal. You replace it with another indicator that is just as ambiguous. What do you do?

You could wait for further confirmation, but given that the pair has already jumped 100 PIPs and volatility has been running low, it seems likely that any upward momentum will soon be exhausted. Besides, the pair has bounced off of resistance at 1.01 a handful of times over the last five weeks, and this time probably won't be any different. You buy in for $5,000 at 1.022 using 2:1 leverage, with the intention of holding the position for a week or so. Moving to the right-hand panel, it looks like you guessed right. The USD/CAD is now definitively trending upwards.



Figure 7-3. Technical strategy based on improvised analysis

You unwind half of your position at 1.034 when the MACD and the CCI dip below the zero line, just to be on the safe side. The USD/CAD rallies another 100 PIPs, and you feel smart for having held on to your position. Without warning, however, the currency pair suddenly takes a nosedive below the lower limit of the Bollinger Bands and the CCI is flashing "SELL, SELL, SELL." You oblige and close out the remainder of your position at 1.029. You earned an average of 95 PIPs on your trade. Thanks to your 2:1 leverage, that's an *annualized* return of 58%. Not bad for your first trade!

For those that don't possess this kind of ability (or the stomach) to improvise trades, you might want to develop a trading system first and then find concrete situations to which to apply it. Consider that a technical trading strategy must seek to profit from one of three basic phenomena: trend continuation, trend reversal, or breakout (from range bound trading). You could conceivably have separate systems for each. You might begin by establishing your time horizon; are you looking to open a position for one day, one week, or more?

Your technical trading rules can be as creative as you like. The only caveat is that the more limiting they are, the harder it will be for you to find situations to apply them. For instance, if your system is based on a moving average crossover and the MACD, you will probably come across more potential trades than you can handle. On the other hand, if you insist on building a system that is based on no fewer than half a dozen indicators, you will spend most of your time hunting and little time actually shooting.

Let's take my first suggestion as an example. Based on my hypothetical experience, let's pretend that I have developed the following rule: "When the 5-day moving average crosses the 20-day average, it heralds a trend reversal." Let's say that I also rely on the MACD: when the signal line crosses the moving average line *and* when the histogram crosses the zero-line, it is further evidence of a trend reversal. Therefore, I will enter a position upon the next trend reversal and close it out after the following trend

reversal. This is my hypothetical mechanical trading system.

After looking at a handful of charts, I settle on the EUR/USD (one-day interval) chart (shown in the left-hand panel of Figure 7-4) because of the way it seems to exemplify my pre-established rule. Currently, it appears that the EUR/USD is in the midst of a strong upswing. I have resolved to sell as soon as my trading system indicates that the uptrend has given way to a fresh downtrend. A couple of weeks later, two consecutive *very bearish* candlesticks appear suddenly, and the MACD signal is first to sound the sell alarm. One day later, the 5-day MA crosses the 20-day MA, and I open a short position around 1.38. After 2 months, my hypothetical position is still open. While the MACD has let out a few burps from time to time, the moving averages haven't crossed over a second time, and I am already 1,000 PIPs richer for my efforts!



Figure 7-4. Technical strategy based on mechanic trading system

In the world of forex, these kinds of examples abound, especially with the benefit of hindsight. If I offered any more, though, I would be doing your homework for you.

Technical & Fundamental Trend Trading

Medium-term *trend trading* (also known as *swing trading)* is the approach to the forex markets advocated in this book. That being the case, you might be wondering why it's buried in the middle of this chapter instead of at the front. The answer is that trend trading first requires proficiency in both fundamental and technical analysis, and in both short-term and long-term trading.

The sweet spot for timing swing trades is somewhere between 3 to 12 weeks. While this strategy can certainly be adapted to slightly shorter or longer horizons, my experience suggests that this time frame is where swing trading is most effective. In the long run, I think that fundamentals play a larger role in

dictating trends and, hence, that fundamental analysis is bound to be effective. I wouldn't discourage long-term fundamental traders from incorporating technical analysis into their strategies, though I would certainly question the relevance and effectiveness of doing so. When a pair is following a long-term trend, long-term fundamental analysts usually treat any deviations from that trend as random or inconsequential. Their goal is to profit from the overall trend, not from the ebbs and flows along the way.

Short-term technical analysts, in contrast, probably won't find much use for fundamental analysis. An exchange rate might adjust over the course of 1–3 days following an important fundamental development, though this phenomenon is as technical as it is fundamental. The gyrations that take place around the mean (regardless of whether the pair is trading flat or trending) are probably less due to constant adjustments in traders' economic models than they are to the short-term pull of speculative buyers and sellers that are doing their best to time the market. Again, I wouldn't discourage technical traders from considering fundamental analysis, but I'm not sure how effective it can be in short-term trading. (The exception is *trading the news*, a distinct strategy that I will outline later in this chapter.)

To those of you who are still with me, the benefits of medium-term trend trading should be easy enough to understand. Fundamental analysis is used to predict trends, and technical analysis is used to confirm them. (Or, for those who prefer to think of it the other way around, technical analysis is used to spot trends, and fundamental analysis is used to understand them.)

Trend trading can take many forms. Those that lean toward fundamental analysis can begin with the various tools outlined in Chapter 5. Only after forming a prediction about the medium-term direction of the market will technical analysis be brought in to help you time your entry and exit. Technically inclined traders might use technical indicators as a basis for predicting the beginning and end of medium-term trends before making sure that their interpretation is consistent with the fundamentals.

I personally am a fundamental analyst at heart. I am a big-picture thinker, and I thoroughly enjoy attempting to untangle the massive puzzle that is the global forex market. When planning trades, fundamental analysis always comes first for me, and technical analysis is more of an afterthought. In other words, I will wait until I have a fairly good idea of the trade that I want to make before I will layer technical indicators onto my price chart.

Let's look at a few examples. In the middle of 2010, I remember watching the EUR/USD chart (depicted in Figure 7-5) and thinking that the euro had become deeply undervalued. Meanwhile, economic data was improving across the European Union, and the European Central Bank had begun to hint that rate hikes would soon follow. To be sure, the euro had initially fallen because of concerns over the Eurozone's fiscal problems, but at that point the true extent of the crisis had not yet been revealed. At the very least, the euro's purchasing power parity value was greater than its market value against the dollar ($1.20–$1.25, depending on when you happened to be looking at it). Finally, risk appetite was improving (signified by a rising S&P 500 Index), and the US dollar was still in vogue as a funding currency for carry trades. In short, barring any sudden developments, I concluded that it was only a matter of time before the euro rallied.

My theory was supported by basic technical analysis. After rallying in the wake of the credit crisis, the EUR/USD had suddenly fallen 3,000 PIPs in less than six months. The *Commitments of Traders* data (shown in the inset of Figure 7-5) showed that short positions had reached an extreme level. This development alone would be reason enough to buy the euro, since once an uptrend started, it would cause a short squeeze, potentially catapulting the euro upward by hundreds of PIPs in only a few days.



Figure 7-5. Example of trend trading (Source for inset chart: Countingpips.com)

Sure enough, the euro bottomed out in June 2010, and anyone who discerned the change in trend—indicated by the moving average crossover—would have cashed in. Over the next twelve months, the euro rallied 2,500 basis points. From a technical standpoint, it trended very reliably—so much so that I selected it in Chapter 6 to illustrate Elliott Wave Principle in action. Its rise presented several solid points (circled in Figure 7-5) to take profits, and for those that were firmly committed to this trade, it also provided several additional points to re-enter. Just as bullish sentiment reached an extreme level in April 2011, a wave of negative fundamentals came cascading down, and the euro began the downward spiral that continues as I write this sentence in April 2012.

By way of another example, consider the chart that is shown in Figure 7-6. The left panel represents the present day. Based on visual analysis, it looks like the USD/BRL encountered fairly strong resistance, first at 1.88 and then at 1.885.



Figure 7-6. Trend trading using a combination of fundamental and technical analysis

After dropping down just as precipitously as it rose, the USD/BRL is now clearly riding another uptrend. You theorize that this uptrend will come to an end when it hits the resistance that you previously identified. From a fundamental standpoint, there isn't much to justify your theory. Still, you know that the current USD uptrend (against all currencies) is a product of uncertainty and risk aversion rather than the result of any kind of substantive factors that favor the USD at the expense of the BRL. On a long-term basis, the real's sudden decline makes it appear greatly undervalued. Besides, Brazilian interest rates are higher than US rates, which gives you some cushion on your bet. (This will be discussed later on in greater detail.)

To execute this strategy, you can rely on a handful of specialized order types that will be detailed in Chapter 9. For example, you can place a sell *limit order* at exactly 1.885, such that a short USD/BRL position will be opened automatically if/when the pair reaches that critical level. In this way, you won't need to stay glued to your computer 24/7 and execute the order manually. Your plan is to ride the wave downward as long as it lasts, though you aren't sure just how long this will be. Here, you can make use of a *trailing stop order*, which will automatically close your position if the USD/BRL retraces more than a given amount. If you were to set the number of PIPs to 100 and the pair fell to 1.84, your position would be closed automatically if the pair rose back to 1.85. If it continued falling to 1.80, however, your stop would be automatically adjusted to 1.81, still 100 PIPs above the lowest level. In this way, you can keep your position open as long as possible (maximizing gains) while continuing to protect yourself from any downside (minimizing losses).

But surely this is a best-case scenario, right? What if the USD/BRL crashes straight through the 1.885 threshold and keeps rising, such that your recently opened short position is now accumulating rapid losses? Here, too, you can protect yourself with a *buy stop order* above 1.885. If you set the buy threshold at 1.89, then your position will be closed at this level and your losses will be limited to 50 PIPs—frustrating, but acceptable. Of course, there is still the possibility that the USD/BRL will hit this level and

then fall, just as you predicted. Unfortunately, because of your buy stop order, you have already locked in your losses and probably won't find solace in ultimately being right. By setting your stop-loss point slightly higher, you can give yourself some margin for error. At the same time, you must be prepared to take on more risk.

Currency Crosses

A *currency cross* is a pair that doesn't involve the US dollar. In the early days of the modern financial era, currency traders (especially those based in the United States) who wanted to place trades that didn't involve the dollar had to perform some minor financial acrobatics. For example, if a trader wanted to short the Japanese yen against the euro, he would have had to make two simultaneous trades, shorting the yen against the dollar at the same time that he bought the euro against the dollar, as follows:

$$\frac{EUR}{\cancel{USD}} + \frac{\cancel{USD}}{JPY} = \frac{EUR}{JPY}$$

Closing a position would have similarly involved two trades. Nowadays, forex brokers offer a handful of the most liquid currency crosses, thus relieving traders of this headache. Those that want to trade less popular crosses, however, will have to resort to the method described above.

Some traders gravitate to crosses because they are more suited to technical analysis. For example, it would be very difficult to establish a model for the Japanese yen against the British pound—even though both are major currencies—because of the lack of a direct relationship between their financial economies. Thus, movements in the JPY/GBP are more likely to be technical than fundamental.

Of course, there are a handful of exceptions, most of which involve the euro. For instance, the CHF/EUR is arguably as important as the CHF/USD for a few reasons. First of all, the Swiss franc is easier to compare to the euro because of regional proximity and economic interdependence. Second, the Swiss National Bank has been more likely to measure the franc's performance against the euro—rather than the dollar—which means that traders have no choice but to do the same. Recall that the infamous "line in the sand" that would trigger intervention was €1.50 and not $1.50.

Carry Trade

The carry trade is a trading strategy that seeks to profit from interest rate differentials. Such differentials are a factor in all overnight forex positions, and interest is automatically credited or debited to one's account in the form of *rollover*. (This will be discussed more in Chapter 9.) Thus, all traders must at least be aware of the interest rate differential that corresponds to the particular currency pairs that they are trading.

Practitioners of the carry trade, however, seek out trades mainly on the basis of these interest rate differentials. The primary goal is to capture the interest rate spread rather than to profit from currency appreciation. For example, if the benchmark interest rate is 1% in Japan and 10% in Brazil, the annual expected interest earnings from a BRL/JPY position would be 9%. If this interest rate differential changes—because Brazilian rates rise and/or Japanese rates fall—interest earnings would change accordingly.

Since the carry trade is supposed to be a low-risk strategy, traders must also control for risk. Taken at face value, a 9% annual return seems fairly solid. However, if the standard deviation (also known as

variability) of that return is 20%, then the actual return could very well turn out to be negative. As a result, currency pairs that are especially stable make the best candidates for the carry trade. In fact, the carry trade tends to thrive when volatility is low and to shrink during crises when uncertainty is high.

Figure 7-7 shows a breakdown of the returns earned from August 2007 to January 2012 from a carry trade strategy against the US dollar. You can see that in some cases (such as with the Brazilian real and the Australian dollar) returns from interest were supplemented by currency appreciation. In other cases (such as with the Mexican peso and the Turkish lira) high returns from interest were partially or completely offset by currency depreciation. Most currencies fell somewhere in the middle. Of course, the plot thickens when you adjust for risk. While returns were high for the Brazilian real and the Australian dollar, for example, so was volatility.

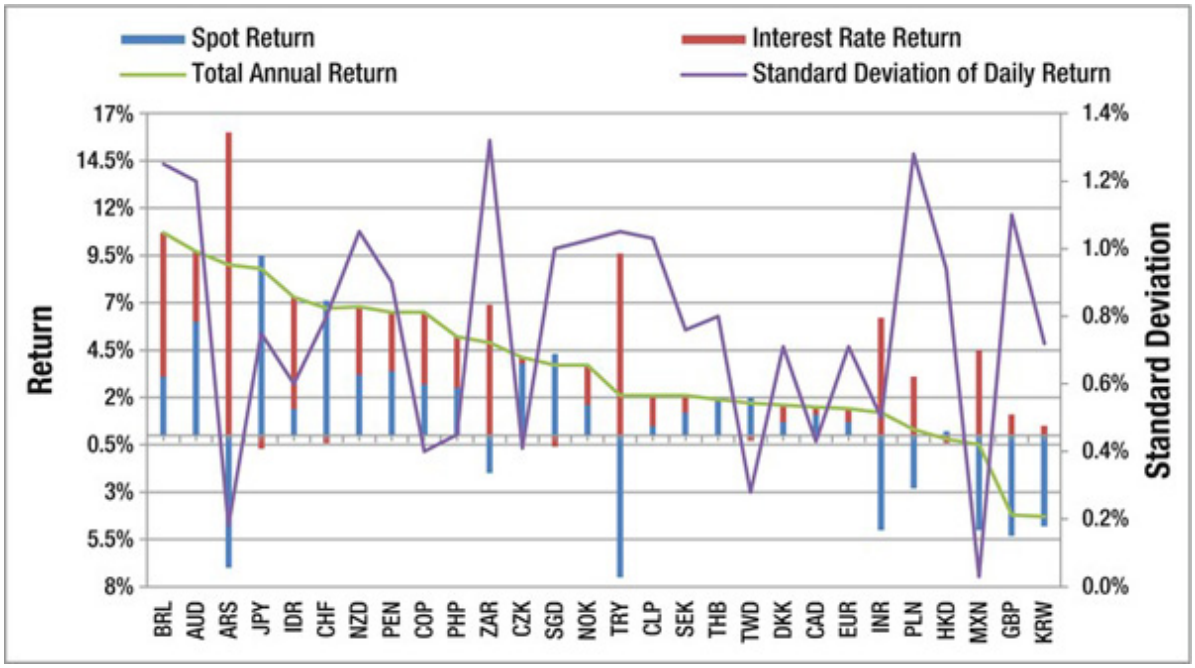


Figure 7-7. Returns and risk from USD carry trade, August 2007–January 2012[1]

The carry trade also serves as a useful framework for understanding currency fluctuations as part of a plain vanilla fundamental strategy. For example, beginning in 2005, traders began to target the yen as a funding currency for carry trades due to its low interest rates and similarly low volatility. The massive capital outflows that followed caused the yen to decline more than 20% against the US dollar, bringing the price of the yen to a five-year low. (See Figure 7-8.) At the peak of this practice, outstanding yen-short carry trade positions were estimated at nearly $1 trillion!

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[1] Howard L. Simons, "The Long, Awful Life of the Dollar Carry Trade," *Currency Trader Magazine*, January 2012, 22.

In 2007 the credit bubble began to deflate. With the inception of the financial crisis, risk appetite collapsed, and skyrocketing volatility caused a sudden unwinding of carry trade positions. A short squeeze ensued, and the yen finished the year up 25% in its strongest performance ever. As US interest rates fell to 0%, the dollar replaced the yen as the funding currency of choice for carry trades. Since then, the yen has risen continuously. Any long-term trader that discerned this sea change would have profited

handsomely.

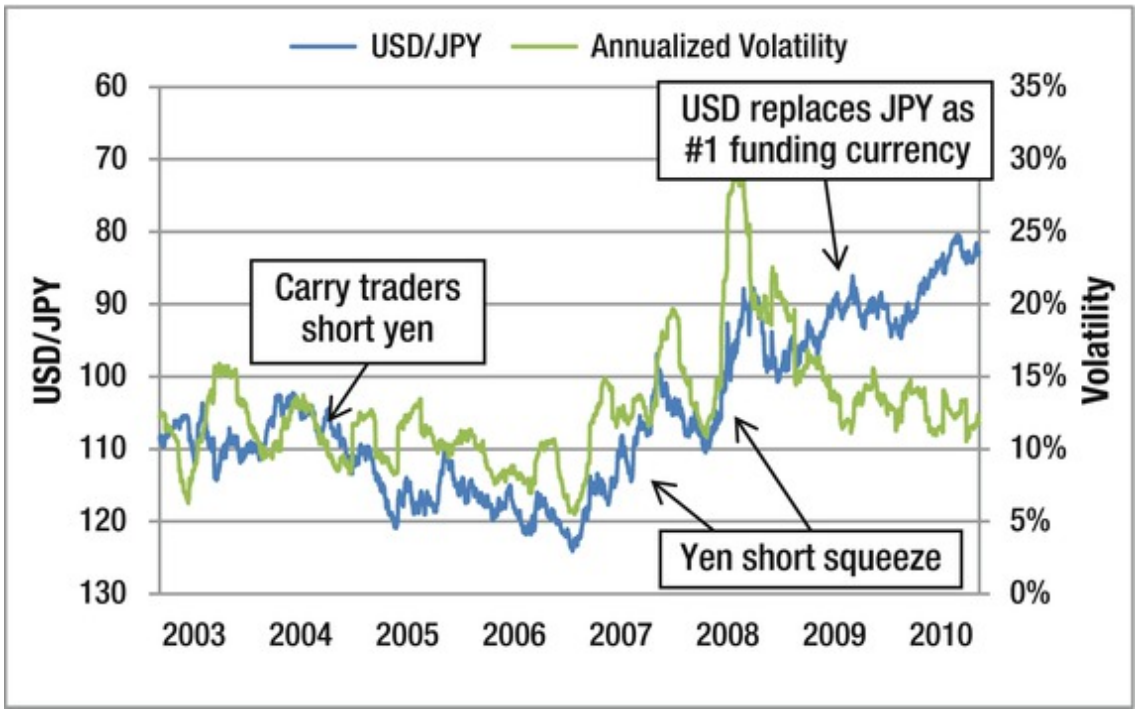


Figure 7-8. The carry trade dictates long-term movements in the USD/JPY

To deploy a carry trade strategy, you need only to identify a currency pair with a broad interest rate differential and low volatility, sit back, and start collecting interest. If volatility rises suddenly and/or the interest rate differential narrows, you may need to re-evaluate your position. There are a handful of currency ETFs (such as the iPath Optimized Currency Carry Fund and PowerShares DB G10 Currency Harvest Fund) that mimic carry trade strategies, though their performance records are spotty.

Advanced Strategy

There are no firm standards as to what constitutes an *advanced strategy*. Suffice it to say that such strategies take a long time to develop and must be executed meticulously. Still, advanced strategies may represent the most effective methods for beating the market, and outsized returns should accrue to those with the most sophisticated strategies.

Most institutional currency traders make use of advanced technical strategies. They use powerful computers and complex algorithms to sweep through hundreds of combinations of indicators in search of the strongest signals. These algorithms are closely guarded secrets and are so valuable that they have already become the subject of several high-profile lawsuits. Fortunately, the software that institutional traders use to develop their advanced strategies has begun to trickle down to the retail level and is available, free of charge, through many forex brokers, or for a fee from third-party providers. In Chapter 9, I will offer an introduction to using such programs.

Meanwhile, advanced fundamental strategies can be developed manually or with the aid of computers. For example, you could use regression analysis (a tool that is available through Microsoft Excel) to compare currency fluctuations with economic data. Or you could try to establish a tradable correlation between a particular currency pair and another asset, such as treasury bonds or gold prices. My personal favorite advanced strategy is based on the correlations between currencies.

For example, let's say that you had been eyeing the AUD/USD in early 2007, when it was still rising. Worried that the credit bubble that was driving the gains in the AUD/USD was about to burst, you decided to seek out another currency pair to hedge your exposure. You pulled up the following table of correlations and identified the JPY/EUR as the best candidate.

	AUD/USD	JPY/EUR	EUR/USD	GBP/USD	USD/CAD	USD/CHF	USD/JPY
AUD/USD	100%	-50.9%	59%	66.2%	77%	-78.8%	26.5%

The two pairs exhibited an inverse (weekly) correlation coefficient of 50.9%, which meant that an upward move in the AUD/USD had a 50% chance of driving a corresponding downward move in the JPY/EUR—and vice versa. In the event that the AUD/USD didn't perform as expected, then, you would have been protected by your JPY/EUR position.

After opening two simultaneous long positions, you patted yourself on the back for the continued rise in the AUD/USD. If only you hadn't been so stupid as to buy the JPY/EUR, whose modest decline was eroding your solid gains. But, wait! The credit crisis struck suddenly, and the AUD/USD collapsed! Fortunately, the inverse correlation held, and what would have been innumerable losses were offset by strong gains in the JPY/EUR. In fact, you can see from Figure 7-9 that while the performance of the AUD/USD and JPY/EUR have varied since 2007, their combined return has always been positive. Behold, the perfect trade!

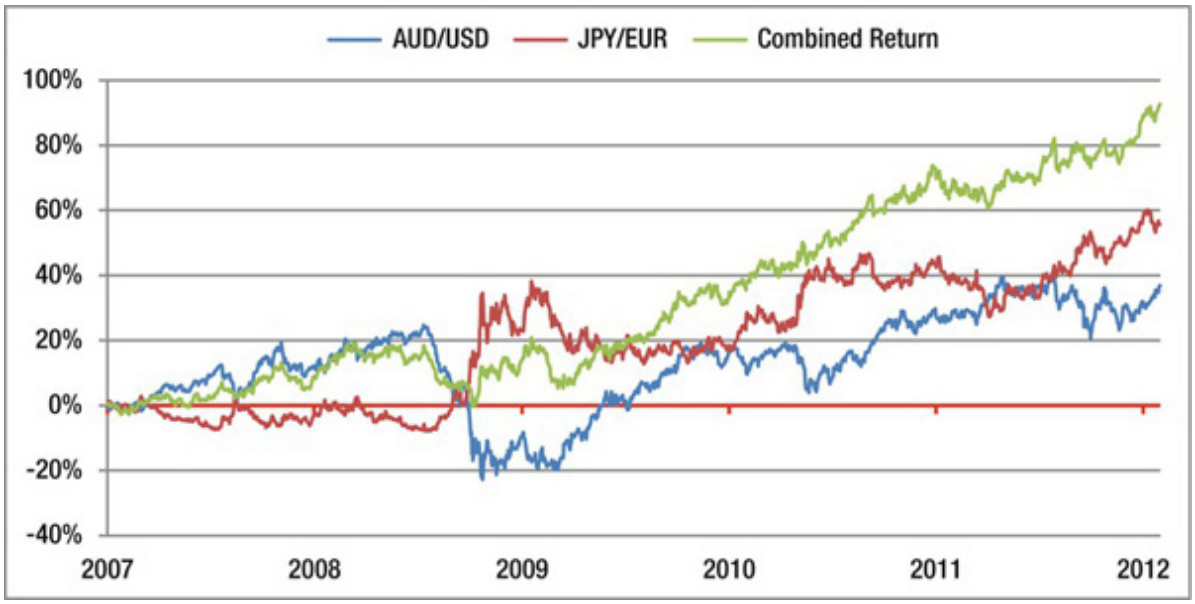


Figure 7-9. Cumulative returns from investing in the AUD/USD and JPY/EUR, separately and together

Trading the News

Trading the news is arguably the most difficult strategy of all. When certain economic data is released, the news can have a sudden and unpredictable impact on the forex markets. For this reason, when big news announcements are brewing, the majority of short-term traders will deliberately close any positions that could potentially be impacted and/or stay out of the markets altogether rather than risk having their trading strategies undermined by an unexpected movement. Long-term fundamental analysts, meanwhile, pay attention to the content of the news but may wait several days after their release before acting.

At the same time, there are a handful of traders that thrive on the volatility that certain news releases engender and deliberately craft strategies that stand to profit from this phenomenon. Every day, there are literally dozens of economic indicators that are made public, and the majority of them have zero impact on the markets. A handful of them, such as employment indicators (e.g., nonfarm payrolls), interest rate decisions, trade data, inflation indices, retail sales, and a handful of others, however, can cause significant gyrations in the markets.

Typically, in the days or hours leading up to an important data release, a consensus expectation will form, and traders will consolidate their positions in the relevant currency pair(s). In the minutes before the release, the pair may break suddenly in a particular direction. When the data is finally released, investors become frantic. Their aim is to either buy the trend if the data release has conformed to expectations or to sell before the rest of the market in the event of a surprise.

Anyone looking at the economic calendar for February 3, 2012, as seen in Figure 7-10, would have noticed that a handful of employment indicators were scheduled for release at 1:30 p.m. (GMT). In the half day leading up to these data releases, the EUR/USD consolidated upward as traders planned for a continuation of the status quo via the previous month's figures. In fact, the actual data beat expectations, and only 30 minutes later the USD had already rallied by 100 PIPs. Apparently, the sell-off was too steep, and traders spent the rest of the day building back up long positions.



Figure 7-10. Charting the impact of the release of employment data on the EUR/USD

Those that sought to profit from this chain of events could have entered the market on any number of occasions. If you subscribe to the idea, “Buy the rumor, sell the news,” then you probably would have bought the EUR/USD (and sold the USD/EUR) in the hours leading up to the news release and then dumped it (and even opened the opposite position) immediately after the news announcement. Alternatively, you might not have any opinion on the data itself and might merely be interested in a volatility play. In this case you could place simultaneous buy and sell orders slightly above and below the consolidation channel (indicated by the red horizontal lines in Figure 7-10). With the use of a *One-Cancels-Other* trade (which will be explained in Chapter 9), your trading platform will automatically open a position for you, depending on the direction of the breakout. If the breakout is to the upside, then the buy order will be triggered and the sell order will be cancelled, and vice versa is true for a downside breakout. Of course, if you set your bands too close together, you run the risk of falling victim to a false breakout, as in Figure 7-10.

Basic Options Strategies

The main source of appeal for options boils down to leverage. For most securities, the ability to make

long/short bets without having to buy/sell the security itself is a huge benefit. For example, with $25,000 you could only afford 40 shares of Google stock, assuming a current share price of $630. Alternatively, you could buy 2,500 Google call options for $10 each, and achieve significantly larger gains if the share price increases than if you had merely bought the stock itself. Given the open availability and low cost of leverage in the forex market, however, options really aren't much of a perk. Any retail trader can buy a $100,000 block of currency with a modest amount of equity capital. For this reason, options represent only a small part of forex activity.

At the same time, traders prize options for their flexibility and unique structure. *Hedging*, for example, is a risk management strategy designed to limit losses. In options parlance, hedging usually means taking on a secondary position to minimize losses from a primary position. For example, let's say that you have an open position consisting of 100,000 units of EUR/USD and the current spot price is 1.30. In order to protect yourself from a downside move, you could buy *put options* for an equivalent amount of currency at a strike price of 1.25, thereby limiting your potential losses to 500 PIPs. You might be wondering why you shouldn't just input a stop-loss order instead, which would achieve the same purpose. The answer is that a put option will not automatically exercise while a stop-loss order will. In other words, if you take out put options and the EUR/USD falls to 1.24 before rising to 1.40, you will be able to capture all of this upside. Conversely, you would have irrevocably locked in a 500-PIP loss with an equivalent stop-loss order. The difference, of course, is that put options cost money (money that could otherwise have been used for your spot position) while a stop-loss order is free. In addition, as retail forex brokers do not typically offer currency options, trading them requires a separate account and a separate platform. This may prove to be more trouble than it's worth.

Still, options are conducive to a many types of unique forex trading strategies, many of which are simply impossible to execute in the spot market. My favorite is the *straddle*. A long straddle involves the simultaneous purchase of call and put options, such that profit is earned if the spot currency price rises *or* falls significantly. The long straddle is basically a volatility play that is based on the expectation that the price of a given currency will fluctuate significantly. Which way it moves is irrelevant—just as long as it is a big move.

Let's imagine that you were looking at a real-time chart of the USD/MXN (as depicted in the first panel of Figure 7-11) and observed that the pair has been ranging wildly over the last few months. While you know that a slight correction is already underway, you aren't sure whether it will continue or whether it will swing upward suddenly. The only thing you feel relatively certain of is that it will continue to move in big swings. The pair is currently trading at 13.70 (indicated by the dotted red line in Figure 7-11), and you zero in on the 13.60 call and 13.80 put option (whose strike prices are also indicated in Figure 7-11), both of which are conveniently trading for 0.10 each. In order for you to earn a profit, the price will need to rise or fall by at least 20 basis points so that you can earn the premiums back. You calculate that if it breaks above 13.90 or below 13.50 (outside of the gray envelope), you will be in the black. As can be seen from Figure 7-11, it ultimately does so on several occasions, providing good opportunities to profitably close out your options position. With a long straddle, your maximum loss is equal to the combined premiums that you paid for the two options.

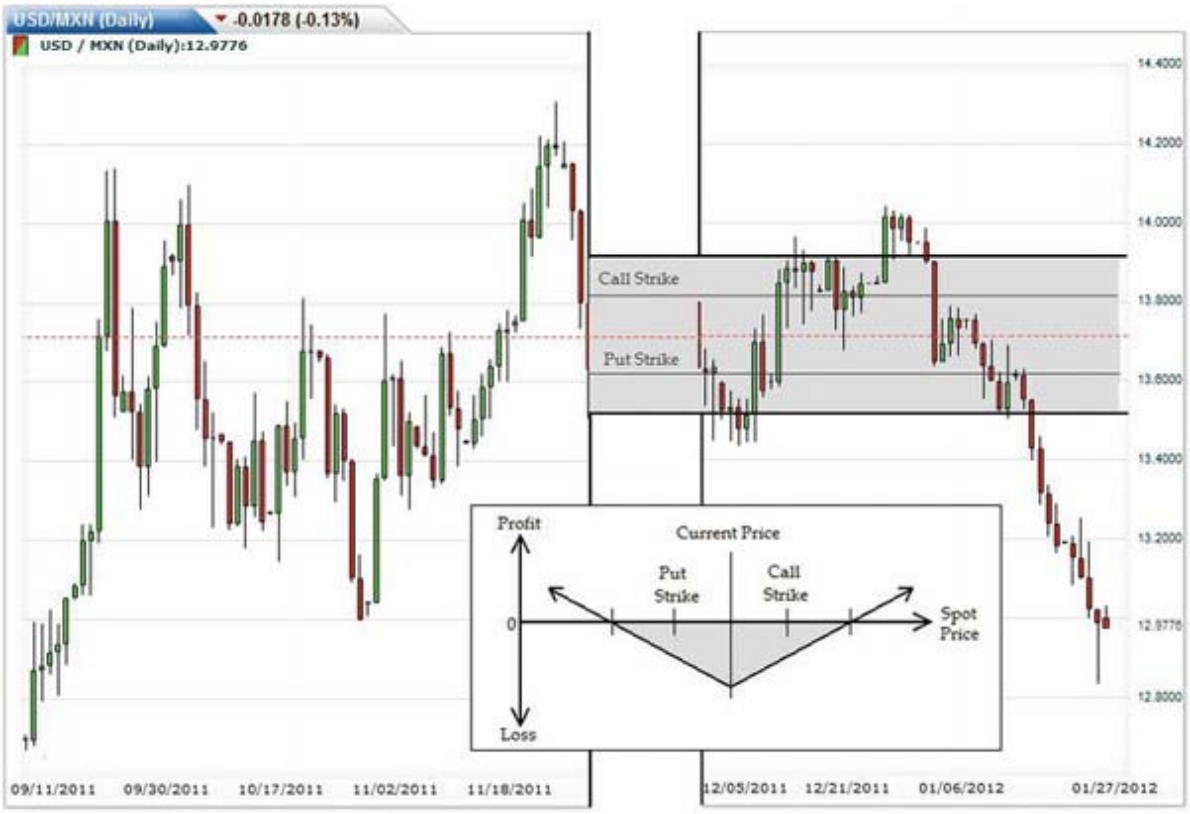


Figure 7-11. Hypothetical options long straddle strategy and theoretical P&L chart

A *short straddle*, meanwhile, is based on the same concept but executed in reverse. The goal of a short straddle is to profit from a lack of volatility by simultaneously selling put and call options. For example, let's say that the USD/JPY has traded in a very tight (not volatile) range over the last two months, as indicated in the left panel of Figure 7-12. As long as it remains range bound, you can lock in profits by selling a 77.10 put option and 77.70 call option. Then, you can sit back and wait. In a nutshell, if the USD/JPY price is within the gray area when the options contracts expire, then the trade will be profitable. To close out the position prematurely, you must buy the options back at market prices. As with a long straddle, potential profits and losses will vary accordingly. It's that simple.



Figure 7-12. Hypothetical options straddle strategy and theoretical P&L chart

At the same time, there is no free lunch. Currency pairs that are less volatile will have smaller premiums while currency pairs with greater volatility will command proportionately higher premiums. You can play around with different strike prices and expiration dates, and most options trading platforms can automatically generate potential profit and loss charts so that you can forecast how the impact on the underlying spot price (which is what you are ultimately watching) will affect the profitability of your options positions.

As I indicated in Chapter 2, hedging and straddles represent only the tip of the iceberg. There are dozens of basic options strategies, hundreds of combinations of strategies, and an infinite number of actual trades that you can make. For better or worse, however, options tend to exist in their own separate world. As a result, in addition to monitoring movements and volatility levels in the spot market, options traders must also have a nuanced understanding and specialized knowledge of their own market. In short, those of you that are interested in trading currency options would benefit from purchasing a book devoted exclusively to that subject.

Leverage and Position Sizing

The final step of executing any forex strategy involves figuring out how much to buy or sell. Consider, first of all, that the minimum position size is $10,000 for a micro lot and $100,000 for a standard lot. As a result, most traders will have to develop a certain amount of comfort with leverage. At the same time, leverage is expensive. I've already discussed how leverage can amplify gains and losses, but I also need to emphasize the fact that leverage magnifies transaction costs. With 20 times the leverage (i.e., $5,000 equity for a $100,000 trade), for instance, a trader can expect to spend 0.2% to 2% of account equity on a single round-trip trade. That might not sound like much, but it can quickly add up after a series of losing trades. From Figure 7-13, it should immediately be clear that trading a currency pair with 100x the

leverage where the spread is 5 PIPs is extraordinarily risky. While leveraged transaction costs will seem trivial on winning trades, they magnify the pain of losing trades.

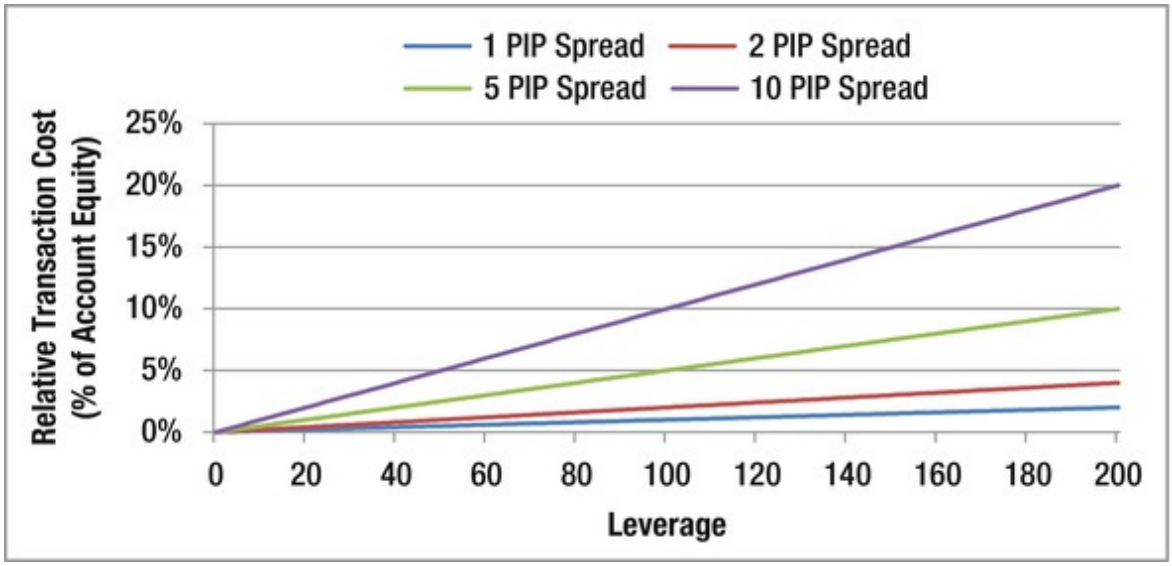


Figure 7-13. Relative transaction costs (as a percentage of account equity) increase in proportion with leverage

In the end, position sizing is more of an art than a science and depends on many factors, including risk tolerance, confidence, and strategy. Those that have a long-term outlook may feel more comfortable risking more of their account equity on individual trades. On the other hand, holding multiple open positions at the same time requires smaller positions and/or increased leverage. Those that like the possibility of scaling into losing trades while keeping leverage at a reasonable level should plan to open smaller initial positions. Also, it's better to be safe than sorry. If, after acquiring several months of experience, you feel confident in your strategy and approach to trading, you may wish to experiment with greater leverage and larger position sizes.

Conclusion

As with analysis, strategy can be as simple or as complex as you desire. The most basic strategy involves the opening of a long position that you ultimately close (hopefully, not at a loss!) with an offsetting trade. More sophisticated traders will incorporate scaling and different types of orders into their trading plans as part of a risk management strategy. They may trade over multiple time frames or trade many different types of securities together as part of an integrated cross-market strategy. Whether you decide to move up the ladder of complexity and sophistication will depend on both how much success you achieve and the amount of time that you are prepared to devote to trading forex.

CHAPTER

8

Opening an Account
How to Select a Forex Broker, and Set Up and Fund a Trading Account

The retail forex industry is still in its infancy, especially relative to stock broking and banking. These days, who expends that much mental energy when contemplating opening a new savings account? Most people simply select the nearest bank with competitive deposit rates. Finding a broker is similarly an afterthought for many aspiring forex traders. After all, a skilled investor with a good strategy should be able to profit regardless of which broker happens to be executing his trades, right?

Nevertheless, selecting a forex broker is a decision that should not be taken lightly. Consolidation has not yet swept through the forex brokerage industry, and the sea of brokers is still vast. There is a wide gulf between the best and the rest.

In this chapter, I will offer a detailed guide for selecting a broker. I'll present an overview of the most critical features you should examine before making your selection, including cost indicators, services, and technological considerations. Finally, I'll provide step-by-step instructions for opening and funding your very own trading account.

What Kind of Broker?

Before we get ahead of ourselves, you first need to decide how you will engage the forex market. Simply, will you trade currencies directly in the spot market, will you trade derivatives (such as options or futures) or will you trade indirectly through Exchange Traded Funds (ETFs)?

Online Discount Broker

For those of you that intend to invest in currencies sparingly and over the long term, as part of a diversified portfolio, it's probably easier to trade forex through a generic securities account. If you already have a trading account, you can begin investing in currencies right now, through ETFs (or even in actual currencies). You won't even need to fill out any additional paperwork. You should be able to access a list of tradable ETFs through your existing trading platform. Simply select the one that appeals to you and is consistent with your financial profile, and begin trading!

If this will be your first account, it makes the most sense to choose an online discount broker. There are perhaps a few dozen such brokerages that allow you to trade stocks, mutual funds, ETFs, and sometimes even options at very low commissions. The majority of them are no-frills websites that spend very little on marketing and suffer from poor brand recognition. However, they compensate for this in terms of rock-bottom prices and fast execution. Investors that feel more comfortable with a brand-name brokerage can choose from Scottrade, TD Ameritrade, E*Trade, Charles Schwab, and Fidelity Investments.

Personally, I'm partial to Scottrade (my IRA account is held there) because I like that they have both a strong online presence and a vast network of more than 500 branches. This means that I can execute trades online, but I can also have questions resolved in person or over the phone with a broker that I have personally met. Despite this perk, Scottrade still only charges $7 per trade.

Then there is Fidelity Investments, which offers competitive commissions and margin rates, as well as access to exclusive research reports, managed accounts, and other analytical tools. It also gives regular investors access to more than 17 international markets denominated in 12 different currencies. (Recall

from Chapter 1 that investing in overseas capital markets also offers indirect exposure to forex.)

Charles Schwab, TD Ameritrade, and E*Trade meanwhile have tried to distinguish themselves through the sheer breadth of securities that they offer. Having begun as simple equities and mutual fund brokers, all have since expanded into options, futures, bonds, and even currencies. Their main selling point, then, is an integrated platform through which to trade a variety of different instruments.

From the standpoint of aspiring forex traders, TD Ameritrade offers the broadest array of products. Thanks to its 2009 purchase of *thinkorswim*, it now offers accountholders access to 14 forex futures contracts and more than 100 spot pairs, which are made up of 25 different currencies. The downsides are a lack of liquidity (especially in spot trading), execution delays, and an unfavorable margin policy.

E*Trade, meanwhile, offers several dozen futures products and approximately 54 spot forex pairs. Its commissions are competitive, and it provides discounts and access to advanced software to active trades. It also has a physical branch network, though as the first major online broker, it is most famous for its Internet presence.

Through its acquisition of *optionsXpress* in 2011, Charles Schwab became the latest to join the fray of one-stop online brokers. While its platform doesn't support spot forex trading, it does offer 17 different currency futures contracts, as well as a handful of currency options products. Unfortunately, as this book goes to press, optionsXpress remains a separate but affiliated company, which means that existing Charles Schwab accountholders would need to open a separate account to take advantage of the broker's currency products.

Online Futures Brokers

For those of you who expect to engage forex primarily through futures and options, there are a large number of online brokers that specialize in derivatives contracts. Especially for those who already trade futures contracts (such as commodities or interest rate futures), you are probably aware that forex futures and options can be traded from the same account. Specialized futures brokers typically offer the lowest commissions, fastest execution times, best liquidity, and overall best value for active futures traders.

The CME Group, which is the largest futures exchange, lists more than 120 brokers in its online directory, 15 of which are given the "preferred broker" designation. Not including the handful that I have already profiled above, perhaps the two most worthy of mention here are Interactive Brokers and TradeStation.

The breadth of products offered by Interactive Brokers is simply incredible; from structured products to corporate bonds, and everything in between, you'll find the investment vehicle that's right for you at this brokerage. It is plugged into every major exchange on the planet, which means that liquidity is deep for products that aren't even offered by other brokers. Its sophisticated trading software will search around for the best deals and slice orders up in order to optimize execution time and price. Its FXTrader platform supports trading in 17 different currencies, with liquidity provided by 13 major banks and spreads as low as 1/2 a PIP. It offers 15 different types of orders to facilitate advanced trading strategies, and its software enables analysis and simultaneous trading across multiple asset classes, such as spot forex and currency futures. The downside is that rock-bottom pricing is only possible due to a rock-bottom level of service. Only serious, self-directed traders should apply!

In contrast, what TradeStation lacks in breadth (only 34 currency pairs) and liquidity (higher spreads than pure forex brokers), it makes up for in service and technology. Its industry-leading trading software supports backtesting strategies using an amazing 38 years of data. Meanwhile, its proprietary Portfolio

Maestro software facilitates risk management across the full range of asset classes. It can graphically display your risk exposure and make recommendations for optimizing your portfolio allocations and minimizing your risk. Customer support representatives are available for live, one-on-one training sessions and account troubleshooting. This obvious effort to enhance the user experience should help make TradeStation a magnet for beginners and distinguish it from Interactive Brokers.

Retail Forex Brokers

Those that plan to trade currencies exclusively and somewhat regularly will probably opt to open an account with a dedicated retail forex broker. This category includes perhaps 100 brokers worldwide, about a dozen of which are *registered* in the United States.

While there is a broad matrix of criteria that you should look at when selecting a forex broker, there is one overriding factor: broker registration. You should absolutely choose a broker that is registered with its national government agency/regulator, ideally in the country where you reside. Consider that prior to the financial crisis, regulatory jurisdiction in forex was unclear, registration was essentially optional, and meaningful oversight was nonexistent. The forex spot market was rightfully referred to as "the wild west" of retail trading.

This changed in 2008, when the *Dodd-Frank Wall Street Reform and Consumer Protection Act* finally gave the Commodity Futures Trading Commission (CFTC) power to regulate spot forex trading. Every retail forex broker that intended to do business in the United States was required to register with the National Futures Association (NFA) as either a *futures commission merchant* or as an *introducing broker*. The former are understood as forex brokers. The latter operate primarily as marketing agents, referring customers to the brokers and sometimes even taking orders but never executing trades internally. Table 8-1 shows the registration status of forex firms that operate legally in the United States.

Table 8-1. NFA registration information for USA forex brokers

	NFA Member	Forex Firm	FX Dealer	Retail FX Dealer	Introducing Broker
Advanced Markets	X	X	X	X	
Alpari	X	X	X	X	
APPL International	X	X			X
ATC Brokers	X	X			X
Back Bay FX	X	X			X
Boston Merchant Financial	X	X			X
Bulldog FX	X	X			X
CMS Forex	X	X			
CitiFX Pro (Citigroup)	X				
Cobra Trading	X				X
CompassFX	X	X			X
DormanFX	X	X			
EasyForex	X	X			
EToroUSA	X	X			X
FastBrokersFX	X	X			X
Forex Club	X	X	X	X	
Forex.com (Gain Capital)	X	X	X	X	
FX Solutions	X	X	X	X	

FXCM	X	X	X	X	
FXDD	X	X	X	X	
GFT Forex	X	X	X	X	
GloCap Markets	X	X			X
IG Markets	X	X	X		
IKON FX	X				
Interactive Brokers	X				X
Interbank FX	X	X	X	X	
MB Trading	X	X	X	X	
OANDA	X	X	X	X	
PFG Best	X	X	X		
Rosenthal Collins Group	X				
Traders Choice FX	X	X			X
TradeStation Forex	X	X	X	X	
WSD Financial	X				
Zecco	X	X			X

The NFA quickly moved to bring all forex firms under its umbrella. Those that resisted were prosecuted and/or forbidden from operating in the United States. Those that accepted discovered that their decade-long party had ended. Strict capital requirements, margin rules, and various other regulations were quickly implemented. The NFA began to apply close scrutiny to all registered forex firms, and huge fines were meted out to rule violators.

Aspiring traders in the United States are strongly advised to open an account with a registered *forex firm*. (The only exception is CitiFX Pro, which is regulated by the SEC via its parent company, Citigroup.) You can verify the registration of any firm using the NFA's Background Affiliation Status Information Center (BASIC) online directory, which can be accessed at http://www.nfa.futures.org/basicnet/. Conveniently, it also includes brokers that are unregistered (denoted by "NO CURRENT STATUS"), leaving zero margin for uncertainty. This system also provides information on "enforcement actions" for all firms, as well as on corresponding fines and punishments.

If you choose an unregistered broker, you will also have to forgo the peace of mind that comes with knowing that both your equity capital is safe and always withdrawable, and that your broker is subject to government monitoring. Of course, there are dozens of brokers that are registered with Britain's Financial Services Authority (FSA) and other national financial regulatory agencies, all of which are suitable for traders in those countries. However, while agencies like the FSA in many ways perform the same function as the CFTC, the fact that your broker has decided not to register with the NFA is perhaps an indication that it cannot meet stringent US regulatory requirements. At the same time, it is inevitable that London, being a global financial capital and the epicenter of forex, would be home to reputable brokers. If you must open an account with such a broker, then so be it. All else being equal, though, I would recommend choosing a firm that is registered in your country of residence.

There are also dozens of firms with prolific advertisements and legitimate-looking websites that are registered in offshore tax havens (like Bermuda or Cypress), which is to say that that they are completely unregulated. While the allure of higher leverage (their main selling point) might seem attractive, consider that in the event of dispute or fraud, you will have no recourse whatsoever.

Fees/Commissions

The single most important criterion in broker selection for most aspiring traders is cost. Remember that the majority of forex brokers earn money by pocketing the difference (known as the spread) between buy and sell orders. It stands to reason, then, that brokers that are able to offer the narrowest spreads represent the best deal for traders.

Alas, spreads may vary across different currency pairs and over time. One broker might offer the lowest EUR/USD spread and the highest USD/JPY spread for reasons that are unclear. In addition, some brokers do away with spreads in favor of a commission-based model (e.g., a standard $4 per 10,000 trade), which can make apple-to-apple broker comparisons very difficult. Finally, there is the difficulty of securing reliable data. While brokers will boast about their low spreads in their promotional materials, they simultaneously warn in the fine print that these sample spreads may not be accurate!

The best way to get an idea of potential spreads is by opening a demo account (or two or three), which should be supplied with the same live quotes that actual accountholders have access to. Alternatively, FXIntel.com offers real-time data on spreads (measured in PIPs) for all of the major brokers and currency pairs. Users can check a box to include commissions and can view real-time spread comparisons for specific currencies, as in Figure 8-1. (Please note that this screenshot is for illustrative purposes only and should not be considered current.)

Forex Broker	EURUSD	GBPUSD	USDJPY	USDCHF	EURJPY	EURGBP	USDCAD	NZDUSD	AUDUSD	EURAUD	EURCHF	GBPCHF	GBPJPY
FXOpen MT4 ECN	1	2	1	1.5	2.5	1	1	2	1.5	3	2	3.5	1
MB Trading	0.8	2.1	1.2	1.4	2.5	0.8	2.4	3.4	1.9	3.3	1	4.4	4
PFGBEST	1.2	3	1.5	2	2.3	1.1	2.4	3.6	2.6	3.6	2.6	4.2	4.4
FXCM	2.3	2.5	2.5	3.1	3.2	2.2	3.4	3.5	2.8	4.2	2.5	4.5	4.8
Divisa Capital	0.4	2.2	0.9	1.9	1.9	1.5	2.5	2.2	2.1	4	1.5	4.8	3.5
Interbank FX	2	3	2	3	2	3	4	4	3	8	2	4	6
IKON GM Royal	2	3	2	3	2	3	4	4	3	8	2	4	6
ATC Brokers MT4	0.6	1.2	0.5	1	1.1	1	2.5	2.3	1.5	2.9	2	3.4	2.9
FXDD	2	4	3	3	4	5	5	5	3	8	4	9	9
Windsor Brokers	2	3	2	5	3	3	3	4	3	8	3	7	7

Figure 8-1. Live, streaming forex spread matrix (Source: FXIntel.com)

When researching different brokers, you should also look into any fees. If you are trading regularly and don't require any special assistance, such fees probably won't affect you. Still, some brokers charge inactivity fees, wire fees, telephone execution fees (for orders that need to be executed manually during server crashes), currency conversion fees, etc., all of which you should be aware of before you open an account.

Broker Type

There is an important distinguishing characteristic among brokers that many traders (and brokers) like to draw attention to: execution system. Specifically, brokers use different systems for sourcing quotes and filling orders, and every broker insists that its model is absolutely the best one. Some brokers use *dealing desks*, in which orders are manually filled. Dealing desk brokers may take opposing positions from their clients rather than matching up the buy and sell orders from other traders. Spreads are typically fixed, and discrepancies may appear between broker quotes and the interbank market. Other brokers rely on straight-through processing (STP) systems, in which orders are executed through third-party liquidity providers. Finally, brokers that are plugged into Electronic Communication Networks (ECN) facilitate direct trading between their accountholders and third-party traders and banks.

All of the systems have arguable strengths and weaknesses. In theory, the dealing desk model could create conflicts of interest, since a broker's gain might be furthered by clients' losses. The ECN model, meanwhile, should most closely resemble the interbank market, though by its very nature it requires a commission-based fee structure.

Unfortunately, there have been a number of recent scandals and lawsuits in which firms were accused of

misrepresenting claims about the transparency of their execution systems. Suffice it to say that each model is only as good as the moral standing of the broker.

This truth is confirmed by client profitability data. Every forex broker is required by the NFA to release the percentage of its accounts that are profitable in any given quarter. All else being equal, traders should achieve comparable profitability, irrespective of the broker.

Unfortunately, this is not the case. By comparing the data, it is possible to determine whether one execution model is indeed superior. You can see from Figure 8-2 that OANDA—which uses an ECN system—was the industry leader in every quarter in 2011. Meanwhile, Forex Capital Markets (FXCM), which claims that its non-dealing desk model is one of its strongest selling points, is near the bottom of the pack. While both FXDD and FX Club use dealing desks to execute trades, client profitability is significantly stronger for the former. In short, there is not a compelling case for choosing one broker over another on the basis of execution system. The size of the broker, the fairness of its trading platform, and the strength of its liquidity relationships will more significantly affect profitability for traders.

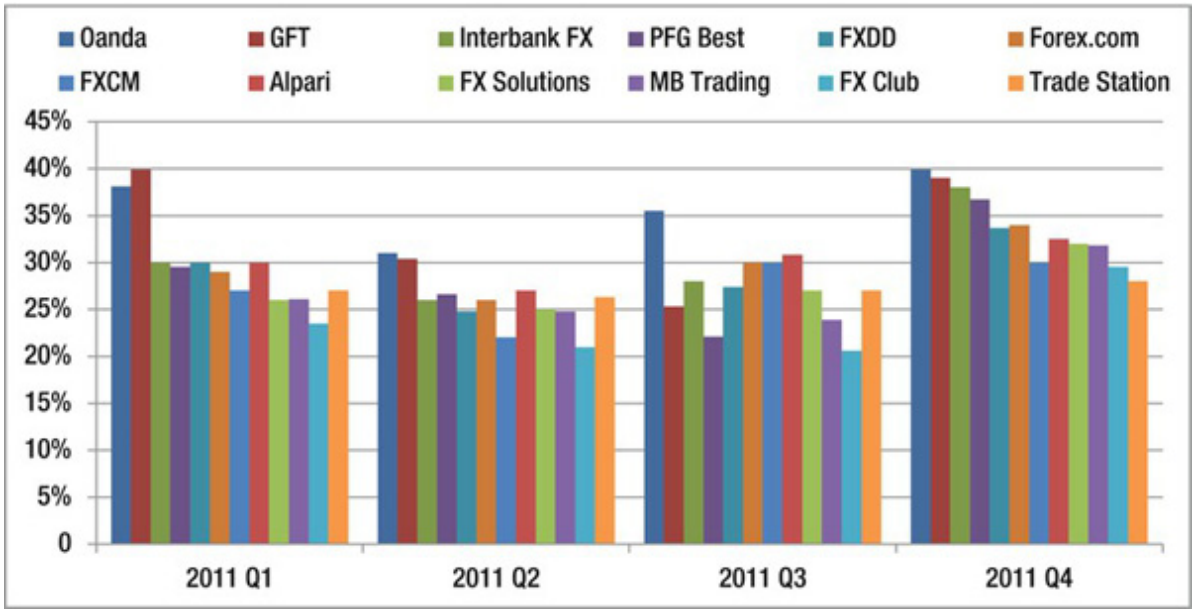


Figure 8-2. Percent of forex broker accounts that were profitable in any given quarter (Source: NFA)

Margin Policy

In order to be successful in swing trading, you must develop some comfort with leverage. A loan from your broker will enable you to open larger positions than you would otherwise be able to afford. In return, your broker expects you to post collateral, which is known as margin and expressed as the inverse percentage of the maximum amount that your broker will lend you. In the United States, leverage is now capped at 50:1 (2% margin) for major currencies and 20:1 (5% margin) for exotic currencies. (Non-US brokers may still offer leverage of 100:1 or greater.)

In Chapter 9, I will offer a detailed overview of the mechanics of margin, but for now, I just want to offer a gentle reminder that you should investigate your broker's margin policy in advance. Find out: How does the broker calculate interest? Is interest charged on intraday positions or only on overnight positions? Can traders earn interest—where the differential between the long and short currency is positive—or is interest always debited from accounts, regardless of the differential? When will a *margin call* be triggered? Will the broker close positions without first notifying you and giving you the

opportunity to add funds to your account? You may also want to compare margin/rollover rates among brokers, as there may be substantial disparities.

Service, Software & Everything Else

Here is where your broker really has a chance to impress you. The best brokers should also have the best service. Online chat and help lines that are open 24/7 are practically de rigueur in retail forex. Brokers that don't offer such a perk may need to work harder in other areas to distinguish themselves. You shouldn't hesitate to make use of this feature, especially when you are still in the process of selecting a broker. Do the customer service representatives seem helpful? Knowledgeable?

How many currency pairs do you expect your broker to offer? If you intend to trade exotics, are the spreads reasonable? Does your broker maintain requirements for minimum account balances? How many years of operating history does it have? How many accountholders? How much volume does it transact every month? Does it guarantee stop orders?

Lastly, you should examine and test out every broker's analysis and trading software. Due to unbelievable technological advancements and computing power, there is very little need for noninstitutional traders to pay extra for trading programs. While every broker will offer a solid baseline software package, their platforms may differ substantially in quality and usability. You should undertake to answer the following questions: Does the broker have a proprietary platform or does it use the same generic program as its competitors? Does the platform integrate with other software? Is the platform user-friendly yet sophisticated? Are profits and losses calculated in real-time? Is mobile trading supported? Does it provide free access to proprietary research and trading ideas? Are there streaming business news fees? Are better perks offered free of charge to premium accountholders?

Finally, what is the broker's reputation among other traders? You should browse the dozens of forums and broker review websites and try to understand the experiences and level of satisfaction of other users. (See Appendix for more information.) If many traders seem to share a similar gripe—such as slow execution and price slippage—it should serve as a warning sign that a particular broker should be avoided.

Broker Overviews

In the pages that follow, you will find separate overviews of a handful of the most popular forex brokers. I have mainly limited inclusion to those that are registered with the NFA and operate in the United States, but I also featured one UK broker for the sake of comparison. While this list is not exhaustive, it nonetheless includes most of the major players in retail forex. Those that didn't make the cut are too small, disreputable, unregistered, or generally not recommendable.

OANDA FX

OANDA is the consistent leader in client profitability rankings and is in the best position to argue that it strives to help its clients become winning traders. Due to the backing of a diversified forex parent company, OANDA FX is able to offer deep liquidity and automated execution. Settlement is instantaneous (rather than after two days), and interest is credited and debited every second, rather than once a day. Of course, the downside of this is that some margin traders will pay interest on intraday positions, which is not the case with other brokers.

Most importantly, OANDA deserves an A+ in transparency for providing information on open orders so that traders have context for entering orders and understanding the prices at which their orders are filled.

All traders receive the same spreads and execution priority, regardless of account size. OANDA also offers real-time macro-level data on which trades have been most and least profitable and on whether other OANDA traders are net-long or net-short in specific currency pairs. You can see how spreads have fluctuated over time and plan accordingly.

OANDA offers nearly 60 currency pairs (including a handful of precious metals), the latest software, and several advanced analytical tools. It's no wonder that it also leads the industry in the number of accountholders.

FXCM

In 2010, Forex Capital Markets (FXCM) became the first forex broker to become a publicly listed company, bringing prestige and respectability to the industry. Unfortunately, it was also around this time that its regulatory troubles began. It was fined $2 million by the NFA in August 2011 due to *price slippage*. Basically, when prices moved against traders with open orders, their orders were executed at the lower price. When prices moved in traders' favor, however, FXCM also filled the orders at the lower price. This practice cost traders millions of dollars and generated significant profits for FXCM. In October 2011, FXCM was fined an additional $6 million and ordered to pay out $8 million in restitution to affected customers. Monitoring of its execution system was ordered for 3 years. Since its IPO, it has also been the subject of numerous class action lawsuits, alleging unfair trade practices. All of this is extremely unfortunate, as FXCM goes to great lengths to emphasize the advantages of its non-dealing desk execution system and has made this system a cornerstone of its marketing efforts.

To be fair, FXCM has received numerous awards for service and technology. Its TradeStation platform is cutting-edge and industry-leading, and features advanced charting, automated execution of trading strategies, and complete customization. Its affiliated DailyFX site is bookmarked and pored over by serious traders. It offers fractional PIP pricing (1/100,000th of one unit!) and transparent rollover rates. In short, while its regulatory history should not be overlooked, it deserves credit for its serious efforts toward reform.

GFT Forex

GFT, in contrast, has never been the subject of regulatory action, a point that is highlighted on the company's homepage. GFT also boasts about automated order execution and minimal negative price slippage, and its client profitability numbers are impressive. It offers more than 120 currency pairs and attractive spreads for all of the majors (and even a handful of exotics). In addition to its proprietary DealBook 360 software—which includes more than 85 technical indicators—it offers the gold standard MetaTrader 4 program, and both are free of charge. GFT has also made a commendable effort to attach itself to some of the most famous names in forex analysis, including Boris Schlossberg and Kathy Lien. Their daily commentary (available on FX360.com) and free research reports are a must-read for those looking for inspiration.

GFT offers four different types of accounts, and it awards certain perks to those that maintain higher balances. *Platinum* accountholders with more than $250,000 in equity capital receive four streaming news feeds, waived fees, more favorable rollover rates, and free use (for six months) of GFT's proprietary technical analysis software. Its powerful Foresight-A.I. is an algorithmic trading tool designed to time entry and exit points, while its prized DiNapoli D-Levels are customized technical indicators used by professionals. In short, GFT is a solid choice, especially for those that are well-capitalized.

Forex.com (Gain Capital)

Forex.com is another publicly listed forex company that has been targeted by regulators. In 2010, it was fined $459,000 by the NFA for abusive margin, liquidation, and price slippage practices, and was ordered to pay restitution to traders that were adversely affected.

On the other hand, it has a strong global presence, deep pockets, and impressive liquidity. The average trade is executed in 0.06 seconds and 99.4% of trades are executed in less than one second. All quotes are live and ready for automatic execution, rather than requiring confirmation from a third-party liquidity provider. Its instant execution mode ensures that market orders are executed favorably. Given that Forex.com's internal quote system is almost perfectly symmetrical with the interbank market, it should come as no surprise that 100% of limit orders are filled at or better than the prices requested by its customers.

Forex.com offers attractive spreads for 50 currency pairs through both web and mobile trading. Its proprietary platform, FOREX Trader Pro, supports automated strategies and customization of its features. For traditionalists, MetaTrader 4 and eSignal are both offered free of charge. Forex.com improves on the customer service of its competitors by offering free online consultations with market strategists who gauge your experience and critique your approach to fundamental and technical analysis/strategy. Thanks to this emphasis on service, Forex.com remains a popular choice for new traders.

Saxo Bank

Saxo Bank is not unlike Interactive Brokers. Both offer a broad suite of investment products that go well beyond forex, including stocks, bonds, futures, and contracts for difference (which are similar to futures, but prohibited in the United States). It offers an incredible 160 currency pairs and even 40 currency options of both the plain vanilla and binary versions. It is also the only major broker that I know of that offers trading in outright forex forwards. Its software is award-winning, its service is top-notch, and its reputation is stellar. It supports leverage of up to 200:1 and is especially good at accommodating high-volume traders with large account balances.

While *Platinum* accountholders will rejoice in tighter spreads and lower commissions, the average trader will probably find fault with Saxo Bank's standard spreads, which are well above average. Saxo Bank also charges commissions on all orders below $100,000. As if this weren't enough, its platform suffers from serious price slippage, which affects about 10% of all stop orders. Finally, the fact that Saxo Bank is not registered in the United States may be a deal-killer for American traders. Thus, while its one-click, integrated trading platform is a great sell, traders with multi-asset strategies might be better off opening an account with Interactive Brokers.

CitiFX Pro

After the sudden exit of Deutsche Bank FX from the forex brokerage business, Citigroup became the last major bank with a retail forex trading arm. CitiFX is unique among forex brokers in that it is regulated by the SEC, not the NFA. While it generally adheres to NFA forex regulations on leverage and other aspects, it unfortunately does not have to release information on the number of trading accounts it holds and client profitability. At the same time, there are tangible advantages to dealing with a bank. You can expect spreads to be quite narrow, since Citigroup participates directly in the interbank market. It offers strong liquidity in more than 130 currency pairs. The financial crisis notwithstanding, Citigroup has a massive balance sheet, which affords peace of mind to those concerned about credit risk. It also maintains a large research department.

All accountholders receive free access to four trading platforms and to autochartist software, which can be used for trend confirmation. (More on this in Chapter 9.) Elite traders may qualify for a free Reuters

workstation, as well as discounts on commissions. In short, for traders that are still concerned about broker ethics, CitiFX Pro is a good choice.

Interbank FX

What Interbank FX lacks for in brand recognition, it makes up for in value. Its spreads are average, but it has consistently scored well in the client profitability rankings, due perhaps to its multi-bank liquidity system for trade executions. It also scores well in transparency and publishes live data on spreads, execution time, and execution rates, even when this data is unfavorable. It was the first broker to unveil MetaTrader 5, and its innovative IBFXConnect system facilitates social trading. In this way, participants can share trading ideas and mimic the strategies of others. There is also a ranking system so that you can see how your performance this week or this month stacks up against other traders. Overall, Interbank FX is a good option for those that enjoy the social aspect of trading and are generally looking for something different in their broker.

ATC Brokers

ATC Brokers is registered with the NFA as an *introducing broker*, and all of its orders are executed through FXCM. Fortunately, ATC Brokers has been spared the enforcement issues that have dogged FXCM. Instead, its model is commission-based, and it assesses a standard $4 commission on every lot for every currency pair. ATC Brokers also supports forex futures trading (through separate accounts for regulatory purposes). Ultimately, ATC Brokers' most notable feature is its miniscule spreads, which are among the lowest in the industry and often fall below 1 PIP. Unfortunately, its NFA-registration status as an introducing broker does not require it to publish client profitability data, so we have no way of knowing whether ATC Brokers accountholders benefit from this.

Opening an Account

In addition to choosing a broker, you will also need to select an account type. First of all, do you want to open an individual account, a corporate account, or an IRA, which may be subject to different tax treatment from the IRS? Some brokers offer both standard accounts and mini/micro accounts. The advantages of using a micro account are that there is neither a minimum balance requirement nor a minimum allowable trade size. The downside of opening a micro account is that the temptation to use enormous leverage to enhance profits will be difficult to suppress. You must either get very comfortable with leverage or expect to make only a few hundred dollars per year in profit.

You will find that other brokers also classify account types based on account balance, trading frequency, and types of securities that can be traded. Some brokers will allow you to trade several different assets using one account and one platform, while others require segregated accounts. All brokers will try to entice you to commit to a more ambitious account type, using lower spreads and other perks to draw you in. My advice is to not let these marketing tools sway your decision. Trust your intuition, and don't be forced into the position of overextending yourself.

The next step is to electronically fill out the documentation that is required to open the account. Most brokers will ask you for a combination of personal, financial, and employment information. You may also need to prepare documentation that can confirm your address, such as a recent utility bill, as well as to upload scans of government-issued identification. Finally, you will be expected to agree to a litany of terms and conditions. If you haven't already perused your broker's margin policy and other terms of business, this would be a good time to do so.

The final act is to fund your account, which can be done using a debit card, credit card, or wire transfer.

On the one hand, I would recommend only funding your account with money that you could afford to lose. At the same time, initially depositing more funds will save you the trouble and personal anguish of having to top up your balance (which may be required by your broker) in the event that you sustain heavy losses. In addition, the more that you invest, the less you will have to rely on leverage. Trading data corroborates the idea that accounts with higher balances are more likely to be profitable than those with low balances. Whether this is due to skill, leverage, or other factors is unclear, but the fact remains.

Conclusion

If you followed all of the steps outlined in this chapter, you will have a funded account and already be in the position to make trades. This is it, the moment that you have been waiting for—the chance to test out everything that you have learned. The only problem is that you still don't know how to read a quote, or even place an order!

That's why I recommend that before you open an actual account, you first open a *demo/practice account* (and finish reading this book, to boot). Every reputable broker will offer you this service completely free of charge. You can initially use these demo accounts as a tool for evaluating different brokers, kind of like test-driving a car. How are the spreads? Execution? Is the software powerful and easy to use? Many brokers offer multiple platforms (usually the most up-to-date version of MetaTrader, as well as a proprietary program). At the very least, you will need to try out these different platforms in order to determine the one that suits you best and through which you will ultimately place orders and interface with the forex market.

Even after you have selected a broker and a platform, you should continue to trade with the demo account, not only to develop a familiarity with the mechanics of placing trades, but also in order to hone your strategies, backtest them, and determine whether they are profitable in real-time. Let's now take a closer look at this process.

CHAPTER

9

Account Management
Learn the Mechanics of Trading and the Art of Backtesting

When you open your trading platform for the first time, you will immediately be confronted with a dazzling array of windows, indicators, and data—as in Figure 9-1—and you will instantly realize that despite your vast, newfound knowledge of technical analysis and trading strategy, you haven't the faintest idea of how to actually place an order.

In Chapter 9, you can expect to achieve proficiency in managing both your overall account and your active positions. You will learn how to read forex quotes, place various kinds of orders, execute complex strategies, and minimize risk. You will develop a firm grasp of margin (also known as leverage), including how it is calculated, how interest is credited and debited, and how margin can lead to the liquidation of your account if used improperly. You will acquire more forex lingo than you ever wanted or even need. Finally, you will learn how to perform instant backtests on strategies that you have developed. In short, you will be able to put your forex skills into practice.



Figure 9-1. Screenshot of sample trading platform (Source: OANDA fxTrade)

Reading a Quote

One of the most basic skills in forex is the ability to read a quote correctly. Unfortunately, it will take some practice before you can expect to instantaneously absorb the information contained in forex quotes, for the very reason that they contain two assets (currencies), while quotes for stocks and bonds involve only one asset. Every exchange rate quote contains the same basic elements. The *base currency* is printed first, and the *quote currency* is shown second. In a nutshell, a forex quote tells you how many units of the quote currency are required to purchase one unit of the base currency.

Quotes for all financial instruments are organized in the form of a *bid/ask spread.* Buyers of the currency pair must pay the *ask* price, while sellers will pay the *bid* price. In practice, the bid/ask represents the rate

that your order would be filled at if you entered it right now. In the *quoting convention* used in forex, the first two decimal points are shown in small font, while the number of PIPs appears in large font. In the EUR/USD quote depicted in Figure 9-2, a trader would expect to pay 1.33365/unit to open a long position and receive 1.33353/unit to close the position. Opening a short position would net the seller 1.33353/unit and closing that position would cost 1.33365/unit. Another way to think about this is that it currently costs 1.33365 dollars to purchase one euro, while a sale of one euro would net 1.33353 dollars.

The difference between the two quoted prices is known as the *spread*, which represents the profit earned by the market maker and/or your broker. In the case of forex, the bid/ask spread is equivalent to the unit *transaction cost* for a round-trip trade, as long as there are no commissions that need to be taken into account. If not for the spread, you would be able to buy and sell for the same price, and the broker would have to find a different way to profit from the service of matching up buyers and sellers. In this case, the spread is only 1.2 PIPs (or 0.00012 units). Thus, opening and closing (whether long or short) a EUR/USD position would entail a round-trip cost of 1.2 PIPs per unit. If the position size were 100,000 units, this would equate to a total transaction cost of $12.

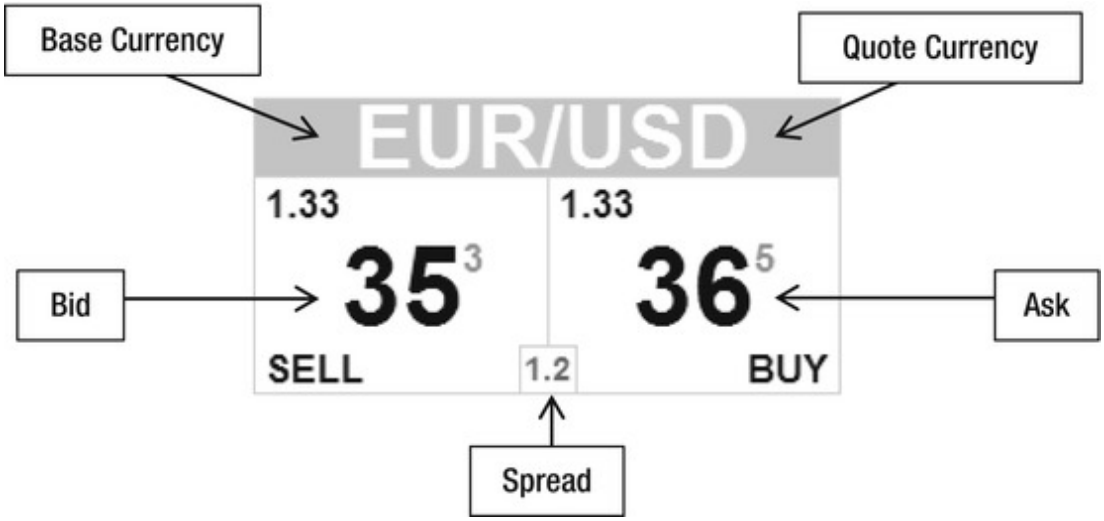


Figure 9-2. Anatomy of a forex quote

Leverage & Margin

If *leverage* refers to your broker's willingness to lend you money to fund trades that exceed the balance of your account, then *margin* refers to the collateral that your broker requires you to post in return. Failure to maintain adequate collateral has serious consequences, as we shall see.

Due to recently revised National Futures Association (NFA) rules, leverage is now capped at 50:1 for major currencies and 20:1 for so-called exotic currencies. In exchange for this leverage, you must maintain at least 2% (100/50) of your account balance as collateral for major trades and 5% (100/20) equity collateral for exotic trades. Of course, these leverage ratios are only the sanctioned maximums, and actual ratios may very well be lower. Table 9-1 shows Forex Capital Markets' (FXCM) required margin ratios for a handful of selected currency pairs and their implied leverage ratios.

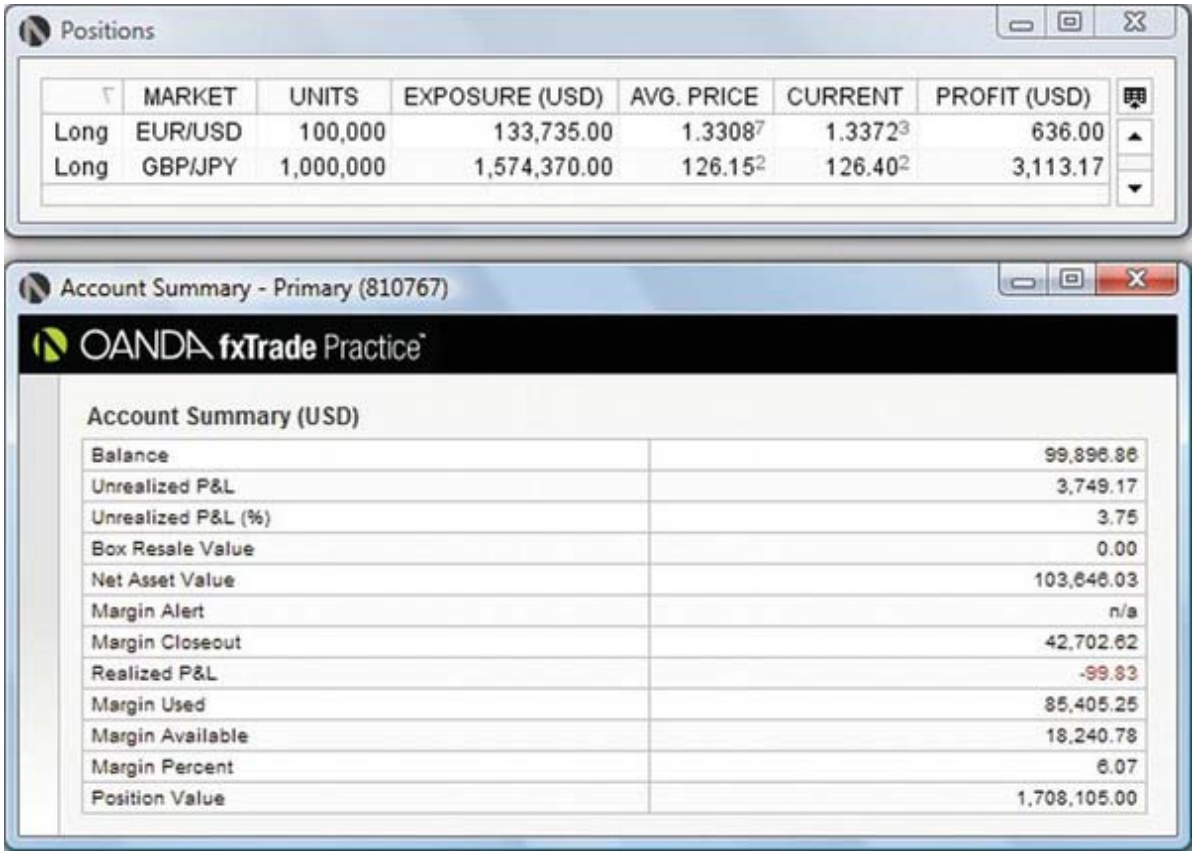
Table 9-1. Selected margin rates and implied leverage ratios (Source: FXCM)

	USD/JPY	AUD/USD	CHF/JPY	EUR/USD	GBP/USD	USD/MXN	EUR/CZK
Margin Rate	2.0%	2.4%	2.6%	3.0%	3.6%	5.0%	7.5%
Implied Leverage Ratio	50x	42x	38x	33x	28x	20x	13x

With forex, it is always assumed that you are trading on margin; you don't need to request a loan or even indicate your interest in margin. Based on the stated margin rates, your trading platform will automatically compute both your *margin used* and *available margin* in real-time. As a result, you will always know exactly how much of your equity capital is locked up as collateral, as well as the amount you have available to trade.

I'll offer a concrete example later, but first I want to introduce you to a few more terms. Basically, you can think of your account vis-à-vis a few vital statistics, all of which are accessible in real-time through your trading platform. Your account *balance* represents all of the money that you ever put into your account plus realized gains and losses from trading (from positions that have already been closed out) plus credits and debits from interest. The *net asset value* of your account, meanwhile, is equal to your account balance plus unrealized gains and losses (from positions that remain open). Finally, your *position value* represents the real-time value of all of your open positions. From these numbers, your platform can automatically determine how much *available margin* you can afford to take on, as well as the change in position value that would cause your equity to fall below margin requirements.

Figure 9-3 contains a position summary and an account summary from my OANDA demo account. I have two open positions and both of them are long. Based on the number of units and the current price of my open positions, it's possible to calculate my separate and total exposure, which is dropped directly into the *position value* cell in the Account Summary box as $1,708,105. Based on the average execution prices, it is also possible to calculate my separate and total profit, which shows up in the *Unrealized P&L* (profit and loss) cell as $3,749.17. If I were to close both positions, my unrealized profit would become a realized profit of $3,749.16 and would further be reflected in a higher *Realized P&L* value in my Account Summary.



Positions

	MARKET	UNITS	EXPOSURE (USD)	AVG. PRICE	CURRENT	PROFIT (USD)
Long	EUR/USD	100,000	133,735.00	1.3308[7]	1.3372[3]	636.00
Long	GBP/JPY	1,000,000	1,574,370.00	126.15[2]	126.40[2]	3,113.17

Account Summary - Primary (810767)

OANDA fxTrade Practice

Account Summary (USD)

Balance	99,896.86
Unrealized P&L	3,749.17
Unrealized P&L (%)	3.75
Box Resale Value	0.00
Net Asset Value	103,646.03
Margin Alert	n/a
Margin Closeout	42,702.62
Realized P&L	-99.83
Margin Used	85,405.25
Margin Available	18,240.78
Margin Percent	6.07
Position Value	1,708,105.00

Figure 9-3. Sample position summary and account summary (Source: OANDA)

My net asset value ($103,646.03) is equal to my unrealized P&L ($3,749.16) plus the account balance ($99,896.86), the latter of which is itself equal to my initial fund deposit ($100,000) plus my realized P&L (-$99.83) plus interest. (Total current interest is about -$5, which I deduced by subtracting the other known components from my net asset value.) If I closed all of my open positions and closed my account tomorrow, I would receive a check from OANDA in the amount of $103,646.03; this is how much my account is currently worth.

Here's where it starts to get tricky. Based on OANDA's required margin rates, the platform has automatically calculated my margin used ($85,405), which in this case equals 5% of my total position value. If you subtract the margin used from my net asset value, you get my available margin, which is $18,240.78. In other words, I have $85,000 locked up as collateral for my open positions and only $18,000 left in collateral to open new positions. Of course, this collateral can also be leveraged, such that my platform will automatically limit any new orders to about $250,000.

You may have noticed one more important number: $42,702, which is labeled *margin closeout.* This is equal to margin used divided by 2 and represents the net asset value that would trigger a *margin closeout*. In other words, if my position value drops by about $60,000, then my collateral would no longer be acceptable to cover my open positions. While all brokers' margin policies differ from one another, the result in this case would typically be a liquidation of all of my positions, an extraordinarily serious action. Because I am so heavily leveraged, a mere drop of 3.5% in the value of my positions would trigger such a margin closeout and leave me with an account balance that was depleted by 60%!

Even before the margin closeout, the decline in my net asset value would have triggered a so-called *margin call*, which is a warning that I no longer meet even basic margin requirements. It conveys that

unless I deposit more funds or sell some of my open positions, a margin closeout will be unavoidable. Even if my net asset value remains above the *margin closeout* level, most brokers will still order liquidation after 5 to 7 consecutive margin calls, which are typically issued daily. In Chapter 10, I will come back to this topic, but for now, let this serve as a reminder of the pitfalls of leverage!

Rollover

Recall from our earlier discussions about the carry trade that every currency has an associated interest rate. When the base currency in a pair has a higher interest rate than the quote currency, then the interest rate differential is said to be positive, and a long position should accrue interest to the investor. With a short position, in this case, the trader would pay interest.

In practice, forex brokers manage this interest in the form of *rollover*. Basically, anyone that has a currency pair with a positive interest rate differential will receive a *rollover credit*, while a short interest rate differential would imply a *rollover debit*. Wider interest rate differentials imply proportionally greater rollover. These credits and debits take place automatically and will be immediately reflected in your account balance. Some brokers (such as OANDA) calculate rollover every second, while others assess it only once per day at a fixed time.

Most forex brokers maintain an accessible list of rollover rates, which are based on the short-term interest rates that they have negotiated with the banks that hold their currency on your behalf. Some brokers will quote rollover rates on specific currency pairs, while others will quote them on individual currencies and leave the math to you. In any event, rates differ—sometimes substantially—between brokers for reasons that are unclear. The rollover rates for long and short positions are usually inverted, but they are not symmetrical. In other words, while you can assume that positive rollover for a long position would imply negative rollover for a short position, the two rates will almost certainly differ.

Figure 9-4 shows the rollover rates that FXDD accountholders can expect to pay/earn for a handful of currency pairs. Rates are quoted on a long and short basis and are expressed in terms of the number of units assessed daily per $100,000 lot. For example, a long position in the AUD/CAD would result in a daily credit of $7.84 for every $100,000 lot. When you multiply 7.84 by the number of days per year (365), the product, 2.9%, represents the annualized interest rate differential that you will earn on an AUD/CAD long position. On the other hand, a long position in the EUR/TRY would punish the position-holder with a daily debit of $58 for every $100,000 lot, which corresponds to an annualized rate of -21%. As a result, if you hold this position for a year, you can expect to incur interest charges totaling a whopping $21,000! Now you can understand why the carry trade is such a compelling force in the currency markets!

CP (BC/CC)	BUY POSITIONS	SELL POSITIONS
AUD/CAD	7.84	-12.06
AUD/JPY	10.46	-15.16
CAD/JPY	0.65	-3.79
CHF/JPY	-3.25	0.00
EUR/AUD	-17.52	12.47
EUR/TRY	-58.22	6.71
EUR/USD	-1.35	0.00
GBP/CHF	0.00	-3.59
GBP/JPY	0.00	-3.14

Figure 9-4. Rollover rates for selected currency pairs (Source: FXDD)

Even if you don't use rollover rates as a basis for strategy, you must at the very least make sure that you are aware of them. A daily debit of only a few dollars might not justify a reaction. For a position that remains open for many months, however, it can severely impact profitability, for better or for worse.

Order Entry

Now that you understand margin and rollover, the next step is learning how to properly key in an order. At this point, it should not come as a surprise to you that there is more work involved here than simply clicking the "buy" button. You can see from Figure 9-5 (from the Forex.com platform) that entering in any order has several parameters.



Figure 9-5. Order entry screen (Source: Forex.com)

First of all, you must select the currency pair that you wish to trade in the *Product* field. Here, I have selected the EUR/USD. Check the *Associated Order* box if the order will impact an existing position. (Many platforms will make the connection automatically.) Indicate whether you are inputting a *buy* or a *sell* order, as well as the number of *lots*. (This platform assumes units of 10,000, as shown in the *Quantity* field.)

Next, you must indicate the order type from the dropdown menu. If you select *Market Order*, then the order will be executed (instantly) at the current bid/ask rates for sell/buy orders, respectively. If you enter a S*ingle* order (often referred to as a *limit order* in equities lingo), you can dictate the price that you would like to receive, in terms of the *Order Rate* itself or the number of PIPs that it differs from the current price. In this case, I have entered a rate of 1.34332, which is approximately 30 PIPs below the current market rate, which you can deduce as 1.34032 (1.34332 – 0.0030). Henceforth, your order will be executed only if the price declines by 30 PIPs. You must also enter an expiration date (one hour, one day, and so forth) or indicate that the order is *Good Till Cancelled (GTC).*

You're probably wondering, "Why wouldn't everyone insist on more favorable rates—rather than accept the current bid/ask rates—when keying in orders?" The answer is that the further your rate is from the bid/ask, the less likely it is to be executed. In the previous example, it could take an hour for the EUR/USD price to drop 30 PIPs, if it drops at all! For some people, this is perfectly acceptable, while for others, the possibility of losing out on a good trade to save a couple PIPs might seem foolhardy. You could also enter in a price that falls between the bid/ask spread and hope for execution. For example, if the current spread is 1.3303 and 1.3307, you could try entering in 1.3306 and see if the order gets filled.

Bear in mind that some brokers will only show you the amalgamation of all of their open orders, while others will show you their entire order book. For example, imagine that your broker's order system contains all of the open orders in the order book as seen in Figure 9-6.

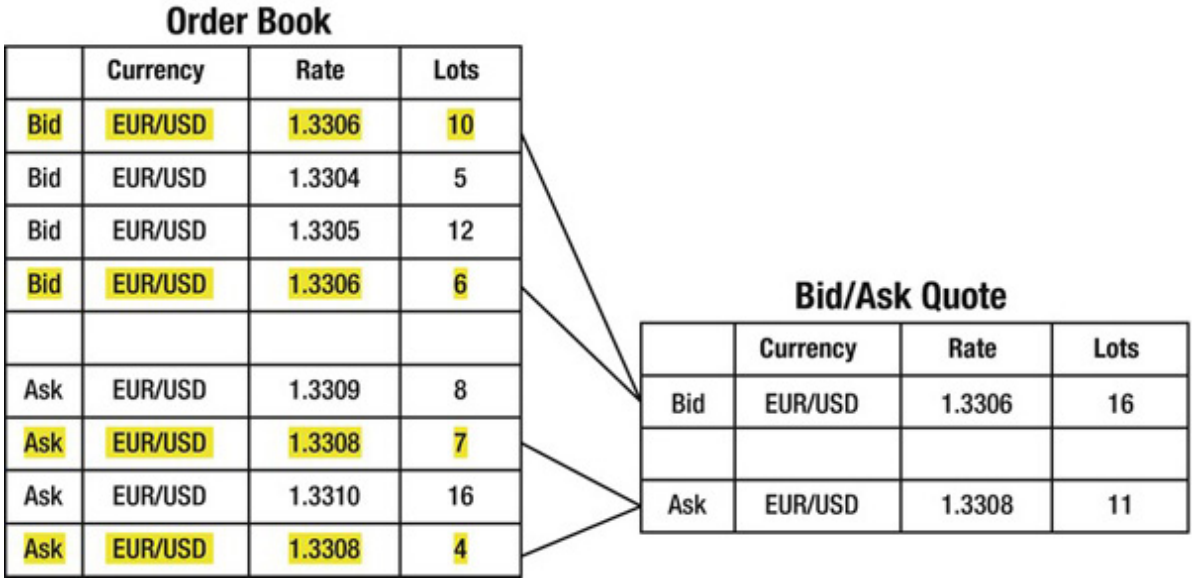


Figure 9-6. An order book is either consolidated into a bid/ask quote or displayed as is.

The majority of forex brokers will amalgamate this information into a simple bid/ask spread (like the one in Figure 9-6) that contains only the highest bid and the lowest ask. In the interest in transparency, however, there are some brokers that are generous enough to show you their entire order book. In this case, if you want to buy more than 11 lots or sell more than 16 lots, part of your order would be filled at the less favorable rate. For example, if you entered a *market order* to buy 15 lots, 11 would be filled at 1.3308 and the 4 remaining units would be filled at 1.3309. However, if you instead used a *single order* and stipulated a price of 1.3308, you would ensure that all 15 lots of your order are filled at 1.3308 or better (or not at all).

Once you have determined whether you'd prefer a market order or a single order, simply click the *Submit*

Order button, and your order will move into your *Open Orders* folder. As soon as it is executed (instantaneously, in most cases), your order will show up in your *Activities Log* and in your *Open Positions* folder. Most trading platforms also support *one-click* order entry. By simply clicking on a quote or a price point in an open chart, you can immediately open a long/short position, saving yourself the few seconds that it takes to manually key in the order. In some cases, believe it or not, this could make a difference!

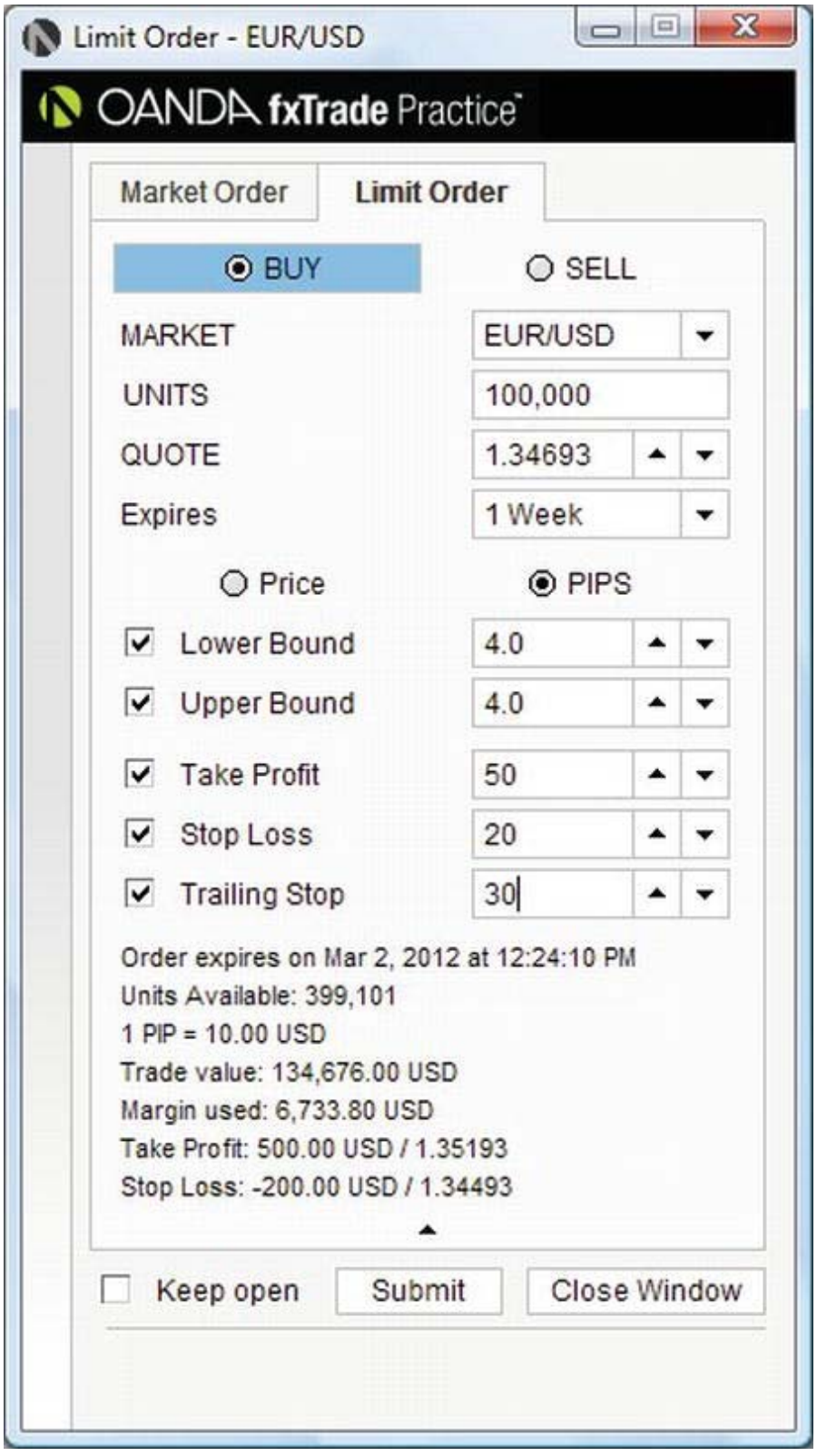


Figure 9-7. This order entry system enables simultaneous buy/sell orders and stops (Source: OANDA)

Of course, you may have noticed that there are a handful of other types of orders. Buy and sell *stops* are probably the most basic. Recall from the discussion of strategy in Chapter 7 that stops are used to lock in profits and limit losses. Some traders (especially those that plan to monitor their accounts in real-time)

may enter stops in separately, on an as-needed basis. Others may enter them in as soon as they open their positions. Some order entry systems, like the one shown in Figure 9-7, were specifically designed to facilitate this latter tactic.

In fact, this particular platform is incredibly well designed, since you don't need to manually calculate stop rates. Simply enter in the number of PIPs at which you would like to *Take Profit* and/or the number of PIPs that you will *Stop Loss*. You can even specify a *Trailing Stop*. Based on my indications in Figure 9-7, the system will automatically close out my long EUR/USD position if the rate rises by 50 PIPs or falls by 20 PIPs. In addition, as long as the EUR/USD rate rises, my trailing stop will automatically adjust to 30 PIPs below the most recent high, superseding my original stop order. For example, if the price rises by 50 PIPs, from 1.3469 to 1.3519, the system will automatically adjust my stop to 1.3499. If the price rises further, my trailing stop will adjust proportionately. If the price falls from this level and breaches 1.3499, my trailing stop will likewise execute automatically.

There are a handful of other order types (some of which can be seen in the drop-down menu in the order entry screen depicted in Figure 9-5), and some of which are only available through certain brokers or advanced platforms. A *One-Cancels-Other* order is exactly as it sounds: two orders are entered simultaneously, and if one is executed, then the other is automatically cancelled. For example, let's say that you have a theory that the EUR/USD is due for a breakout, but you're not sure of the direction. You could indicate a One-Cancels-Other order that either executes a buy if the EUR/USD rate increases 30 PIPs or executes a sell if it falls 30 PIPs, whatever happens first.

An *If-Then* order, meanwhile, involves the entry of two simultaneous orders, but the second order will only go into effect if the first order is executed. This can be seen in Figure 9-8. I have entered an *If-Then* order for the EUR/USD that will execute a buy only if the price first falls by 30 PIPs and secondarily if the price falls by an additional 30 PIPs from that level. This latter *stop* order will protect me from incurring big losses if the EUR/USD slides below the level that I have anticipated.



Figure 9-8. An example of an *If-Then* order (Source: FXCM)

Autocharting

In order to become a successful trader, you may also want to take advantage of some of the other tools on your trading platform. The *autochartist* feature, for example, is adept at picking up on technical patterns in charts, as seen in Figure 9-9.



Figure 9-9. Autochartist tool (Source: FXCM)

You can see how my trading platform has identified dozens of such patterns and catalogued their respective directions, time intervals, and quality, among other aspects. In the EUR/CZK chart that is displayed on the right-hand side of Figure 9-9, you can see that the autochartist tool has identified a possible Ascending Triangle. It is evidently of good quality and clarity, and the autochartist suggests that the pair is due for an upswing.

Backtesting

Perhaps the most innovative tool available for your use is the automated backtester. In an earlier era, technical analysts had to manually apply their theories to historic price data in order to determine their validity. Even well into the 2000s, computerized backtesting was slow, complex, and only available to institutional investors with deep pockets and powerful computers. Nowadays, you can simply pull up the backtesting tool and either open a pre-defined strategy or develop your own customized strategy. Next, key in your preferred currency pair, time interval, start date, and end date. Click on the *Backtest* button, and voilà! Data is immediately forthcoming! In Figure 9-10, you can see the results of a six-month backtest I performed on the EUR/CHF.

The purpose of my backtest was to determine whether an exponential moving average (EMA) crossover strategy would have been profitable for this pair at a daily interval over the designated time period. You can see from the many buy and sell arrows in the chart that each time the EMA crossed over the moving average, the computer initiated a hypothetical buy or sell order. After tallying the results of all of these trades, the program determined that this trade was net profitable. (Total profits exceeded total losses, and percent profit was positive.)

For those that are quantitatively inclined, the backtest also computes a handful of performance metrics. The average monthly return for each of your trades can be generated as well as the standard deviation (also known as volatility) of this return. The program can also calculate about a dozen ratios, which are designed to assess whether the strategy performed well from a risk-adjusted standpoint. In other words, if

the total return from the strategy was large (but the variability of that return was also high), then the strategy isn't all that robust. For example, if my strategy generated an annualized return of 25% (not bad!) but the return fluctuated wildly between -25% and 75%, then the risk-adjusted return is actually quite low. The *risk-to-reward ratio* is the most basic of these ratios and simply compares gains to losses. The *Sharpe ratio* compares the total return to volatility, while the *Sortino ratio* compares the total return to the volatility in downside movements. (The logic behind this last ratio is that a currency pair shouldn't be punished for upside volatility.) As can be seen in Figure 9-10, my strategy produced an overall profit but negative risk-to-reward ratios and Sharpe ratios. In short, I should probably tinker with this strategy so that it maintains a similar level of profit but at a lower risk.



Figure 9-10. Backtesting window within trading platform (Source: FXCM)

I cannot stress the usefulness of the backtest tool enough. As you can see, it's both complex and intricate and may take many practice attempts before a backtest can be performed quickly and comprehensibly. Still, if you take the time to become fluent in both the process and the concepts that I introduced above, you will find the backtest to be an invaluable aid in developing trading strategies. Think about it. Why would you want to speculate about whether a strategy *seems* viable when you can definitively establish whether or not it is, as well as the extent to which it actually was profitable? Take the time to work through the software and test out customized strategies over different intervals of time. You may be surprised to see how results differ when you tweak the parameters of your strategy only slightly.

Finally, if you feel confident in your strategy, you can consider automating it so that your trading platform automatically executes buy and sell orders on your behalf each time the conditions of the

strategy present themselves. Of course, there are certain downsides to using such an approach, as we'll discuss in Chapter 10.

Conclusion

You should now have a working knowledge base for using your trading platform, managing your account, placing orders, and fine-tuning your trading strategies. Unfortunately, this is only the starting point, and practice makes perfect. Familiarize yourself with all of the tools that your platform makes available. Customize the layout in a way that is most useful to you. In order to avoid sensory overload, deselect all of the unnecessary windows and indicators. Create customized chart templates and indicators, and practice using the autocharting software. Develop a handful of different strategies and backtest them. Begin to monitor economic indicators and other fundamentals that will play a role in your trading strategies.

Before trading with real money, you should spend weeks (or even months) with a demo account. In this way, you can practice keying in orders and get a feel for order execution. Try to maintain discipline, even though there aren't real consequences for failed trades. Eventually, you may get to the point where you feel comfortable using the trading platform and your trades are generating net profits. Then—and only then—should you consider transitioning to a real account.

CHAPTER

10

Pitfalls and Risks
Understanding the Risks of Forex and the Mistakes that New Traders Make

While I've tried to offer a balanced portrayal of forex, I think it's natural that readers and aspiring traders will still have a rosy view of it. After all, investors have been known to have tremendous overconfidence in their own abilities, even in the face of contrary results. By definition, you wouldn't start trading currencies unless you believed—or even expected—that you could earn a profit doing so, right?

Both because forex is a zero-sum game and because currency markets are more opaque than other securities markets, you should be aware of the risks. In this chapter, then, I'll offer an overview of what can go wrong. As a forex trader, it's important to understand that you will be vulnerable to forces both within and outside of your control.

I'll also introduce some of the mistakes that new traders make, due both to lack of experience and overconfidence. I'll explain further how you can avoid these pitfalls and the steps that you can take to minimize risk. Simply, those that aspire to succeed must internalize the old adage, "Hope for the best and prepare for the worst."

Currency Risk

The most obvious risk in any investing or speculative activity is that the market will move against you, causing the value of your position to decline. Quite simply, if you have a long position in the AUD/USD, the most basic risk that you face is that the Australian dollar will decline relative to the US dollar, immediately causing you paper losses and ultimately resulting in actual losses. In forex, this risk is especially acute because the currency market represents a zero-sum game. By definition, when one trader wins, one or more other traders must lose. In short, as a forex investor, you must accept the fact that you will lose money on some of your trades.

In fact, currency risk will always be present in any international investment. When you own—or are exposed to price changes in—an asset or security that is denominated in a foreign currency, you take on currency risk. For example, if you are an American and you buy shares in Sony, you are exposing yourself to Japanese yen risk. While Sony could boost its profitability, causing its stock prices to rise in Japan, this would be a moot development if the yen simultaneously depreciates. Figure 10-1 shows how (net positive) currency fluctuations have contributed to asset price returns over the last 12 years.

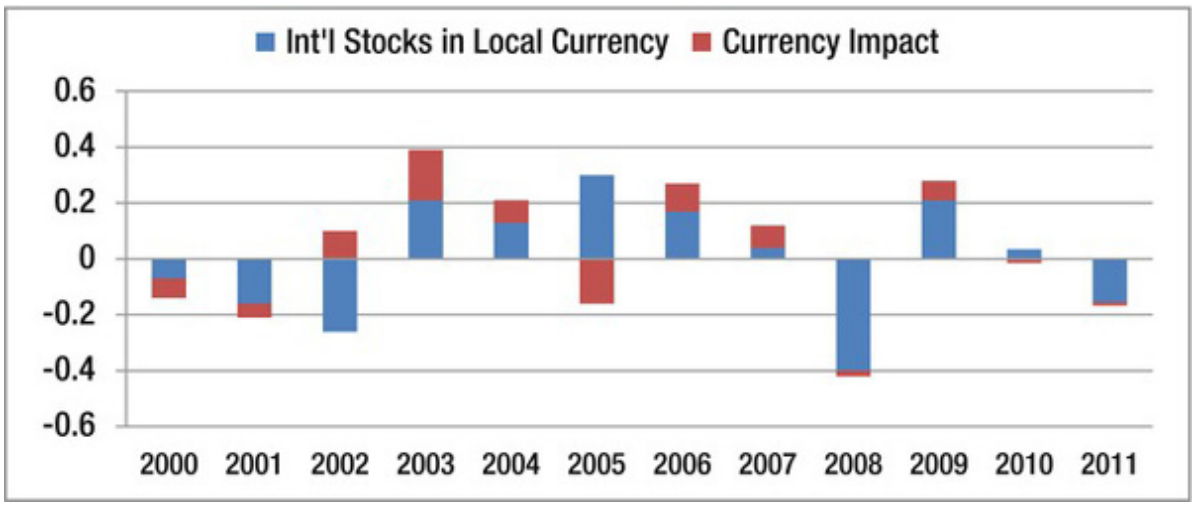


Figure 10-1. Breakdown of international returns between currency fluctuations and movements in the underlying asset price (Source: Fidelity Investments).

There are several things that you can do to limit your exposure to currency risk. First of all, you should prepare yourself for the possibility that you will lose all of the funds that you apply to currency investing. Accordingly, you should only invest money that, if lost, would not materially impact your standard of living or financial situation.

While no one in his or her right mind would plow ahead and invest in forex with the expectation of losing, it is a possibility that nonetheless must be accepted. As far as new traders are concerned, currency trading is not for the unemployed or the cash-strapped. Losing sucks, period. What would be worse than merely losing, however, is losing cash that you borrowed from your brother or that you cannot afford to part with.

Second, reduce your leverage to the smallest amount possible. When it comes to allowable leverage, currencies (and futures) are the exception in finance—not the norm. Leverage of 50:1 is not recommended, let alone leverage of 200:1. Simply, when you increase your leverage, you increase your risk. Smaller ripples in the underlying currencies will cause massive waves in your account balance, hopefully for the better, but potentially also for the worse. If you find that striving to meet your trading goals necessitates the use of excessive leverage (which I define as greater than 10:1), you should scale back your expectations, adjust your trading strategy, or wait until you have more risk capital before joining the currency trading fray.

Regardless of how much leverage you employ, you need to have a hedging strategy. For the majority of traders, this is as simple as a fixed 1% stop-loss order on all trades. Other traders may experiment with using options contracts to hedge risk, especially on long-term positions. Regardless, you need to have some method to limit potential losses. If you trade with little or no leverage and have a long-term outlook, you may not be bothered by a 5% paper loss in your position in the first month. On the other hand, if you are swing trading with 5:1 leverage, a 5% decline in the underlying currency pair would be unimaginable. By getting in the habit of using stops, you can nip any losses in the bud before they wreak havoc on your account balance.

As part of your hedging strategy, you might also consider scaling out of losing trades and scaling into positions that are in the black, perhaps with the use of leverage. Used properly, this strategy is a win-win. If your (winning or losing) position declines, you will have effectively decreased your losses. If it recovers or continues rising, your position will similarly increase in value.

Most importantly, you should always be aware of your potential exposure. If your position moved against you suddenly, what would be the impact? Is your position leveraged? Are you hedged? Can you afford this loss? These are questions that you should be able to answer at all times. A simple way to gauge your exposure is to look at the recent volatility of your currency pair(s) for the applicable time interval. Pay particular attention to volatility spikes that coincided with news releases.

In Figure 10-2, you can see that weekly volatility for the USD/CAD has averaged about 100 PIPs (1%) for more than one year and never exceeded 135 PIPs. Volatility peaked at this level toward the end of 2011 and is currently in a state of protracted decline. If you were to invest in the USD/CAD with an intended hold period of 3 weeks, your approximate risk exposure would be about 200 PIPs. While you can't rule out the possibility of large, *long-tail* moves (so-called due to their presence at the far ends of any probability distribution curve), you can nonetheless develop an idea of how much you could possibly lose if your position moves against you, and plan accordingly.



Figure 10-2. USD/CAD volatility chart can be used to gauge risk exposure. (Source: Forexticket.co.uk)

Volatility

In addition to being a useful tool for understanding risk, volatility can also be a risk in and of itself. As I have explained on several occasions already, volatility may spike around certain planned news releases. If you think that a big move is likely and you can't afford the loss that the news might trigger, close your position or scale back your leverage. Even if you aren't deliberately trading the news, you should always be aware of its potential impact on your portfolio.

Volatility is also a risk insofar as it can trigger the premature execution of stop orders. Remember that the main purpose of stops is to protect against excessive losses. However, it's possible that sudden volatility could cause the currency pair to dip below your stop level due to otherwise unremarkable fluctuations. For example, setting up a stop-loss 100 PIPs (about 1%) below your entry price might seem like solid hedging. As you can see from Figure 10-2, however, a fluctuation in the USD/CAD of 100 PIPs would hardly be considered exceptional, and placing a stop-loss at this level could automatically lead to your position being closed before the pair has a chance to rebound. The lesson here is simply to be aware of the impact of volatility on your strategy and aim to strike a balance between aggressiveness and conservativeness when configuring stop levels.

Poor Strategy

The fact that forex is a zero-sum game is clearly a liability, but from another perspective, this reality can also be viewed as a plus. Simply, there is always the possibility of generating profits, regardless of the current market environment. The failure to do so may imply faults in your trading strategy.

After excessive leverage (a pitfall that will be reiterated in Chapter 11), the biggest strategic mistake committed by novice traders is overtrading. In fact, overtrading can bring to mind any number of related mistakes. *Scalping*, opening and closing positions too quickly without adequate thought and preparation, immediately comes to mind. Another example is trading too many positions at the same time. Regardless, quantity is not a substitute for quality. Increasing the size, frequency, and diversity of your trades is a recipe for disaster, not profits. In addition, while trading different currency pairs simultaneously as part of a broad-based strategy can reflect savvyness, it also exudes foolishness. When you first begin trading, stick to a handful of currency pairs and try to hold each position for a sustained period of time. If you find that you are able to manage multiple positions without becoming schizophrenic, then you can allow yourself greater latitude. Finally, there is no rule that says you need to be in the market at all times. If the market is gyrating wildly or your strategy is not producing any clear signals, consider staying on the sidelines and playing the waiting game.

The next strategic pitfall that stymies many beginner traders involves an overreliance on someone else's strategy. Especially when you are first starting out, you may be enticed by advertisements that promote managed accounts, signal services, and robots, because of the fantastic profits that they promote. In my opinion, you should view such promises skeptically; if it seems too good to be true, it probably is. Ask yourself: Why would someone with a profitable trading system sell it to the public when he could just as easily keep it—and the chestful of profits that it purportedly generates—to himself? In short, blindly using systems that trade for you or merely provide trading ideas are not recommended. If you want to be a successful trader, you need to educate yourself and practice. If you aren't confident enough or comfortable with the risks to trade on your own, buy a managed or passive ETF or mutual fund. It's that simple.

The same goes for the thousands of technical reports and free signals that are published by most forex portals and forex brokers on an intraday basis. For novice traders, there is a real danger of information overload. These reports may contain a few nuggets of wisdom but probably also contain a handful of haphazard stabs and filler. Treat these ideas as you would any other source of information, as mere factors in your overall trading strategy. Before trading on the tips of others—regardless of their credentials—scrutinize them closely and backtest whenever possible.

As Albert Einstein once said, "the important thing is not to stop questioning." While this advice probably wasn't in reference to forex strategy, the fact remains that a diligent, probing trader is a good trader. Market conditions are always changing, and so should your strategy continue to evolve. I mentioned earlier that I have interviewed many professional traders that recorded their most profitable trades during the credit crisis, a period when the markets went haywire and all previous trading wisdom was thrown out the window. Forget trading signals and robots. Ask them what their secret was, and they will tell you that the years they spent educating themselves and trading beforehand enabled them to accurately and confidently assess the prevailing conditions—whatever they may be—and to trade accordingly.

Forex Addiction

Many of the pitfalls that I discussed above are merely a manifestation of an underlying disorder: *forex addiction*. I'm not using this term tongue-in-cheek. Trading forex (or any other security, for that matter) has many properties that make it addictive: immersive environment, fast pace, large amounts of money on the line, and so forth. For those that are looking for an escape from the daily rigors of life, stimulation in an otherwise dull routine, or a vehicle for diverting compulsive gambling tendencies, forex offers an easy outlet. It's available 24 hours a day from the privacy and convenience of your home. Best of all, it's completely legal.

Sadly, if and when you reach the point of actual addiction, it will already be too late. You will have

ceased being accountable, even to yourself. You will trade compulsively and randomly, over very short time periods. You will trade with ever increasing amounts of money (and leverage), even as your account balance dwindles. You will become irrationally hopeful that a big win is just around the corner and fail to heed the warning signs and learning opportunities that come with losing trades. You probably won't quit until your account balance falls below the sanctioned minimum or you have mentally hit rock bottom, or both.

There are a handful of steps that you can take to avoid becoming addicted to forex. First of all, limit the amount of time that you spend trading forex or even thinking about forex. Make an effort to trade over longer time frames and, in turn, make fewer overall trades. Don't trade in thin markets, and don't feel compelled to have an open position(s) at all times. Spend more time doing research and planning strategy than executing trades. Try to set reasonable trading goals and quash any hopes of windfall profits and fabulous wealth. Approach forex from the standpoint that it is a business—not a game.

If you can't sleep at night because you are mulling your losses, if you feel compelled to monitor all of your open positions in real-time, if you find that your trading habits are becoming less disciplined and more idealistic, you should take some time off. In the end, if you ever reach the point where you *depend* on forex for your emotional well-being, you need to walk away and/or seek professional help.

Broker/Credit Risk

The next category of risk that I want to elucidate is not as easy to hedge: *broker risk*. Bank accountholders have the FDIC. Equity traders are guaranteed recourse by the Securities Investor Protection Corporation (SIPC) and the Securities and Exchange Commission (SEC). If HSBC or E*Trade went bankrupt tomorrow, the US government would by and large protect your money and investments.

Unfortunately, the same cannot be said for forex, which lacks a centralized marketplace and a clearinghouse (for retail trades). You must simply put your trust in the integrity of your broker and hope that the execution prices that you receive are fair and in line with actual market movements.

Since the financial crisis, the NFA has made great strides in regulating the forex industry. All brokers are held to strict standards and must meet specific registered capital thresholds. Complainants are finding that restitution is forthcoming in cases of clear malpractice. Still, the fact that such malpractice remains rampant speaks volumes about the state of the industry. Lawsuits have alleged flagrant improprieties that strike at the very core of the way in which forex brokers operate. Spreads are still somewhat arbitrary, and execution is far from transparent, even among the most reputable brokers. Liquidity may dry up during news releases, and *slippage* (in which orders are filled at prices worse than indicated quotes) is common, even among reputable brokers. If your broker declares bankruptcy, you will simply have to get in line with everyone else as an unsecured creditor and pray for the return of the funds in your account. It doesn't exactly inspire confidence that, in their risk disclaimers, most brokers won't even vouch for the information on their own websites and that they disavow all responsibility for the repercussions of any inaccuracies.

Among unregistered and offshore brokers, the situation is almost certainly worse. They probably engage in *front-running* (by trading their own accounts in advance of your orders) and may even manipulate trading, targeting your stop levels in order to lock in your losses. Given the abundance of Ponzi schemes and other scams that have been uncovered in the financial industry since 2008, it wouldn't surprise me if certain unregistered brokers were also *bucket shops*, pretending to execute orders without actually doing so. With these brokers, you will find that it is easy to deposit funds but nearly impossible to withdraw them.

At least there are now established channels for seeking redress in cases of broker malfeasance. If you encounter any questionable activity, the first step is to contact your broker. If that fails, you should file a formal complaint with the Commodity Futures Trading Commission (CFTC). The NFA also has an arbitration program, which has been known to mete out reparations to wronged accountholders. Even the court system has become amenable to accountholder rights, as evidenced by several class action lawsuits against brokers in recent years.

Ultimately, the best way to protect oneself is to open an account with a registered broker. Beyond that, just try to be vigilant. I know it's asking a lot to suggest that in addition to monitoring the markets and plotting strategy, you should also monitor your broker. If you have the opportunity, check FXintel.com from time to time to make sure that your broker's spreads are consistent with its competitors. If you suspect impropriety, check out some forex forums (see Appendix) in order to ascertain whether other traders have similar suspicions. If you are at all uncertain, don't hesitate to contact your broker and even the CFTC or NFA if necessary. You'd be surprised that they care about your opinion.

Online Trading Risk

The final few risks to trading forex are more mundane but no less serious. First, there is online trading risk. The advantage of trading through an online platform is convenience. The disadvantage is that when your platform becomes unavailable, you will be vulnerable to losses. In the event of a power outage, Internet disruption, or server error, you will be unable to open new positions or close existing positions electronically. While this sounds far-fetched, most brokers acknowledge that their platforms crash from time to time. Mobile trading platforms take convenience to the next level but may still have some bugs and lack the same array of features offered by your desktop platform.

As part of your framework for risk management, you should plan for this possibility. If you have stops in place, you may be unaffected. Either way, you should make sure that you have your broker's phone number handy so that you can make orders by telephone if need be. Make sure that your Internet connection is stable, and use a surge protector to protect your computer from electrical disruptions.

Interest Rate/Rollover Risk

Interest rates can strongly affect the profitability of your account. Most currency pairs are characterized by interest rate differentials, which generate rollover debits and credits for the position holder. Sometimes these differentials are quite small (less than 1%), which may be the case when a pair contains two major currencies. However, differentials can also be quite large, which is common in pairs that involve emerging currencies. In these cases, rollover may exceed 5% on an annualized basis. If you factor in hypothetical leverage of 5:1, this would be equivalent to $2,500 per year on a $10,000 account. Such a windfall would be cause for celebration, as long as you've opened a long position in the currency with the higher interest rate. If such a large amount of rollover were being subtracted from your account balance, however, you probably wouldn't be so happy.

The best way to protect yourself against costly rollover debits is to monitor them constantly and make sure that you are aware of any interest rate changes. If you have a long position in a currency pair for which the differential is negative (or a short position on a pair with a positive differential), you should make sure you understand the resulting impact on your account balance. In this case, you will lose money every day that the pair doesn't appreciate. On the flipside, you should understand that there is no free lunch in rollover. The theory of interest rate parity suggests that a positive interest rate differential (i.e., rollover credit) should eventually be accompanied by currency depreciation.

Country/Political Risk

The final risk in forex is that the country that prints each currency ultimately gets to decide how that currency can be exchanged. Governments can and do manipulate the money supply and impose rules that may be unfavorable to currency investors. They may engage in policies that spur inflation and impose capital controls that tax all short-term (currency) speculation. Central banks may intervene in forex markets without warning, causing exchange rates to jump by hundreds of PIPs or more. In some cases, there are difficulties in selling the currency (such as the Chinese yuan), while for other currencies there are doubts as to whether they will even continue to exist (namely the euro).

As a retail trader, there really isn't much that you can do to guard against the possibility that a currency will structurally depreciate or even disappear. Instead, pay close attention to political developments and relevant news releases so that you can anticipate potential changes before they happen. You may want to (temporarily) avoid dealing with currencies for which there is a large degree of uncertainty.

Conclusion

As should now be clear, the risks in forex are real and numerous. The currencies themselves carry risk. Your broker carries risk. The central bank and monetary authority that issued the currency is a risk. In the end, however, all of these risks can be alleviated. Ironically, the one liability that is most difficult for you to hedge against is yourself. In Chapter 11, the final stop on this educational journey, I will look at this risk in more detail and offer some guidance on how to maximize your chances of success and avoid becoming just another sad forex statistic.

CHAPTER

11

Successful Investing
Practical Measures and Intangible Skills That Distinguish Good Investors from Bad Traders

It is an incontrovertible fact of forex that the majority of traders lose. Anecdotal evidence suggests that most traders fail fast and fail big, emptying their accounts just as quickly as they opened them and moving on to other pursuits. While this reality is certainly lamentable, it suggests that a select group of traders must be achieving some degree of consistent success.

In the previous chapter, I offered an overview of the risks that are unique to currency markets, as well as the accompanying pitfalls that ensnare traders. In this final section, these pitfalls will be turned on their heads and seen from the collective standpoint of those that manage to avoid them—and earn consistent profits doing so.

I will close this saga with a discussion of investor psychology—not the kind that moves the markets, but the kind that will ultimately impact whether you win or lose in forex. In the end, it isn't luck that will see you through your first day, your first month, and your first year of trading, but discipline and even a little bit of virtue.

A Final Note on Leverage

I have already gone to great pains to convey the dangers of over-leveraging your trading account. Spend a few minutes browsing forex chat rooms, and you will be inundated with horror stories involving too much leverage. Do not kid yourself into thinking that you will be exceptional. Hedge funds and banks, with deep pockets and access to inside information, failed en masse during the credit crisis due in no small part to about 35:1 leverage. Simply, if you trade with excessive leverage, you will almost certainly come to regret it.

Part of the blame rests with the regulatory authorities and the brokers themselves for even tempting traders with miniscule margin requirements. Even at 50:1 (reduced from 200:1), maximum leverage levels are still inappropriately high. This point is underscored by Table 11-1, which shows how equity capital declines exponentially with leverage as a result of consecutive losing trades. Based on these parameters, after eight consecutive losing trades, your account balance will have slipped by a modest 2%. With 50:1 leverage, however, your account balance would have fallen to 67% of its original level after only three losing trades. And this assumes that you had enough sense to cut your losses after a mere decline of 25 PIPs (an equivalent decline of only 0.25% on a major currency pair)!

Table 11-1. After consecutive 25 PIP losses (on positions involving major currency pairs), equity capital declines in proportion to leverage.

Consecutive Losses	Leverage 1:1	5:1	10:1	20:1	30:1	40:1	50:1	60:1	70:1	80:1	90:1	100:1
1	99.75	98.75	97.50	95.00	92.50	90.00	87.50	85.00	82.50	80.00	77.50	75.00
2	99.50	97.50	95.00	90.25	85.50	81.00	76.50	72.25	68.00	64.00	60.00	56.25
3	99.25	96.25	92.75	85.75	79.25	73.00	67.00	61.50	56.25	51.25	46.50	42.25
4	99.00	95.00	90.25	81.50	73.25	65.50	58.50	52.25	46.25	41.00	36.00	31.75
5	98.75	94.00	88.00	77.50	67.75	59.00	51.25	44.25	38.25	32.75	28.00	23.75
6	98.50	92.75	86.00	73.50	62.75	53.25	45.00	37.75	31.50	26.25	21.75	17.75
7	98.25	91.50	83.75	69.75	58.00	47.75	39.25	32.00	26.00	21.00	16.75	13.25
8	98.00	90.50	81.75	66.25	53.50	43.00	34.25	27.25	21.50	16.75	13.00	10.00

Remaining Capital (%)

As I explained in Chapter 8, there are certainly advantages to trading with more equity capital. Namely, you won't need as much leverage, which means that you can actually do a better job at controlling risk. However, forex is ultimately a high-risk activity, and you should only invest money that you can afford to lose. Rather than risk unaffordable losses, you would be wise to trade a mini or micro account (which require less leverage) until you have a substantial amount of money saved up and can meet the equity capital requirements to open a standard account. Remember that minimum balance and margin requirements are marketing tools that are used by brokers to generate more business from hacks that really have no business trading forex. If you only have $50 (the minimum required by some brokers) set aside to trade forex, do yourself a favor and simply wait.

To drive this point home, let's look at three hypothetical traders with varying amounts of trading capital, per Table 11-2. With only $50, Trader A is limited to a *micro account*. With $4,000, Trader B opts for a *standard account*. With $5,000, Trader C can afford a standard account, but he opts for the *mini account* instead. All three traders are new to forex and decide to err on the side of caution when placing their first order.

Table 11-2. Three hypothetical traders experience varying losses on the same position, as the result of having selected different account types.

	Trader A	Trader B	Trader C
Trading Capital	$50	$4,000	$5,000
Account Type	Micro	Standard	Mini
Minimum Transaction Value	$1,000	$100,000	$10,000
Leverage	20:1	25:1	2:1
100-PIP Loss on Position	($10)	($1,000)	($100)
% Loss of Trading Capital	20.0%	25.0%	2.0%
% of Trading Capital Remaining	80.0%	75.0%	98.0%

Having opened the same long EUR/USD position, all three traders suffer losses when the pair declines by

100 PIPs. Despite employing the minimum amount of leverage required by their account balances, both Trader A and Trader B experience devastating losses. As a result, they will have to take on even larger leverage on future trades, and they may never even reach the breakeven level. Trader C, meanwhile, experienced only modest losses, in relative terms, and will live to trade again.

Demo Account

All forex traders (especially those with short time frames) should spend weeks or months honing their skills and fine-tuning their trading plans with a demo account. You can test out different strategies and see what works and what doesn't. You can experiment with automated trading strategies risk-free. You can implement different kinds of risk-management systems and gauge their effectiveness.

You should set goals for your demo account and move on to a real account only upon reaching those goals. For example, only when 7 out of every 10 trades are profitable, or only when you have achieved a monthly return of 5%, or only after you are consistently clearing 100 PIPs per winning trade will you allow yourself to put real money on the line. In short, you should delay the transition to a real-money trading account until you are supremely confident that forex trading will be a gainful pursuit for you, and not one minute earlier. Given that many forex brokers offer demo accounts that never expire, there is truly no rush.

Of course, you must make sure that you understand that demo account trading will be very different from trading with an actual account. The currencies and the spreads are the same. Your strategy will generally be the same. What's different is that when real money is on the line, you will learn how quickly confidence can give way to fear. For me, the best analogy is Ping-Pong. When going through warm-up volleys, I find that I am both aggressive and confident, dominating my opponent. When the game begins, and points are suddenly on the line and my ego hangs in the balance, I inevitably shrink into defensive mode and allow my opponent to beat me through attrition. The point is that when there is something at stake—whether victory in a Ping-Pong match or your risk capital—it is much more difficult to stick to a plan and remain even-keeled. As a result, you should establish higher thresholds for profitability with your demo account. A win rate of 55% with a demo account may be equivalent to 45% in a real account—the difference between success and failure. If you find that you can't handle the stress of a real account and your performance has worsened significantly compared to your demo account, you should take a step back. If you need to return to your demo account, then so be it.

Plan Your Trade and Trade Your Plan

Perhaps the only forex adage more commonplace—and clichéd—than "The trend is your friend" is "Plan your trade and trade your plan." Here's another one: "If you fail to plan, then you may as well plan to fail." Simply, establishing a trading plan is one of the easiest and most effective steps toward maximizing your chances of success and minimizing the impact of inevitable failure along the way. The overarching purpose of a trading plan is to instill discipline and consistency into your daily trading activities. By adhering to the same system every time you make a trade, you can effectively limit the corrosive role of emotion and quickly determine the cause of any losses.

Over the last ten chapters, I have introduced many of the elements of a successful trading plan. Here, I want to offer a more formal methodology. You should begin by answering the following question: What is your goal in trading forex? At the end of the day, investors of every stripe are financially motivated, some undoubtedly more so than others. Do you want to earn $15,000 per year? Perhaps you are aiming for a compounded monthly return of 5%? Or maybe your goals are measured in PIPs, as in 10 PIPs per trade, or 100 PIPs per week?

Make sure that your goals are reasonable (also known as achievable) and are consistent with your financial parameters. In other words, if your goal is to make $15,000 per year, make sure that your trading account is funded with at least $50,000. If you are aiming for 100 PIPs per week but you only to intend to place 1–2 trades per month, it will be difficult to achieve your goal. If your goal is 10 PIPs per trade, understand that a substantial time commitment will be required if you want to earn meaningful profits.

The next step is to clearly plan out your trading strategy or trading system. As I explained in Chapter 7, your system may be extremely fine-tuned and based on specific technical or fundamental indicators. For example, your trading system might be based on a moving average crossover or an apparent disconnect between interest rate differentials and recent price performance. Instead, you might define it in general terms, as a *backtested technical system* or a fundamental strategy, thereby giving yourself the latitude to look at specific circumstances before deciding which strategy to execute. Perhaps you might keep a few cookie-cutter strategies in your arsenal that you can utilize where applicable.

Next, you should determine the currencies—if any—that you will prioritize and the time of day during which you will trade them. To a large extent, these aspects will be dictated by strategic and lifestyle considerations. For example, if you plan to seek profits through *scalping*, you will naturally focus only on major currency pairs during the times of day when volume (liquidity) is greatest. Alternatively, if you plan to adopt a fundamental approach, you can broaden the range of currencies that you will potentially trade. Moreover, if you are planning to hold your positions for more than one week, it probably isn't necessary to limit your trading to a specific time of day.

Next, what will be your analytical approach? Which data sources will you examine, and what time frames will you use for your charts? Generally speaking, you should be able to provide concrete answers to these questions. In order to avoid data overload, you should deliberately maintain a streamlined array of analytical inputs. Perhaps the *Wall Street Journal*, central bank news feeds, and daily charts are all you need. Perhaps you like Bollinger Bands, the Relative Strength Index (RSI), and both 15-minute and 5-minute charts. In short, pick a handful of tools and stick to them. If your approach is too inclusive, you will unintentionally discover contradictory evidence everywhere you look and be burdened to the point of inaction.

This list of data inputs will dictate how you prepare for trading. For example, when you open your trading platform each day (or week) with the intention of trading, you should immediately pull up your customized charts and data feeds and begin the process of analysis. Ideally, you will discover a trading opportunity, which you can then execute according to your trading plan. Without a formula for preparation, you risk wasting your time, conducting arbitrary analysis, and even placing haphazard trades.

What about your system of risk management? Will you limit any position to 5% of available margin? 10%? Will you maintain stop-losses on all positions? At what level? Will you hedge your positions using options? Do you have a strategy for scaling in and out of your positions depending on how they perform? Along similar lines, how will your approach be impacted by scheduled news releases? Will you actively seek them out for their volatility or actively avoid them because of their unpredictability? Even if you are ambivalent about trading during major events, you should still make sure that you are aware of them. As I will discuss in greater detail later, a good risk-management system could make the difference between striking out early and being able to weather a string of losses and stay in the game for the long haul.

Finally, what behavior rules will you incorporate into your trading plan? If you expect to make multiple trades per day, you might need to establish a rule that dictates that, after 3 consecutive losing trades, you quit for the day. Perhaps you need to check your own egotism by maintaining hard stops. Similarly, if you have a long-term approach, you might consider implementing a patience clause into your trading

plan that will prevent you from closing positions at an early stage and/or overtrading. Like your risk-management system, these rules will help you maintain discipline and prevent losing trades from significantly influencing the viability of your approach.

Remember that there are no cut-and-dried rules for developing a trading plan. Some traders prefer to work backward, using their trading capital and lifestyle considerations to set goals, rather than the other way around. In any event, the important thing is to make sure that your approach to forex is internally consistent and that you have confidence in your plan. If you find that you aren't achieving success with your current trading plan, you should first confirm that you are in fact steadfastly adhering to it. If in spite of unadulterated loyalty to your trading plan, you are still consistently losing money, then—and only then—should you set about forming a new plan.

In Table 11-3, I have laid out a few hypothetical trading plans. As for which plan is the best, I can tell you that I personally prefer Plan 3, which is aligned with my financial goals, my personality, and my forex philosophy.

Table 11-3. Three hypothetical trading plans

	Plan 1	Plan 2	Plan 3
Goal	100 PIPs per week	10 PIPs per trade	$15,000 per year
Trading Strategy/ Criteria	Backtested Trading System	Scalping	Swing Trading
Target Currencies/ Market	EUR/USD, USD/JPY, GBP/USD	High volume/volatility	Any currencies
Time Frames	Hourly Chart	15-Minute Chart	Daily Chart
Preparation/Data Sources	Look at Economic Calendar, Study Trend lines	Quickly enter and exit positions in currencies on the move	Compare economic fundamentals with actual performance
Risk Management Rules	1% stop-loss	Move stops to break-even when position value is positive	Max 5% of account balance on single position
Major Events	Stay out of market	Prefer	Unaffected
Behavior Rules	Avoid seeking "revenge" after losing trades	Minimize role of fear	No overtrading; only add to profitable positions

You might find that you are inclined toward Plan 1 or Plan 2, or that the plan you are conceiving is actually quite different from all of these hypothetical plans. Ultimately, beware of off-the-shelf templates (including the three laid out above!), and take the time to develop a unique plan that is molded to fit you and your needs.

Risk Management

Risk management is one of the most important components of a good trading plan. Generally speaking, risk management encompasses two goals: minimizing the size of losses and limiting the impact of losses

on your future trading.

Regardless of strategy, every forex investor will experience losing trades. While the frequency of losses will vary, even the best traders anticipate losing money on at least 1/3 of all trades. Mediocre/novice traders can expect to lose close to half of the time, which is to say they would do just as well flipping a coin in lieu of practicing solid analysis. What's worse is that losing trades may not be evenly distributed. In other words, it would be ideal if two profitable trades were followed by one losing trade, so as to ensure that one's account balance would generally follow a rising trend. In reality, however, two winning trades might be followed by four losing trades, which are then followed by six winning trades. In this case, the overall success rate might remain the same (2/3), but one's account balance would fluctuate erratically in the interim, perhaps even falling below break-even. Minimizing the practical impact of such a streak represents the crux of risk management.

Consider further that the unfortunate laws of mathematics imply that the effect of losses (in percentage terms) will be inherently greater than gains. For example, if you lose 10% on a single trade, you will need to gain 11% on your next trade in order to square your gains and losses. A record of 5% losses on 5 consecutive trades requires offsetting gains of 33%. If you are unlucky (or unskilled) to the point of losing a cumulative 80%, then you will need to rack up gains of 400% from here on simply to get back to even! This is depicted in Figure 11-1 below.

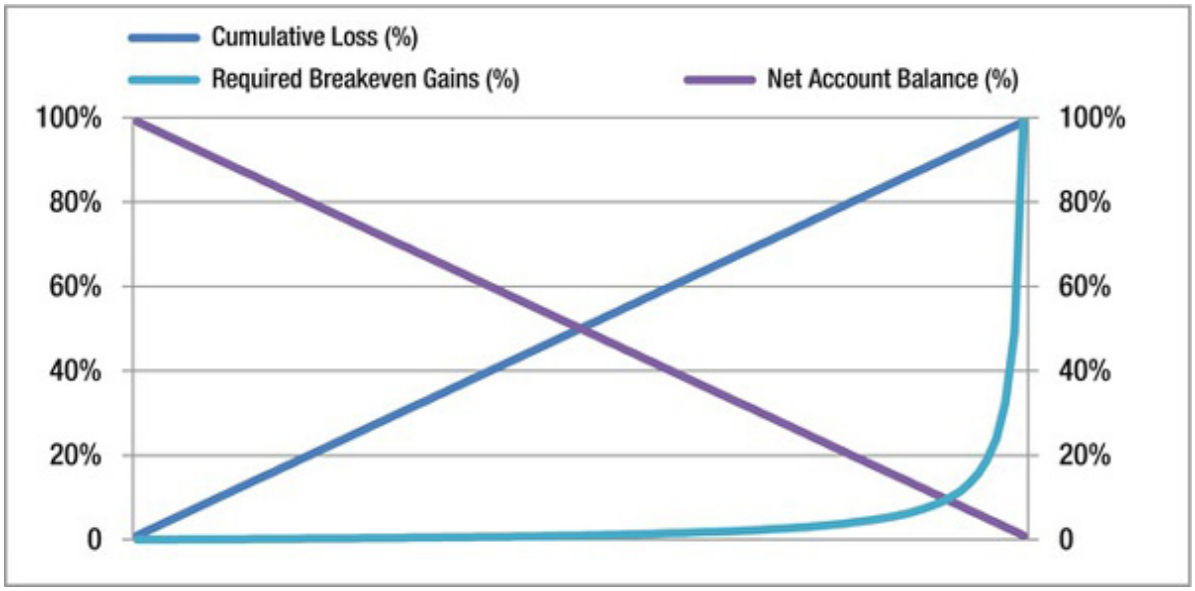


Figure 11-1. Cumulative losses result in a lower account balance and require exponentially greater gains in order to return to the breakeven level.

If you were to reach such a desperate position, you should consider quitting forex altogether—or at least taking a break or returning to a demo account. Alternatively, you should consider recapitalizing your account and making a fresh start. Failing to adopt either of these measures and continuing to trade as if nothing had happened would be both foolhardy and futile. You will probably end up risking larger amounts of money and taking on greater leverage in a vain attempt to get back to even, succeeding only in hastening the decline of your account balance.

With this in mind, you should make use of a handful of risk-management tools to make sure that your account balance never even falls to such dire levels. First of all, you should have a contingency plan (like the behavior rules outlined in Table 11-3) so that you can act quickly in the event of a string of losses or a

large decline in your account balance. Will you rethink your strategy? Take a time-out? Add money to your account? All of the above?

Second, you should minimize the amount of account equity that you place at risk on each trade. By risking 2% instead of 5%, for example, consecutive losing trades will have less of an impact on your overall account balance. Third, consider holding positions for longer durations of time, as well as raising your profit threshold for each trade. Instead of trying to earn 50 PIPs twice a day, aim for 200 PIPs once a week.

Finally, consider establishing a *risk-to-reward ratio* target. In other words, you should not only seek to record more winning trades than losing trades, but you should also aim for your average winning trade to produce a higher gain than the amount you give back on your average losing trade. For example, if you only experience winning trades 1/3 of the time but your average gain is twice as big as your average loss, than you will still breakeven overall. Seen another way, if you set a stop-loss at 1% and take profits after 2%, you will come out ahead overall, as long as you experience winning trades 33% of the time. This can be seen in the trading log depicted in Table 11-4.

You can also use this framework to calculate position sizes. For instance, if you don't want to lose more than $100 on a single trade and you seek a risk-to-reward ratio of 1% to 2%, then you shouldn't open a position greater than a $10,000 mini-lot. (A 1% stop-loss on a $10,000 mini-lot position equates to a loss of $100.)

Of course, without strong analytical skills, solid strategy, and a well-honed trading plan, you will still lose money in spite of good risk management. At the very least, however, the attrition of your account balance will be slower, giving you ample opportunity to retool, cut your losses, and even quit trading altogether before it is too late.

Trading Log/Journal

In addition to developing a good risk-management system, you should also make an effort to keep a record of all of your trades. You should dutifully write down the circumstances (date/time, currency, long/short, trigger) under which you opened and closed the position, and calculate the gain/loss, both in terms of the number of PIPs and the actual dollar amount. You should assess the success/failure of each trade and make notes about what went right or wrong. In addition, you can use Microsoft Excel to keep a running report of various performance metrics, such as net, average, and maximum gains/losses. Table 11-4 contains a hypothetical trading log, as well as a handful of performance metrics. For the purpose of simplicity, it is shown in a simplified form.

Thanks to the meticulousness of my trading log, I can already draw a handful of strong conclusions after only a few weeks of trading. First of all, I suffered two needlessly large losses (of 230 and 120 PIPs) because I recklessly neglected to put stop-losses in place for these two positions. Secondly, trading the news does not appear to be working well for me, as I managed to rack up 400 PIPs in losses over 3 trades with this strategy. Meanwhile, my technical and fundamental analysis skills appear to be equally well-honed, as both strategies were net profitable for me. In addition, I did better on long positions (plus 410 PIPs) than on short positions (-157 PIPs), though it's impossible to determine ipso facto whether this was due to poor strategy or mere chance. Unfortunately, my trading log doesn't include time data; it would be useful to know whether there was any correlation between trade duration and profitability.

Overall, only 50% of my trades were winners, but because my average win was greater than my average loss, I earned a net profit. However, my risk-to-reward ratio was a mere 1.31. This implies that every 130 PIPs that I earned entailed a risk of 100 PIPs, which is far from ideal. In addition, while net gains of 253

PIPs over 3 weeks is a respectable accomplishment, I might have fared just as well if I had only opened a handful of positions instead of 30. This was reinforced by my experience on March 23, when I managed to lose 222 PIPs on 5 consecutive losing trades, the majority of which were on the EUR/USD. Perhaps I should have cut my losses rather than vainly trying to chase the retracement that never came.

I think that there is ample scope for improvement in my performance. I already mentioned that I should stop trading the news and contemplate holding positions for longer periods of time. In addition, I might consider setting tighter stop-losses and riding out my winning positions, rather than taking profits quickly. If executed properly, this new strategy should raise my risk-to-reward ratio, allowing me to achieve greater gains with less exposure to losses.

Table 11-4. Hypothetical trading log

Date	Currency	Long/ Short	Entry	Buy Trigger	Exit	Sell Trigger	Gain (Loss) PIPs
Mar-20	EUR/USD	Long	1.3229	Technical	1.3269	Take Profit	40
Mar-20	USD/JPY	Long	83.7300	Fundamental	83.7387	Take Profit	87
Mar-21	EUR/USD	Long	1.3107	Fundamental	1.3198	Take Profit	91
Mar-21	EUR/USD	Short	1.3299	News	1.3529	Cut Losses	(230)
Mar-21	USD/JPY	Short	82.7061	Technical	82.7117	Stop-Loss	(56)
Mar-22	GBP/USD	Long	1.5862	Technical	1.5902	Take Profit	40
Mar-23	GBP/USD	Long	1.5904	Technical	1.5886	Stop-Loss	(18)
Mar-23	EUR/USD	Short	1.3109	Technical	1.3141	Stop-Loss	(32)
Mar-23	EUR/USD	Short	1.3389	Fundamental	1.3509	Cut Losses	(120)
Mar-23	EUR/USD	Long	1.3409	Fundamental	1.3375	Stop-Loss	(34)
Mar-23	USD/JPY	Short	82.3871	Fundamental	82.3889	Stop-Loss	(18)
Mar-26	USD/JPY	Long	82.3311	Technical	82.3365	Take Profit	54
Mar-26	GBP/USD	Long	1.5904	Technical	1.5949	Take Profit	45
Mar-27	USD/CHF	Short	0.9116	Technical	0.9124	Bad Trade	(8)
Mar-27	USD/CHF	Short	0.9093	Fundamental	0.9026	Take Profit	67
Mar-27	GBP/USD	Short	1.5904	Technical	1.5834	Take Profit	70
Mar-27	GBP/USD	Short	1.5949	Technical	1.5961	Stop-Loss	(12)
Mar-28	GBP/USD	Long	1.5996	Technical	1.5945	Stop-Loss	(51)
Mar-29	USD/JPY	Long	82.6079	News	82.6006	Stop-Loss	(73)
Mar-29	USD/JPY	Long	82.1954	Fundamental	82.2088	Take Profit	134
Apr-01	USD/CHF	Short	0.9027	Fundamental	0.8977	Take Profit	50
Apr-01	EUR/USD	Short	1.3166	Technical	1.3046	Take Profit	120
Apr-02	USD/CHF	Long	0.9014	Technical	0.9129	Take Profit	115
Apr-03	USD/CHF	Long	0.8971	Fundamental	0.8936	Stop-Loss	(35)
Apr-03	USD/JPY	Short	81.2957	Technical	81.2891	Take Profit	66
Apr-03	EUR/USD	Short	1.3236	News	1.3333	Stop-Loss	(97)
Apr-04	EUR/USD	Short	1.3311	Fundamental	1.3268	Take Profit	43
Apr-04	GBP/USD	Long	1.6049	Fundamental	1.6103	Take Profit	54
Apr-05	GBP/USD	Long	1.6107	Technical	1.6096	Stop-Loss	(11)
Apr-05	USD/JPY	Long	82.2770	Technical	82.2742	Stop-Loss	(28)

Total Trades	30
Winning Trades	15
% of Total	50%
Losing Trades	15
% of Total	50%
Total Gains	1076
Total Losses	(823)
Net Gains	253

Max Win	134
Max Loss	(230)
Avg Win	72
Avg Loss	(55)
Avg Payoff	17
Risk-to-Reward Ratio	1.31
Total Long Profit	410
Total Short Profit	(157)
Total Technical Gains	334
Total Fundamental Gains	319
Total News Gains	(400)

While this extended example was entirely hypothetical, it nonetheless illustrates the usefulness of keeping a trading log. If I had merely made *mental notes*, it seems unlikely that I would have been able to draw such concrete conclusions, and it would be very difficult for me to make substantive improvements. With an even more detailed trading log, meanwhile, I could likewise perform more detailed analyses of my trading habits.

In *your* trading log, you might list specific information on trading setups and rationales. The inclusion of certain additional parameters would enable you to assess whether your performance varied depending on time of day, day of week, and so forth. Perhaps you achieved better results with specific currency pairs? Maybe you could indicate the specific strategy/trading system on which you relied rather than a note that it was *technical* or *fundamental.* The more information that you collect, the easier it will be for you to make changes where needed.

Finally, you should consider keeping a trading journal, which will serve as the qualitative counterpart to your quantitative trading log. Instead of focusing on performance metrics, your journal should document your frame of mind as you enter and exit positions. What analytical tools guided your trade? How did you determine the position size? Why did you pull the trigger at the point that you did? What role did your emotions play, and to what extent did they affect the outcome of the trade? You might find it difficult to perform detailed retrospective assessments on all of your trades (another argument in favor of making fewer of them), so focus on those that were noteworthy or surprising. If possible, supplement your general thoughts with charts and specific data points. It is true that hindsight is always 20/20, and only thorough post-trade analysis will you give yourself the opportunity to reap the benefits from this hindsight going forward.

Trading Psychology

Mastering the psychology of trading and achieving control of one's emotions represents the final step in the process of becoming a successful forex trader. For those that are skeptical of the emotional aspects of trading, consider that the majority of the professional traders with whom I happen to be acquainted insist that psychological control is actually more important than a good trading system and analytical skills. Consider also that simple experiments have resolutely demonstrated that investment performance differs according to psychological makeup, all else being equal.

The most common psychological pitfalls are excessive greed and fear. Every trader—and markets in the aggregate—are ruled by these two primal emotions, and in moderate doses they are very healthy. If you allow them to reach extreme levels, however, they can disrupt your trading plan and detrimentally affect your account balance. Some examples of excessive greed are unreasonable expectations and the desire to earn outsized profits, which give rise to overtrading, high leverage, and inadequate risk management. Examples of excessive fear are root discomfort with losing and general anxiety about trading, manifested as skintight stop losses, inadequate risk-taking, and an inability to pull the trigger. The best way to curtail greed is to develop reasonable expectations, while coping with fear simply requires a tolerance of losing. In short, you will not become a millionaire trading forex, nor should you ever find yourself in the position of having to stomach unaffordable losses.

The next category of pitfalls involves excessive confidence or a complete lack thereof. Traders that are supremely self-confident may insist on proving that they are right. Repeatedly adjusting a stop-loss downward in the vain hope that your position will imminently rebound is a manifestation of this symptom. So is re-deploying the same strategy over and over again, despite the absence of demonstrable success. Traders that are overly diffident, meanwhile, have difficulty reaching the point of trusting their own trading systems. They are likely to follow trends robotically and will usually seek to trade with the prevailing market direction. They are apt to blindly follow strategies that they have read about on forums or that their favorite forex guru is promoting, without first establishing whether they are suited to their individual circumstances. Finally, they may fall victim to scams, shelling out hundreds of dollars for bogus courses and forex robots. The solution is to achieve a tempered sense of confidence. Develop your own unique trading plan, but be prepared to tweak it if evidence emerges that it is not reliable.

Then there is discipline. Simply, to succeed in forex, you must be motivated, and you must be patient. If

your analysis is rushed and sloppy, the results will speak for themselves. If you make trades arbitrarily without backtesting, your performance will be similarly random. If you spend the time to carefully develop a complete trading plan only to deviate from it at the drop of a hat, you might as well trade without a plan. Each and every trade merits meticulous preparation and attention, regardless of the frequency with which you place trades. You should never trade impulsively or exit from trades prematurely because the desired movement hasn't materialized quickly enough. In short, you should strive for discipline—in planning, in analysis, in preparation, in monitoring, in journaling—in all aspects of your approach to forex.

Ultimately, you should try to limit the role that your emotions play in forex. You will certainly feel a sudden pang of euphoria after each winning trade. While you are entitled to feel a sense of accomplishment, don't let this cloud your judgment; many traders experience their largest losses immediately following their largest gains. In addition, don't allow yourself to be overcome by feelings of revenge after one or more trades don't go your way. Trying to prove a point or get even with the market won't help your account balance recover and could ignite a vicious cycle of anger and further losses.

Just like a boxer seeks to fight without any personal animus toward his opponent, so should you approach forex unencumbered by emotion. Try to cultivate equanimity when trading. Don't allow big wins to overinflate your confidence, and try to shrug off your losses. Understand your demons and, if need be, develop behavioral rules—such as those included in the hypothetical trading plans of Table 11-3—so that you don't fall victim to the innate psychological pitfalls that I introduced earlier. Take time off when you find that you cannot manage the stress of trading or when you feel that your emotions are negatively affecting your trading. Above all, make an effort to stick to your trading plan and execute it mechanically so that emotion never even has a chance to take root.

The Business of Trading Forex

If your goals for forex are ambitious (such that it will come to represent a significant component of or even the lion's share of your income), then you should approach forex as though it were a business. In other words, you will need to adopt an organized approach. Forex should not be something that you try to squeeze in whenever you feel like it; rather, you should strive to set aside a fixed amount of time for it and work forex into your daily routine. You should dedicate time exclusively toward education and research, distinct from the time that you actually spend trading and monitoring your account. Ideally, you might want to leave such homework for the weekends, when you won't be distracted by live markets and the possibility of executing trades.

A business also requires its own space. Establish an office where personal and other external stimuli cannot penetrate. Depending on the rigor or your forex regimen, you may also want to consider purchasing a separate computer that is dedicated exclusively to forex-related activities. Forex is not like your 9-to-5 job, which is probably interrupted by your frequent checking of your Facebook account and espn.com. When your forex notebook computer is powered on, it is forex time.

Finally, you need to manage the finances of your forex business. All expenses should be dutifully recorded, and you should try to calculate the return-on-investment for all expenditures, including this book! At monthly, quarterly, and yearly intervals, you should perform a review of your account. If you maintain a trading log, you should be able to view profitability and performance metrics in real-time. Did your performance meet your expectations? If so, you should consider withdrawing a fraction of your profits from your account so that your earnings become *real* and not only digital. (So real that you will also unfortunately need to pay taxes on them . . .) If your performance was unsatisfactory, what can you do to improve it?

Remember that, as is the case with any new business, it will take time for your forex business to develop. Give yourself a reasonable time period within which you hope to achieve success. Profits will not come overnight, but with hard work, your forex business will one day be able to stand on its own two feet!

Conclusion

Who knew that forex was so complicated? To succeed takes not only analysis, but also understanding; not only planning, but also execution; not only the pursuit of gains, but also the limiting of losses. Fortunately, you are now well on your way to becoming an expert—or at the very least, toward becoming a successful currency trader.

My aim in writing this book was to provide you with a solid foundation and knowledge base for engaging with the forex markets. How you apply that knowledge is up to you. Take things slowly, and good luck!

APPENDIX

A

Online Forex Resources
The Best of the Forex Web

When it comes to forex, the Internet can be a tremendous resource. There are thousands of different forex websites offering everything from education to news to software, for free or by subscription. The list that follows has been culled from years of personal experience and represents a cross-section of the online world of forex.

Tutorials

Baby Pips (http://www.babypips.com/)

Its school of PIPsology is unrivaled in both breadth and depth and is an excellent starting point for traders that are looking for an introduction into any aspect of forex. Its portfolio of related websites, including meetpips.com, offers specialized, interactive tools for forex traders.

Currency College (http://www.currencycollege.com/)

This site offers a variety of paid course offerings, complete with homework and tests. Courses require approximately six weeks to complete.

Forex-Training.com (http://www.forex-training.com/)

This eight-step program leads traders from demo account to live account, from executing orders to exiting trades and implementing risk management.

LEARN 4X (http://www.learn4x.com/)

Led by Abe Confas, this program presentsa unique approach to trading forex, based on a blend of technical and fundamental analysis.

Cyber Trading University (http://www.cybertradinguniversity.com/)

This site offers comprehensive online training courses in stock trading, investing, options, futures, and forex, catering to both novice and experienced traders.

ForexTips (http://www.forextips.com/)

Its “Currency Building Blocks” section breaks forex down into easily manageable chunks and is great for brushing up on the basics.

Investopedia (www.investopedia.com/university)

Authored by some of the top names in forex, the Investopedia Forex Tutorial is a great starting point for anyone looking for a quick overview.

Forex Club (www.fxclub.com/webinars)

This site’s live daily webinars explain how to use various trading platforms.

Rob Booker Training (www.robbooker.com/training.html)

Helmed by Rob Booker, this site offers one-on-one forex training in a live trading environment on topics such as forex psychology, risk management, testing, trading systems, and more.

Price Action Forex Training (http://www.learntotradethemarket.com/)

Nial Fuller's course on price action forex trading is highly recommended. His website also contains many free, in-depth articles.

Forex Blogs

Forex Blog (http://www.forexblog.org/)

As the former head writer and content editor of the *Forex Blog*, you could say that I am hardly an unbiased arbiter of forex blog quality. Nevertheless, this is arguably the best source of daily commentary on fundamental analysis and industry news.

Counting Pips (http://www.countingpips.com/)

Offering a broad selection of forex content, this blog is the best resource for analysis of Commitments of Traders data and currency sentiment.

Winners Edge Trading (www.winnersedgetrading.com/forex-blog)

Casey Stubbs offers sage advice geared toward "helping forex traders see the light."

FX Madness (http://www.fxmadness.com/)

This forex blog is focused on currency crosses.

Kathy Lien (http://www.kathylien.com/)

This daily blog is from one of the most respected names in forex, and it features daily commentary, videos, and in-depth graphics.

Marc to Market (http://www.marctomarket.com/)

The head of BBH's currency department, Marc Chandler is a prolific author of astute forex commentary.

Forex Project (http://www.forexproject.com/)

This blog tracks real-time trading activity, complete with sections on self-analysis, trading logs, goals, and performance.

Other Blogs

Big Picture (http://www.ritholtz.com/)

The Big Picture is Barry Ritholtz's blog, where he shares his macro perspective on the capital markets

and the economy.

Marginal Revolution (http://www.marginalrevolution.com/)

Run by George Mason economists Tyler Cowen and Alex Tabarrok, this blog is updated daily and focuses on current events and newly released reports or books.

Econbrowser (http://www.econbrowser.com/)

This blog features analysis of current economic conditions and policy with in-depth reports and doctorate-level research.

Naked Capitalism (http://www.nakedcapitalism.com/)

Written by the head of Aurora Advisors, this blog adopts a critical view toward mainstream economic and financial issues.

Michael Shedlock (http://www.globaleconomicanalysis.blogspot.com/)

Michael "Mish" Shedlock hosts this widely read financial blog that covers global news and macroeconomic events.

Economist's View (http://economistsview.typepad.com/)

This blog contains well-researched commentary written by a professor of economics.

Zero Hedge (http://www.zerohedge.com/)

This blog's self-proclaimed mission is to "widen the scope of financial, economic and political information available to the . . . investing public" and "skeptically examine . . . the flaccid institution that financial journalism has become."

Portals

FxStreet (http://www.fxstreet.com/)

The leading independent forex portal, FxStreet is available in over a dozen languages and features a tremendous amount of content, daily webinars, and a handful of fee-for-service add-ons.

DailyFX (http://www.dailyfx.com/)

The content arm of FXCM, this website has dozens of tools, including daily commentary and analysts' picks. The DailyFX PLUS subscription comes with a trade analyzer and signal service.

Forex Cycle (http://www.forexcycle.com/)

Forex Cycle offers analysis, tutorials, trading alerts, and daily blog, with separate feeds for long-term and short-term traders.

FX360 (http://www.fx360.com/)

Led by GFT Forex Directors of Currency Research Kathy Lien and Boris Schlossberg, this site's technical analysis reports are extremely useful for understanding direction and plotting strategy.

Action Forex (http://www.actionforex.com/)

Another diversified forex portal, Action Forex is known for its *Action Insights*, and its Trade Ideas are not to be missed.

Forex Crunch (http://www.forexcrunch.com/)

Forex Crunch consists of tutorials, basics of the forex market, daily and weekly forex analysis, technical analysis, forex software posts, and insights about the forex industry; it is known for its balanced reporting.

Economic Data

Federal Reserve Economic Data (www.research.stlouisfed.org/fred2)

The Federal Reserve's Economic Data consists of 45,000 economic time series from 39 sources and dozens of countries and currencies. Go to the link noted to download, graph, and track economic data.

Commitments of Traders Report (www.cftc.gov/MarketReports)

As mentioned previously in this book, the Commitments of Traders report provides a breakdown of aggregate open interest in futures and options contracts for about a dozen currencies.

Inflation and Rate Expectations (www.clevelandfed.org/Research)

At this site, the Federal Reserve Bank of Cleveland compiles data and provides graphical snapshots on market expectations for inflation and interest rates, as well as on a variety of other interesting economic indicators.

Trading Economics (http://www.tradingeconomics.com/)

Trading Economics provides current and historical data on 300,000 indicators for 232 countries, including stocks, government bond yields and commodity prices. Complex charting and data downloads come with a subscription to this site.

Bank for International Settlements (www.bis.org/index.htm)

Its quarterly and triennial reports on forex are must-reads and are the only reputable source for aggregate data on global forex trading activity.

US Economics and Statistics Administration (http://www.esa.doc.gov/)

This governmental body releases 12 monthly and quarterly Principal Federal Economic Indicators, including most of the important ones.

OECD.StatExtracts (http://stats.oecd.org/index.aspx)

OECD.StatExtracts is another comprehensive database of economic statistics, which can be searched, viewed, and downloaded at the click of a button.

Forums/Social Media

Forex Factory (http://www.forexfactory.com/)

A diversified forex portal whose best feature is its forum, Forex Factory has a massive user base, thousands of threads, and millions of posts.

ForexForum.net (http://www.forexforum.net/)

Perhaps the broadest and deepest forex forum, ForexForum.net features threads broken into dozens of different categories.

FX Junction (http://www.fxjunction.com/)

Connect, collaborate and share with forex traders from around the world! FX Junction allows users to discuss market events and share trade ideas without switching brokers.

Forex-TSD (http://www.forex-tsd.com/)

This site offers different levels of free and paid membership to more than 150,000 members worldwide, as well as source codes for advanced indicators.

IBFX Connect (http://www.ibfxconnect.com/)

IBFX Connect takes social trading to the next level with contests and rankings, though you must trade through IBFX in order to qualify.

StockTwits (http://www.stocktwits.com/)

A financial communications platform for the financial and investing community, StockTwits organizes streams of information around stocks and markets across the web and social media.

Tip'd (http://www.tipd.com/)

This social media site is for finance, investing, and business topics.

Fundamental Analysis

Roubini Global Economics (http://www.roubini.com/)

Founded by the economist that predicted the 2008 financial crisis, this firm offers a global economic outlook, cross-asset monthly publication, scenario analysis, and central bank watch.

Forex Live (http://www.forexlive.com/)

This comprehensive forex site's forte is its economic and geopolitical analysis.

Forex Pros (http://www.forexpros.com/)

Their economic calendar is one of the best on the web and is interwoven with fundamental analysis.

FX Empire (http://www.fxempire.com/)

I enjoy reading their daily fundamental reports covering the majors.

Technical Analysis

Inner FX (http://www.innerfx.com/)

This trading blog advocates a commonsense approach to forex based on technical analysis.

Pivot Farm (http://www.pivotfarm.com/)

Based on a proprietary methodology, Pivot Farm provides exceptionally precise support and resistance levels known as *PowerZones*.

Forex Yard (http://www.forexyard.com/)

Forex Yard's streaming technical analysis analyzer is continuously updated.

Forecasts and Signals

BK Forex Advisors (http://www.bkforexadvisors.com/)

Self-proclaimed as "one of the most consistent FX Signal Services in the world," BK Forex Advisors has a historical winning rate of 70%.

AceTrader (http://www.acetraderfx.com/)

AceTrader's intraday signal service is conducive to day trades executed to take advantage of small price movements.

Open Forex (http://www.openforex.com/)

This site offers free access to forecasts and analytics with concrete trade recommendations, as well as analytics for political and economic events.

ScotiaBank FX Report (www.scotiafx.com/Chart_Feed/FX1.pdf)

ScotiaBank FX provides this daily forex report, which includes market recap and predictions.

News

*Forex TV (*http://www.forextv.com/)

Forex TV is the world's first streaming video portal dedicated to providing information about the global

forex marketplace.

Bloomberg Forex (www.bloomberg.com/news/currencies)

Its coverage of forex is arguably the most complete of any news outlet, and its *markets* section offers data on thousands of interesting indexes.

Google News RSS (http://news.google.com/)

Google offers RSS feeds of Google News, with feeds that are available from any section (such as Business) or for customized searches.

WSJ Currencies (http://online.wsj.com/)

A big investment in 2011 greatly expanded the *Wall Street Journal*'s forex coverage, which now includes hundreds of daily stories.

Currency Trader Magazine (http://www.currencytradermag.com/)

A free, full-feature monthly magazine that covers trading strategies, systems, analysis, and news for FX and currency futures traders.

Regulation

National Futures Association (http://www.nfa.gov/)

As discussed previously, the National Futures Association (NFA) is the industry-wide, self-regulatory organization for the US futures industry. Its BASIC system should be the starting point for US traders looking for registration information on their brokers.

US Commodity Futures Trading Commission (http://www.cftc.gov/)

The US Commodity Futures Trading Commission (CFTC) is the main rule-making body for the forex industry due to passage of the 2010 Dodd-Frank financial reform act.

Securities and Exchange Commission (http://www.sec.gov/)

The Securities and Exchange Commission (SEC) regulates US securities (including equities) markets, with a mission to protect investors; maintain fair, orderly, and efficient markets; and facilitate capital formation.

Financial Services Authority (http://www.fsa.gov.uk/)

The Financial Services Authority (FSA) is a UK regulatory organization with jurisdiction over most of the UK financial sector.

Australian Securities & Investment Commission (http://www.asic.gov.au/)

This Australian government agency regulates forex.

Other

FX Intelligence (http://www.fxintel.com/)

This site offers live, graphical comparisons of broker spreads for dozens of currency pairs so that you can quickly determine whether you are getting a fair deal.

Forex Magnates (http://www.forexmagnates.com/)

Its frequent reports on regulatory developments and quarterly broker reports on client profitability are a must-read.

Forex Ticket (http://www.forexticket.co.uk/)

Forex Ticket is a low-key website with the best functionality for currency volatility, correlations, pivot points, and more.

Forex Glossary (www.forexblog.org/the-forex-glossary)

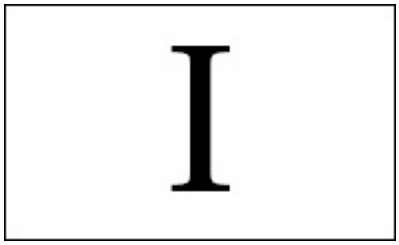
This site hosts the most comprehensive online glossary of forex terminology.

Top 100 Forex sites (http://www.top100forexsites.com/)

Although this site is not a source of content in itself, its rankings of forex websites are fun to browse.

MetaTrader 4 (http://www.metatrader4.com/)

This site is the homepage and download source for the best forex trading software program; it offers automated and mobile trading, as well as multiple account management functionality.



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“Backed by a comprehensive list of studies, this book is a brilliant contribution on the connections between exchange rates and economics.”
—Francesc Riverola, CEO and Founder of FXstreet.com

“Adam Kritzer has been covering the forex market for years as a prominent but accessible industry expert. In a market sector full of pitfalls for the novice, this book will help many new traders avoid costly

mistakes and get started on a path to success."
—Andy Hagans, Co-founder of ETF Database

"Adam Kritzer is not only one of my favorite forex writers but also one of the best … This book will likely become required reading for those getting into the forex market."
—Zachary Storella, Founder of CountingPips.com

"I am very glad to have found a forex book that is comprehensive yet easy to comprehend. It has gained a spot on the required reading list in our office for all incoming Treasury analysts."
—Paul Bonanno, Global Business Unit Treasurer at GE Capital

"Adam's book has provided a thorough introduction on how to profit in the FX markets. A must-read for beginners."
—Agnes Tse, Head of Research at Action Forex

"Not only is *Forex for Beginners* an excellent introductory volume, but it is also a refreshing and enriching read for those with some experience. Readers will not be disappointed, as this book should lay solid foundations for their ultimate trading success."
—Mike Kulej, Founder of FXMadness.com

"Adam Kritzer does a great job explaining everything a beginner needs to know about currency trading, covering a large spectrum of topics like terminology, market structure and mechanics, trading styles, analysis, correlations, trading instruments, and a lot more."
—Liviu Flesar, Founder of InnerFX

"A very comprehensive and readable introduction to the forex markets. Kritzer provides all the tools necessary to go into the FX jungle with your eyes open and, most importantly, with realistic goals."
—Richard Driver, Currency Analyst at CaxtonFX

"*Forex for Beginners* takes a new and refreshing approach to the world's biggest market … The book provides the necessary tools to profit in this market—something that is certainly feasible with solid and realistic methods—rather than promising unrealistic shortcuts."
—-Yohay Elam, Founder of Forex Crunch

"Adam has written a guide for beginners that is like no other; it contains all the knowledge a currency trader should possess … I would recommend this book to anyone that does not have mastery of the currency markets."
—Casey Stubbs, Founder of Winners Edge Trading