Chapter 1

Why does the Existence of Borders Matter for Finance?

Almost tautologically, international finance selects from the broad field of finance those issues that have to do with the existence of many distinct countries. The fact that the world is organized into more or less independent entities instead of a single global state complicates a CFO's life in many ways—ways that matter far more than does the existence of provinces or states or *Landen* or *départements* within a country. Below, we discuss

- the existence of national currencies and, hence, the issue of exchange rates and exchange risk;
- the segmentation of goods markets along predominantly national lines; in combination with price stickiness, this makes most exchange-rate changes "real";
- the existence of separate judicial systems, which further complicates the already big issue of credit risk, and has given rise to private-justice solutions;
- the sovereign autonomy of countries, which adds political risks to standard commercial credit risks
- the existence of separate and occasionally incompatible tax systems, giving rise to issues of double and triple taxation.

We review these items in Section 1. Other issues or sources of problems, like differences in legal systems, investor protection, corporate governance, and accounting systems are not discussed in much depth—not because they would be irrelevant but for the simple reasons that there is too much heterogeneity across countries and I have no expertise in them. Still, there is a chapter that should create a basic awareness in these issues, so that the reader can then critically look at the local regulation and see its relative strengths and weaknesses,

The above list includes some of the extra issues a CFO in an international company needs to handle when doing the standard tasks of funding, evaluation, and risk

management (Section 2). The outline of how we will work our way through all this matter follows in Section 3.

1.1 Key Issues in International Business Finance

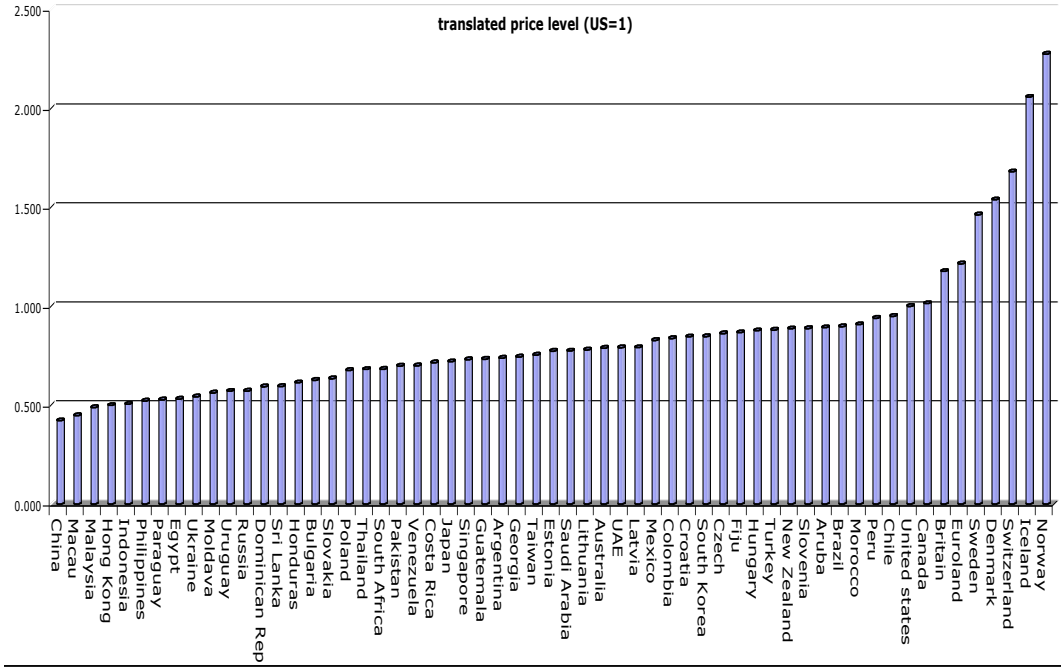
1.1.1 Exchange-rate Risk

Why do most countries have their own money? One disarmingly simple reason is that printing bank notes is profitable, obviously, and even the minting of coins is usually a positive-NPV business. In the West, at least since the days of the Greeks and Romans, governments have been involved as monopoly producers of coins or at least as receivers of a royalty ("seignorage") from the use of the official logo. More recently, the ascent of paper money, where profit margins are almost too good to be true, has led to official monopolies virtually everywhere. One reason why money production is not handed over to the UN or the IMF or WB is that governments dislike giving up their monopoly rents. For instance, the shareholders of the European Central Bank are the individual Euro-countries, not the EU itself; that is, the countries have given up their monetary independence, but *not* their seignorage. In addition, having one's own money is a matter of national pride too: most Brits or Danes would not even dream of surrendering their beloved Pound Sterling or Crown for, of all things, a European currency. Lastly, a country with its own money can adopt a monetary policy of its own, tailored to the local situation. Giving up a local policy was a big issue at the time the introduction of a common European money was being debated.[1]

If money had intrinsic value (e.g. a silver content), if that intrinsic value were stable and immediately obvious to anybody, and if coins could be de-minted into silver and silver re-minted into coins at no cost and without any delay, then the value of a German Joachimsthaler relative to a Dutch Florin and a Spanish Real would all be based on their relative silver content, and would be stable. But in practice, many sovereigns were cheating with the silver content of their currency, and got away with it in the short run. Also, there are costs in identifying a coin's true intrinsic value and in converting Indian coins, say, into Moroccan ones. Finds of hoards dating from

[1] Following a national monetary policy assumes that prices for goods & services are sticky, that is, do not adjust quickly when money supply or the exchange rate are being changed. (If prices would fully and immediately react, monetary policy would not have any 'real' effects). Small open economies do face the problem that local prices adjust too fast to the level of the countries that surround them. So it's not a coincidence that Monaco, San Marino, Andorra and the Vatican don't bother to create their own currencies. Not-so-tiny Luxembourg similarly formed a monetary union with Belgium as of 1922. Those two then fixed their rate to the DEM and NLG with a 1% band in 1982. For more countries that gave up, or never had, an own money see Wikipedia, Monetary Union. See the section on Currency Boards, in this chapter, about countries that give up monetary policy but not seignorage.

Figure 1.1: **Relative prices of the Big Mac across the World, May 2006**



Source Based on data from *The Economist*, May 26, 2006

the Roman or Medieval times reveal astounding differences in the silver content of various coins with the same denomination. For instance, among *solidus* pieces from various mints and of many vintages, some have silver contents that are twice that of other solidus coins found in the same hoard. In short, intrinsic value did never nail down the market value in a precise way, not even in the days when coins really were made of silver, and as a result exchange rates have always fluctuated. Since the advent of paper money and electronic money, of course, intrinsic value no longer exists: the idea that paper money was convertible into gold coins lost all credibility after WW1. After WW2, governments for some time controlled the exchange rates, but largely threw in the towel in 1973-4. Since then, exchange rates are based on relative trust, a fickle good, and the resulting exchange-rate risk is a fact of life for all major currency pairs.

Exchange risk means that there is uncertainty about the value of an asset or liability that expires at some future point in time and is denominated in a foreign currency ("*contractual exposure*"). But exchange risk affects a company's financial health also via another channel—an interaction, in fact, with another inter-national issue: segmentation of the consumption goods markets.

1.1.2 Segmentation of the Consumer-good Markets

While there are true world markets—and, therefore, world prices—for commodities, many consumer goods are really priced locally, and for traditional services the international influence is virtually absent. Unlike corporate buyers of say oil or corn or aluminum, private consumers do not bother to shop around internationally for the best prices: the amounts at stake are too small, and the transportation cost and hassle and delay from international trade would be prohibitive anyway. Distributors, who are better placed for international shopping-around, prefer to pocket the resulting quasi-rents themselves rather than passing them on to consumers. For traditional services, international trade is not even an option. So prices are not homogenized internationally even after conversion into a common currency. One strong empirical regularity is that, internationally, prices rise with GDP/capita. In Figure 1.1, for instance, you see prices of the Big Mac in various countries, relative to the US price. Obviously, developed countries lead this list, with growth countries showing up as less expensive by *The Economist*'s Big Mac standard. The ratio of Big Mac prices Switzerland/China is 3.80. Norway (not shown here) was even more than five times more expensive than China, in early 2006; and two years before, the gap Iceland/South Africa was equally wide.

Within a country, by contrast, there is less of this price heterogeneity. For example, price differences between "twin" towns that face each other across the US-Canadian or US-Mexican border are many times larger than differences between East- and West-coast towns within the US. One likely reason that contributes to more homogenous pricing within a country is that distributors are typically organized nationally. Of course, the absence of hassle with customs and international shippers and foreign indirect tax administrations also helps.

A second observation is that prices tend to be sticky. Companies prefer to avoid price increases, because the harm done to sales is not easily reversed: consumers are resentful, or they just write off the company as "too expensive" so that they do not even notice when prices come down again. Price decreases, on the other hand, risk setting off price wars, and so on.

Now look at the combined picture of (*i*) price stickiness, (*ii*) lack of international price arbitrage in consumption-good markets, and (*iii*) exchange-rate fluctuations. The result is *real exchange risk*. Barring cases of hyperinflation, short-run exchange-rate fluctuations have little or nothing to do with the internal prices in the countries that are involved. So the appreciation of a currency is not systematically accompanied by falling prices abroad or soaring prices at home so as to keep goods prices similar in both countries. As a result, appreciation or depreciation can make a country less attractive as a place to produce and export from or as a market to export to. They therefore affect the market values and competitiveness of companies and economies ("*economic exposure*"). For instance, the soaring USD in the Reagan years has meant the end of many a US company's export business, and the rise of the DEM in the 70s forced Volkswagen to become a multi-country producer.

Real exchange risk also affects asset values in a more subtle way. Depending on where they live, investors from different countries realize different real returns from one given asset if the real exchange rate changes. Thus, one of the fundamental assumptions of *e.g.* the CAPM, that investors all agree on the returns and risks of all assets, becomes untenable. While this may sound like a very theoretical issue, it becomes more important once you start thinking about capital budgeting. For instance, a US firm may be considering an investment in South Africa, starting from projected cash flows in South-African Rand (SAR). How to proceed? Should the managers discount them using a SAR discount rate, the way a local investor would presumably do it, and then convert the PV into USD using the current spot rate? Or should they do it the US way: use expected future spot rates to convert the data into expected USD cash flows, to be discounted at a USD rate? Should both approaches lead to the same answer? *Can* they, in fact?

Exchange risk is the issue that takes up more space than any other separate topic in this book. Its importance can be seen from the fact that so many instruments exist that help us cope with this type of uncertainty: forward contracts, currency futures and options, and swaps. You need to understand all these instruments, their interconnections, their uses and limitations, and their risks.

1.1.3 Credit risk

If a domestic customer does not pay, you resort to legal redress, and the courts enforce the ruling. Internationally, one problem is that at least two legal systems are involved, and they may contradict each other. Usually, therefore, the contract will stipulate what court will rule and on the basis of what law—say Scottish law in a New York court (I did not make this up). Even then, the new issue is that this court cannot enforce its ruling outside its own jurisdiction.

This has given rise to private-contract solutions: we seek guarantees from specialized financial institutions (banks, factors, insurance companies) that (*i*) are better placed to deal with the credit risks we shifted towards them, and (*ii*) have an incentive to honor their own undertakings because they need to preserve a reputation and safeguard relations with fellow banks etc. So you need to understand where these perhaps Byzantine-sounding payment options (like D/A, D/P, L/C without or with confirmation, factoring, and so on) come from, and why and where they make sense.

1.1.4 Political risk

Governments that decide or rule as sovereigns, having in mind the interest of their country (or claiming to have this in mind), cannot be sued in court as long as what they do is constitutional. Still, these decisions can hurt a company. One example is imposing currency controls, that is, block some or all exchange contracts, so that

the money you have in a foreign bank account gets stuck there (*transfer risk*). You need to know how you can react pro- and retroactively. You also need to know how this risk has to be taken into account in international capital budgeting. If and when your foreign-earned cash flow gets stuck abroad, it is obviously worth less than its nominal converted value because you cannot spend the money freely where and how you want—but how does one estimate the probabilities of this happening at various dates, and how does one predict the size of the value loss?

Another political risk is expropriation or nationalization, overtly or on the stealth. While governments can also expropriate locally-owned companies (like banks, in 1981 France), foreign companies in the "strategic" sectors (energy, transportation, mining & extraction, and, flatteringly, finance) are especially vulnerable: most of them were expropriated or had to sell to locals in the 1970s. The 2006 Bolivian example, where President Evo Morales announced that "The state recovers title, possession and total and absolute control over [our oil and gas] resources" (*The Economist*, May 4, 2006.) also has to do with such a sector. Again, one issue for the finance staff is how to factor this in into NPV calculations.

1.1.5 Capital-Market Segmentation Issues, including Aspects of Corporate Governance

A truly international stock and bond market does not exist. First, while stocks and bonds of big corporations do get traded in many places and are held by investors all over the world, mid-size or small-cap companies are largely one-country instruments. Second, portfolios of individual and institutional investors exhibit strong home bias—that is, heavy overweighting of local stocks relative to foreign stocks—even regarding their holdings of shares in large corporations. A third aspect of fragmentation in stock markets is that we see no genuine international stock exchanges (in the sense of institutions where organized trading of shares takes place); instead, we have a lot of local *bourse*s. A company that wants its shares to be held in many places gets a listing on two or three or more exchanges (*dual* or *multiple listings*; *cross-listing*): being traded in relatively international places like London or New York is not enough, apparently, to generate worldwide shareholdership. How come?

The three phenomena might be related, and caused by the problem of asymmetric information and investor protection. Valuing a stock is more difficult than valuing a bond, even a corporate bond, and the scope for misrepresentation is huge, as the railroad and dotcom bubbles have shown. All countries have set up some legislation and regulation to reduce the risks for investors, but there are enormous differences in the amount of information, certification and vetting required for an initial public offering (IPO). All countries think, or claim to think, the other countries are fools by imposing so much/little regulation. The scope for establishing a common world standard in the foreseeable future is nil. Pending this, there can be no single world market for stocks.

The same holds for disclosure requirements once the stock has been launched, and the whole issue of corporate governance. The big issue here is how to avoid managers selfdealing or otherwise siphoning off cash that ought to be the shareholders'. Good governance systems contain checks and balances, like separation of the jobs of chairman of the Board of Directors and CEO; a sufficient presence of independent directors on the Board; an audit committee that closely watches the accounts; comprehensive information provision towards investors; a willingness, among the board members, to fire poorly performing CEO's, perhaps on the basis of pre-set performance criteria; a board that can be fired by the Assembly General Meeting in one shot (as opposed to staggered boards, where every year only one fifth comes up for (re)election, for example); and a AGM that can formulate binding instructions to the Board and the CEO. Good governance also requires good information provision, with detailed financial statements accompanied by all kinds of qualitative information.

But governance is not just a matter of corporate policies: it can, and ideally must, be complemented by adequately functioning institutions in the country. For instance, how active and independent are auditors, analysts (and, occasionally, newspaper reporters)? Is a periodic evaluation of the company's financial health by its house bank(s), each time loans are rolled over or extended, a good substitute for outside scrutiny? Are minority shareholders well protected, legally? How stringent are the disclosure and certification requirements, and are they enforced? Are there active large shareholders, like pension funds, that follow the company's performance and put pressure onto management teams they are unhappy with? Is there an active market for corporate officers, so that good managers get rewarded and (especially) *vice versa*? Is there an active acquisition market where poorly performing companies get taken over and reorganized? Again, on all these counts there are huge differences across countries, which makes it impossible to set up one world stock market. The OECD has been unable to come up with a common stance on even something as fundamental as accounting standards. Telenet, a company discussed in a case study in Part IV, has three sets of accounts: Belgian GAAP, US GAAP, and IFRS. Even though in the US its shares are only sold to large private investors rather than the general public, Telenet still had to create a special type of security for the US markets.

In short, markets are differentiated by regulation and legal environment. In addition, companies occasionally issue two types of shares: those available for residents of their home country, and unrestricted stocks that can be held internationally. Some countries even impose this by law. China is a prominent example, but the list used to include Korea, Taiwan, and Finland/Sweden/Norway. Typically, only a small fraction of the shares was open to non-residents. Other legislation that occasionally still fragments markets is a prohibition to hold forex; restrictions or prohibitions on purchases of forex, especially for financial (i.e. investment) purposes; caps on the percentage of mutual funds or pension funds invested abroad, or minima for domestic investments; dual exchange rates that penalize financial transactions relative to commercial ones; taxes on deposits by non-residents; requirements to invest at zero interest rates at home, proportionally with foreign investments or even with

imports, and so on—you name it.

In OECD countries or NICs, this type of restrictions is now mostly gone. In December 2006, Thailand imposed some new regulations in order to discourage inflows—usually the objective is to stop outflows—but hastily reversed them after the Bangkok stock market had crashed by 15 percent; this example goes to show that this type of restriction is simply *not done* anymore. But some countries never lifted them altogether, like Chile, while in other countries the bureaucratic hassle is still strongly discouraging (India) or virtually prohibiting (Russia) capital exports.

There are two repercussions for corporate finance. One is via the shareholders. Specifically, in countries with serious restrictions on outward investments, the investment menu is restricted and different from the opportunity set available to luckier investors elsewhere. This then has implications for the way one works with the CAPM: companies in a walled-off country have to define the market portfolio in a strictly local way, while others may want to go all the way to the world-market version of the market portfolio. So companies' discount rates are affected and, therefore, their direct investment decisions. Another corporate-finance implication is that a company that wants to issue shares abroad cannot simply go to some "international" market: rather, it has to select a country and, often, a segment (an exchange—which exchange? which board?—or the over-the-counter market or the private-investors segment), carefully weighting the costs and benefits of its choices. An important part of the costs and benefits have to do with the corporate-governance and disclosure ramifications of the country and market segment one chooses.

1.1.6 International Tax Issues

Fiscal authorities are understandably creative when thinking up excuses to tax. For instance, they typically want to touch all residents for a share in their income, whether that income is domestic or foreign in origin; but they typically also insist on taxing anybody making money inside the territory, whether the earner is a resident or not. So a Icelandic professor making money in Luxembourg as visiting faculty would be taxed by both Luxembourg—she did make money there—and by Iceland—she is a resident there.

In corporate examples things get even worse. When an Icelandic corporation sets up shop in Luxembourg, the subsidiary is taxed there on its profits: it is a resident of Luxembourg, after all. But when that company then pays a dividend to its parent, both Luxembourg and Iceland may want to tax the parent company again: the parent makes money in L, but is a resident in I.

Fortunately, legislators everywhere agree that double or triple taxation maybe somewhat overdoing things, so they advocate neutrality. But, as we shall see, there is no agreement as to how a "neutral" system can be defined, let alone how it is to be implemented. This makes life for the CFO complicated. But it also makes life exciting, because of the loopholes and clever combinations ("treaty shopping") that

can substantially affect the tax burden.

1.2 What is on the International CFO's desk?

This book is a text on international finance. Thus, it does not address issues of multinational corporate strategy, and the discussion of international macroeconomics is kept to a minimum. Within the finance discipline, it addresses only the problems caused by the existence of many countries, as described in the preceding section.

One way to further describe the material is to think about the tasks assigned to an international financial manager. These tasks include asset valuation, international funding, the hedging of exchange risk, and management of other risks. We hasten to add that these functions cannot be viewed in isolation, as will become clear as we proceed.

1.2.1 Valuation

One task of an international finance officer is the valuation of projects with cash flows that are risk free in terms of the foreign currency. For example, the manager may need to evaluate a large export order with a price fixed in foreign currency and payable at a (known) future date. The future cash flow is risky in terms of the domestic currency because the future exchange rate is uncertain. Just like one would do with a domestic project with cash flows that are risky in terms of the domestic currency, this export project should be subject to a Net Present Value (NPV) analysis. Thus, the manager needs to know how to compute present values when the source of risk is the uncertainty about the future exchange rate. Valuation becomes even more complicated in the case of foreign direct investment (FDI), where the cash flows are random even in terms of the foreign currency. The issues to be dealt with now are how to discount cash flows subject to both business risk and exchange risk, how to deal with tax complications and political risks inherent in FDI, and how to determine the cost of capital depending on whether or not the home and foreign capital markets are segmented.

1.2.2 Funding

A second task is, of course, funding the project. A standard financing problem is whether the firm should issue equity, debt, or equity-linked debt (like convertible bonds). If bonds are issued or a loan is taken out, the standard questions are what the optimal maturity is, and whether the terms offered by a bank or a group of banks are attractive or not. In an international setting, the additional issue to be considered is whether the bond or loan should be denominated in home currency or in another one, whether or when there are any tax issues in this choice, how the risk can be quantified when it is correlated with other risks, and so on.

If funding is done in the stock markets, the issue is whether to issue stocks locally or to get a secondary listing elsewhere—or perhaps even move the company's primary listing abroad. The targeted foreign market may be better organized, have more analysts that know and understand your business, and give access to deep-pocketed investors who, being well-diversified already, are happy with lower expected returns than the current shareholders. But there are important corporate-governance issues as well, as we saw: getting a listing in a tough place is like receiving a certificate of good behavior and making a strong commitment to behave well in future too. So the mere fact of getting such a listing can lift the value of the company as a whole. There are, of course, costs too: publishing different accounts and reports to meet diverging accounting and disclosure rules can be cumbersome and expensive, and listing costs are not trivial either. Because of the corporate-governance issues, cross-listings are not purely technical decisions that belong to the CFO's competence: the whole Board of Directors should be involved.

1.2.3 Hedging and, more Generally, Risk Management

Another of the financial manager's tasks usually is to reduce risks, like exchange risk, that arise from corporate decisions. For example, a manager who has accepted a large order from a customer, with a price fixed in foreign currency and payable at some (known) future point in time, may need to find a way to hedge the resulting exposure to exchange rates.

There are, however, many other sources of uncertainty besides exchange rates. Some are also "market" risks: uncertainties stemming from interest rates, for instance, or commodity prices or, for some companies, stock market gyrations. Exchange risk cannot be hedged in isolation, for the simple reason that market risks tend to be correlated. As a result, many companies want to track the remaining uncertainties of their entire portfolio of activities and contracts. This is usually summarized in a number called *value at risk* (VaR), the maximum loss that can be sustained with a given probability (say, 1 percent) over a given horizon (say, one day), taking into account the correlations between the market risks.

1.2.4 Interrelations Between Risk Management, Funding and Valuation

While the above taxonomy of CFO assignments is logical, it does not offer a good structure for a textbook. One reason is that valuation, hedging, and funding are interrelated. For instance, a firm may be unwilling to accept a positive-NPV export contract (valuation) unless the currency risk can be hedged. Also, the funding issue cannot be viewed in isolation from the hedging issue. For example, a Finnish corporation that considers borrowing in Yen, should not make that decision without pondering how this loan would affect the firm's total risk. That is, the decision to borrow Yen may be unacceptable unless a suitable hedge is available. In another

example, a German firm that has large and steady dollar revenues from exports might prefer to borrow USD because such a loan provides not just funding, but also risk reduction. In short, project evaluation, funding, and hedging have to be considered together.

But risks do not stop at market risks. There are credit risks, political risks, operational risks, reputation risks, and so on, and also these interact with the more financial issues. For instance, the evaluation of an export project should obviously take into account the default risk. Similarly, NPV computations for FDI projects should account for the risk that foreign cash flows may be blocked or that the foreign business may be expropriated.

1.3 Overview of this Book

In the preceding section, we discussed the key issues in international finance on the basis of managerial functions. As said, this is not a convenient way to arrange the text because the functions are all interlinked. Instead, we proceed as follows. We begin with an introductory chapter on the history of the international monetary system. The remainder of this textbook, then, is divided into four parts: (*II*) International financial markets and instruments; (*III*) Exchange rate risk, exposure, and risk management; and (*IV*) Long-term financing and investment decisions. In most of the chapters except the next one, the focus is on corporate financial issues, such as risk management and funding and capital budgeting. Let us briefly review the contents of each part below.

1.3.1 Part I: Motivation and Background Matter

After the present motivational chapter, we go over some background material: how is money created, how is it paid internationally, what is the role of governments in exchange markets, and what does the Balance of Payments mean for a country?

1.3.2 Part II: International Financial Markets

Part II of the book describes the currency market in its widest sense, that is, including all its satellites or derivatives. Chapter 3 describes spot markets. Forward markets, where price and quantity are contracted now but delivery and payment take place at a known future moment, are introduced in Chapter 4, in a perfect-markets setting. Chapter 5 shows how and when to use contracts in reality: for arbitrage, taking into account costs; for hedging; for speculation; and for shopping-around and structured-finance applications including, especially, swaps. Currency futures and modern currency swaps, both of which are closely related to forward transactions, are discussed in Chapters 6 and 7, respectively. Chapter 8 introduces

currency options and shows how these options can be used to hedge against (or alternatively, speculate on) foreign exchange risk. How one can price currency options is explained in Chapter 9; we mostly use the so-called binomial approach but also link it to the famous Black-Merton-Scholes model.

At any instant, the market value of a forward, futures, or options contract depends on the prevailing spot rate (and, if the contract is not yet at the end of its life, also on the domestic and foreign interest rates). This dependence on the future spot rate means that all these contracts can be used to hedge the exchange-rate risk to which the firm is exposed. The dependence of these contracts on the future spot rate also means that their current market values can be expressed, by relatively simple arbitrage arguments, as functions of the current spot rate and of the domestic and foreign interest rate. Throughout this part of the text, a unified approach based on arbitrage-free pricing is used to value these assets whose payoffs are dependent on the exchange rate.

1.3.3 Part III: Exchange Risk, Exposure, and Risk Management

This parts opens with a discussion of the behavior and predictability of nominal and real exchange rates (Chapters 10 and 11). We conclude that exchange rates are hard to explain, let alone to predict, and that most of the nominal uncertainty is also real, thus affecting the long-term value of a company.

This may sound like a good excuse to hedge. Yet one could argue that (*i*) hedging is a standard financial transaction; (*ii*) in efficient markets, financial transactions are zero-NPV deals; (*iii*) therefore, hedging does not add value. In Chapter 12 we show the way out of this fallacy: hedging does add value if it does more than just increase or decrease the firm's bank account—that is, if and when it affects the firm's operations. Given that firms may want to hedge, the next issue is how much to hedge: what is the size of the exposure (Chapter 13)? We distinguish between contractual, operational, and accounting exposures. Value at risk is reviewed in Chapter 14. Chapter 15 concludes this part with a description and critical discussion of the various ways to insure credit risks and transfer risks in international trade.

1.3.4 Part IV: Long-term Financing and Investment Decisions

The prime sources for long-term financing are the markets for fixed-interest instruments (bank loans, bonds) and stocks. We review the international aspects of these in Chapters 16 and 17-18, respectively, including the fascinating issue of cross-listing and corporate governance. Expected returns on stocks provide one key input of investment analysis, so in Chapter 19 we consider the CAPM and the adjustments to be made to take into account real exchange risk. The other inputs into NPV computations are expected cashflows, and these are typically quite similar to what one would see in domestic projects. There is one special issue here, international

taxes (Chapter 20). In Chapter 21 we see how to do the actual NPV, extending the usual two-step approach—NPV followed by Adjusted NPV to take into account the aspects of financing, relevant in imperfect markets—to a three-step version to separately handle intra- and extra-company financial arrangements. We conclude with an analysis of joint-venture projects, where NPV is mixed with the issue of designing a fair profit-sharing contract (Chapter 22).

Here we go, then.

