

## Chapter 3: Organization

### What can be said about the structure of foreign exchange markets and its development?

In order to discuss the problems of implementing a PFTT (and implicitly of the ERND) it is necessary to understand the structure and function of international foreign exchange markets and its developments.

#### ► Characteristics of the foreign exchange market.

After the breakdown of the fixed-exchange-rate regime of Bretton Woods, a global and highly differentiated international foreign exchange market has emerged. The more important currencies can now be exchanged every time, from any place, in substantial amounts, and at little costs. In April 2001 the daily turnover of foreign exchange was in the order of 1.2 bill. US dollars, three years before it had still been roughly 1.5 bill. US dollars.<sup>1</sup> The reduction in volume during these three years was 19 percent in current, and 14 percent in constant dollar exchange rates (base: April 2001).

The amounts traded on foreign exchange markets are impressive: single transactions of 200 to 500 million US dollars are not abnormal, i.e., it is essentially a market for wholesalers. Price setting often occurs 20 times per minute; and the exchange rate can alter several thousand times a day, albeit usually in very small steps, which expresses the smoothing and risk-reducing effects of liquidity.<sup>2</sup>

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<sup>1</sup> See BIS (2001) and Galati (2001).

<sup>2</sup> See also the exemplary „snapshots“ of an electronic trading desk in Appendix 4.

The seven most important currencies and their market shares are depicted in the following Table 3 (standardized at 100 percent).<sup>3</sup> The share of these currencies of total transactions was roughly 90 percent in 2001.

**Table 3:**  
**Volumes of daily foreign exchange transactions according to currencies in bill. US dollars (for the months of April)**

	1998	2001
US dollar	43,7	45,2
Euro	*)	18,8
Yen	10,1	11,4
Pound sterling	5,5	6,6
Swiss franc	3,6	3,0
Canadian dollar	1,8	2,3
Australian dollar	1,6	2,1

\*) Before the introduction of the euro, the national currencies of Euroland were recorded individually. The more important ones were the Deutsche Mark (15.1 percent) and the French Franc (2.6 percent). The other EMS currencies and the ECU represented 8.7 percent in 1998. Adding up these figures to compare them with the share of the euro would be incorrect.

The geographical distribution of the global foreign exchange market has hardly changed during the last three years: After all, the trading place Great Britain (London) dominates the market, with one third of the volume. It is followed by the USA (New York) with 16 percent, and Japan (Tokyo) with 9 percent. The Federal Republic of Germany, with roughly 5 percent of the market, holds the fifth place be-

hind Singapore. The partition of the market according to trading locations is found in Chart 3 for the year 2001.

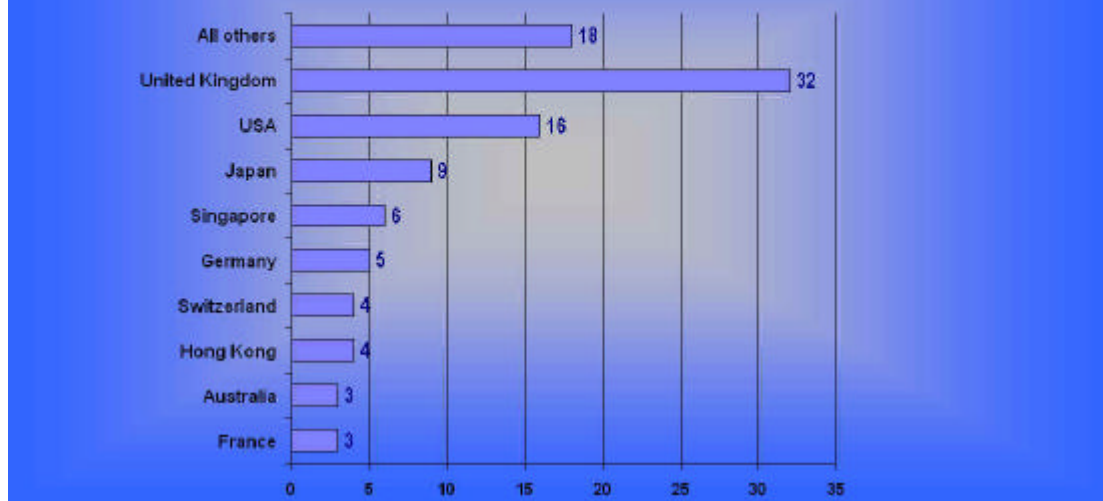
The comparison of the distribution by traded currencies and trading locations renders it obvious that activities on foreign exchange markets have to be seen as totally detached from the currencies of respective market places. The globally leading trading place London controls roughly one third of the market, although the pound sterling was involved only in 6.6 percent of all transactions. The city-state Singapore, with a currency that is involved in only 1.1 percent of all trades, achieves a trading volume higher than the Federal Republic of Germany, although the Deutsche Mark was involved in 15 percent of all transactions in 1998. This characterizes the foreign exchange market as a truly global market, in which national boundaries and the emission of currencies play practically no role any longer. Against this background, all measures equivalent to capital controls (limitation of currency imports and exports, split exchange rates, mandatory deposits on capital imports, or Zee's capital import tax) must have to be considered as highly unpromising, because the respective currency area will tend to detach itself from international capital markets, which undoubtedly entails more disadvantages than advantages in the long run.

The strong concentration of foreign exchange trading is explained by the following factors:

1. A currency (traded on the spot market, for instance) is a homogeneous good, also in standardized variants such as outright forwards, and in swaps and options that combine spot and forward trade. Therefore the financial center of a currency area does not possess any particular advantage in the form of specific information that would be relevant for the trading location alone. Data on foreign ex-

<sup>3</sup> Since foreign exchange trades always trigger two transactions—one in the base currency, the other in the target currency—the BIS adds up transactions to 200 percent. In this report, the usual standardization is adopted for reasons of comparability.

**Chart 3: Distribution of forex trade according to location in percent (April 2001)**



change markets are always available globally.

- The concentration onto a small number of financial centers is mainly explained by technological factors. The trading technology is characterized by falling average costs for increasing volumes of transactions. This leads to a “natural monopoly” with a consequential concentration of the market worldwide. London, New York and Tokyo have particular locational advantages for historic reasons. London has the additional plus that its time zone overlaps not only with one, but also with two other time zones. Singapore and Hong Kong have benefited from the traditional linkage with the British financial center.<sup>4</sup>
- Given the global 24-hours real-time trade<sup>5</sup>, it is almost natural to

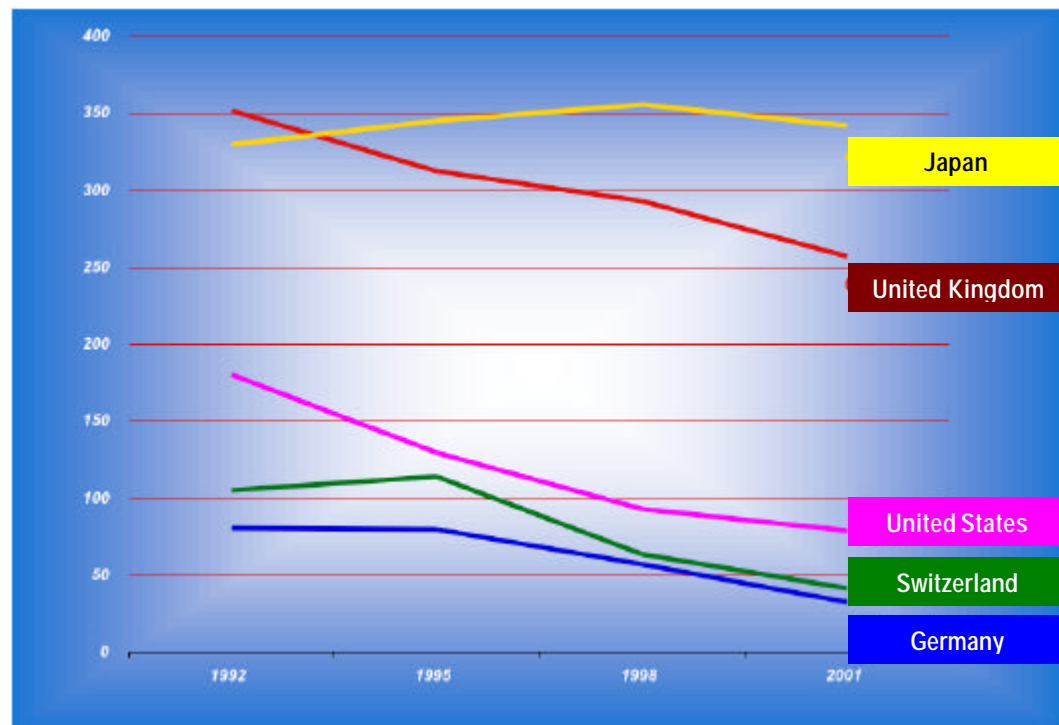
distribute trading onto three trading zones. Each trading zone will develop its financial center for foreign exchange transactions. In Europe the center is London, in the United States New York has acquired this role. In the Asia-Pacific rim, Tokyo dominates, but Singapore has achieved a comparably strong position as a secondary financial center.<sup>6</sup> Secondary trading locations in Europe are Frankfurt, Zurich, and Paris. They are likely to cede their business to the time-specific financial center London in the longer run, because of its cost advantages as a “natural monopoly” in wholesale currency trading. Currency transactions with non-banks will continue to be effected locally, but they are, and will be more and more, settled through correspondence banks that are located at the central trading place.

<sup>4</sup> This is not meant to diminish the political success of these financial centers’ governments, since the relationship with Great Britain alone may not have been sufficient for development (compare for instance India as a counterexample).

<sup>5</sup> Trading is however interrupted by weekends/holidays.

<sup>6</sup> The consolidation in Asia is far from being as advanced like in the US and in Europe. Nevertheless one may expect similar tendencies to prevail there in the longer run.

Chart 4:  
The development of the number of financial institution reporting to the BIS for selected countries (1992-2001)



- The concentration tendencies are not only perceptible geographically; they can also be identified by the number of dedicated financial institutions. In this regard there equally exists a concentration that can be illustrated by the number of institutions reporting to the statistics of the BIS. This is depicted in Chart 4. Only Tokyo exhibits a diverging tendency until 1998, which seems to have been broken since, however.
- Finally there is also an increasing concentration *within* the banking system. In the year 1998, for instance, 75 percent of the trading volume in the US fell on 20 banks; in the year 2001 there were only 13 actors. The corresponding figures for the United Kingdom are 24 and 17. In Frankfurt only domestic banks carry out foreign exchange transactions; foreign banks have all transferred their foreign exchange operations to London. The number of market

makers, who will continuously offer bids and asks for the main currency pairs is said to be only 20 worldwide (Galati 2001, p. 42).

Table 4:  
The most active banks in foreign exchange markets, and their market shares in percent (April 2001)

Citygroup	9.74
Deutsche Bank	9.08
Goldman Sachs	7.09
JP Morgan	5.22
Chase Manhattan Bank	4.69
Credit Suisse First Boston	4.10
UBS Warburg	3.55
State Street Bank & Trust	2.99
Bank of America	2.99
Morgan Stanley Dean Witter	2.87

- The ten most important banks and their respective market shares in foreign exchange trading are shown in Table 4 (according to *Euromoney*, May, 2001).

The consolidation within the banking industry has led to a significant reduction in the number of trading desks. It can be expected that this trend will continue in the future. Trading will then further concentrate on the main financial centers of each time zone.

- It is characteristic of foreign exchange markets that they are predominantly used by banks/traders. In 2001 their transactions were 86.8 percent of the total. Trading with non-banks (such as importers/exporters, direct investors, investment funds, life insurers etc.) was comparably small. The structure of the market in accordance with market partners is represented in Table 5.

**Table 5:**  
The structure of the foreign exchange market in accordance with groups of trading partners (April 2001)

Party	Bill. US \$	Share in percent
Reporting traders	689	58.7
Other reporting financial institutions	329	28.0
Non-financial institutions	156	13.3

Of this total, 42.5 percent were local, and 57.5 percent cross-boarder transactions.

One has to realize that an initial transaction from outside liquidity trading will trigger a large number of subsequent transactions. For instance if an exporter transfers his dollar proceeds to a German bank in exchange for euros, this

bank will accept the amount, but immediately close the ensuing open positions by plowing the currency back into the market. This "hot-potato trading" continues until a partner is found who is willing to hold the position definitely.

- Currency trading is not uniformly distributed over the day. Activities vary substantially in relation to trading of the respective time zones. This can be illustrated by the number of electronic contacts that result in a 24-hours rhythm. The daily cycle for foreign exchange activities expressed by the number of electronic contacts is shown in Chart 5 (according to Reuters; see next page).
- Concentration tendencies are reinforced by synergies that exist between various segments of the market. They will be discussed in the following section.

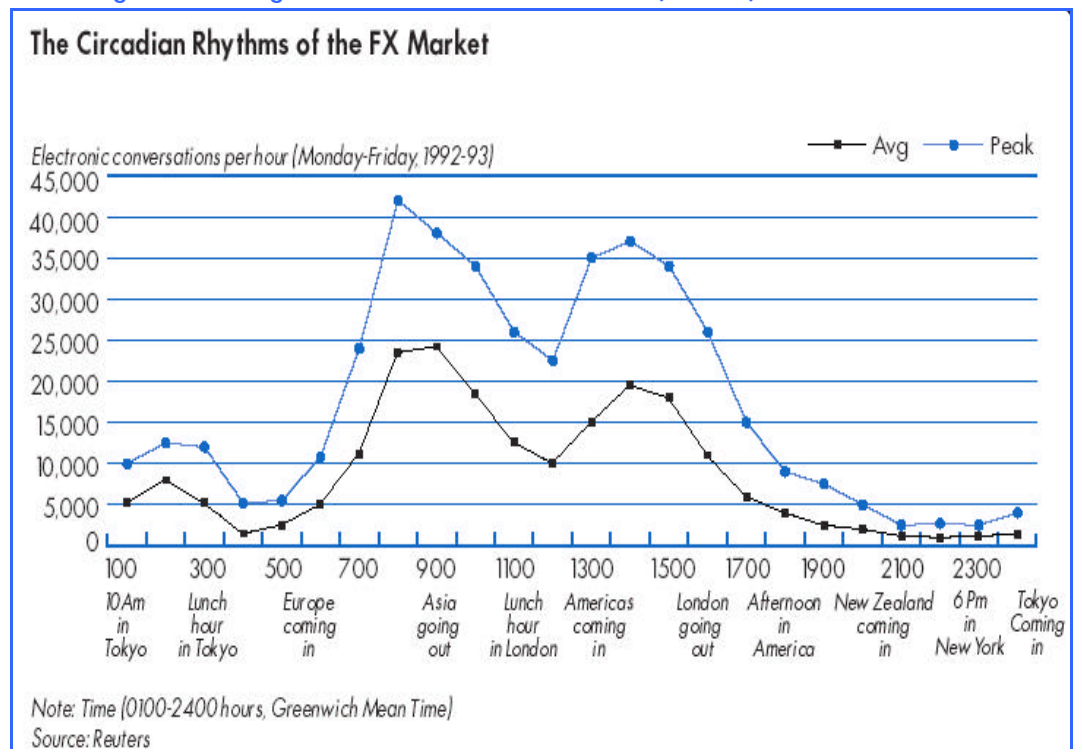
#### ► Instruments of foreign exchange markets.

Transactions in foreign exchange markets are carried out by using various instruments. While spot transactions were predominant only 12 years ago (they represented 54 percent of the total in 1989), they play only a much smaller (and diminishing) role today (32 percent in the year 2001). The more important instruments are foreign exchange swaps and outright forwards. In addition there is a smaller part of foreign exchange and interest rate derivatives that are traded OTC („over the counter“), i.e. on the basis of bilateral contracts.

The relationship of the different segments of foreign exchange markets is represented in the following Table 6.<sup>7</sup>

<sup>7</sup> The data are daily averages for the months of April according to the statistics of the BIS (BIS 2001).

**Chart 5:**  
The daily cycle of activities in foreign exchange markets according to the average number of electronic contacts (1992-93)



**Table 6:**  
The structure of foreign exchange markets in accordance with the main instruments (for the months of April)

	Bill. US dollars		Percentage shares	
	1998	2001	1998	2001
Spot	568	387	38.1	32.0
Forward	128	131	8.5	10.8
Swaps	734	656	49.3	54.2
Total	1,490	1,210	100	100
Total <sup>1)</sup>	1,400	1,210		

<sup>1)</sup> At fixed exchange rates (April 2001). Percentages do not add up to 100 percent due to unreported other financial instruments.

As to specific market segments, the following has to be noted:

- On spot markets, two currencies are exchanged directly. There are always two prices for the currency,

one for the purchase, another for the sale (bid/ask). For instance the bid/ask for euros against US dollars in interbank trading was 1.12108 / 1.12120 on the 14th of January 2002 (opening of the market in Tokyo).<sup>8</sup> If, on this day, a bank A in Tokyo has sold an amount of \$100 million to a bank B in Frankfurt in exchange for euros, the bank B had to pay an amount of 112.108 million euros to bank A on the 16<sup>th</sup> of January. Had bank A bought an amount of \$100 million from bank B on this day, it would have had to pay an amount of 112.120 million euros.

Spot transactions are largely standardized<sup>9</sup> and therefore extremely

<sup>8</sup> One may note that the spread was only 12 „pips“ (or about one basis point) in this case.

<sup>9</sup> There are however variants such as the „pre-spot“ or „ante-spot“, and even „cash“, whereby settlement is anticipated, and the trade is effected retroactively. Such transactions are however insignificant as to their trading vol-

liquid. The US dollar/euro exchange market is by far the most liquid financial market of the world.

- ▶ The liquidity of specific, more rarely traded currency pairs is significantly lower than for standard currency pairs. This finds its expression in a wider spread of the bid/ask (see Appendix 4). There are also cases in which the transaction is carried out through a “vehicle currency” in order to benefit from the higher liquidity of these markets and to reduce transactions cost despite of this double currency conversion. This „cross-rate trading“ will cause a duplication of the number of trades, which will compound the spreads accordingly. Accordingly the PFTT would apply several times in this case.
- ▶ As is clear from this example, spot trades will normally have to be settled two days after the trade.<sup>10</sup> There are always two national settlement systems required. In the previous example, settlement is likely to have been effected through Fedwire in the USA, and RTGS<sup>Plus</sup> in Germany.
- ▶ The settlement of the foreign exchange trade has to be made simultaneously in both currencies if a settlement risk (“Herstatt risk”) is to be avoided. Since payment is made in different time zones, settlement will first occur in Asia, then in Europe, and finally in the USA. This entails the risk that, for instance, euros are paid out in Frankfurt before the corresponding amount of US dollars has been credited to an account in New

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umes. For the pricing of such products, market participants will take the spot rate as a reference point (with conforming surcharges or rebates).

<sup>10</sup> This time is (still) required to confirm the contract and to settle payments. The time is likely to be reduced further through technological developments.

York. This can result in significant risks for the buyer of US dollars.

- ▶ For „outright forwards“<sup>11</sup> the object of the trade is the promise to deliver/buy foreign exchange at a particular date that is agreed upon in advance. This date can be three or more business days after the conclusion of the trade. For each maturity date there exists another exchange rate, which will normally deviate from the rate of spot transactions. Outright forwards are settled only at maturity, i.e. no payment is made when concluding the contract.<sup>12</sup>
- ▶ Forwards are used, by non-financial customers, for the hedging of exchange rate risks that relate to future financial operations associated with real economic transactions. They can also be used for speculation however. These trades have to be customized to the particular needs of a client as to amount, currency, and maturity of the payment (“customization”). The less typical and standardized the maturity date and/or the currency pair are, the more expensive the transaction will become, because the product has to be generated on less liquid markets.

Financial institutions adjust their activities in the forward market to standardized markets as regards maturity and currency pairs. For the more important currencies there are standardized markets for one-, two-, three-, six- and twelve-month monies. Such standardized markets are again more liquid than for customized products, which entails a smaller spread (lower costs of intermediation).

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<sup>11</sup> Traders use the term „outright“ in order to clarify that it is a simple transactions and not one that is part of a foreign exchange swap.

<sup>12</sup> It is possible however that there is a transfer of securities as collateral before payment.

- There is a close relationship between the spot rate of a currency and its forward rate, which is effected through the so-called “covered interest parity”. If there is a possibility for arbitrage, any larger spread between the spot and the forward rate must, for a given interest differential, immediately trigger transactions that would reduce the spread to normality. Such arbitrage operations cannot be held to represent speculation.

If, for instance, the interest rate on three-months deposits in euros is 5 percent p.a., but for three-months deposits in yen only 2 percent p.a., and if there were no premium nor discount for three-months monies in the euro/yen forward market, this would trigger a risk-free arbitrage transaction. In this case, actors would borrow yen at 2 percent, convert it into euros, and realize 5 percent interest for 3 months, after which time the trade can be reversed risk-free. In this case the arbitrage benefit would consist in a quarter of the difference between the yearly interest rates of the two currencies. This is the reason why interest-rate differentials are skimmed off, in forward markets, by a premium or discount relative to the spot rate. There may only be minute differences caused by transactions costs. In order to limit these costs, forward transactions are typically effected “off shore” on Eurocurrency markets.

- For later reflections it has to be emphasized that—for a given interest differential—any speculation, for instance on forward markets, will trigger arbitrage transactions that affect also the spot market. It is equally important for these considerations that forward contracts for important currency pairs are often arranged “off shore”, i.e. outside the respective currency areas. It implies that

there is no need to use a specific market for trading directly.<sup>13</sup>

- In foreign exchange swaps, a currency is swapped against another for a certain time, after which the trade will be reversed. A swap consists therefore of two parts that result from one operation, but, each on its own, are executed at two different dates although being recorded as one single transaction. Often swaps consist of a spot and a forward trade (but also of a combination of two forwards with different maturities) that go in opposite directions. For roughly two thirds of all swaps based on the spot rate, the second part of the trade is executed within a week. The foreign exchange swap is a standard instrument in OTC trading that consists of an exchange and its reversal, whereby it does *not* constitute two converse payments. For reasons of taxation this operation must however be considered one single transaction.
- The swap is equivalent to a short-term borrowing arrangement combined with a simultaneous loan on a collateralized basis. This renders swaps an appropriate instrument for liquidity management and for hedging against exchange rate risks, but also for speculation. The attractiveness of the swap lies in the fact that trader find it often necessary to go into another currency temporarily without having to bear the risk of an open position in the currency *that is held temporarily*. This is different in spot and forward markets. In these markets, trading one currency position against another changes the risk.
- The pricing of swaps is based on the rates of the two combined in-

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<sup>13</sup> This aspect also poses a problem for the capital import tax of Zee (200). It cannot be maintained, as Zee argues, that the CBCT is largely immune against tax evasion.

struments. Interest rate differentials of both instruments are simply exchanged. This is effected through so-called “swap points” on the basis of interests on assets and liabilities on offshore markets, which allows a transformation into a spread based on the exchange rate.

- ▶ As in the case of forwards, swaps will not trigger immediate transactions. There is only a so-called compensation of the differential that has to be secured by capital or collateral. As in the case of forwards it has to be reckoned that swaps (via borrowing in forward markets, and the spot sale of currencies) will also trigger compensating arbitrage transactions in the spot market.
- ▶ In the case of currency options, the buyer obtains the right, but not the obligation, to purchase or sell a particular currency at a particular date<sup>14</sup> at a price that has been previously agreed upon. An option is executed only if it is in the interest of the holder of such a right. In this respect the option differs from a forward transactions. The currency option will always involve two currencies also. A “put” option, for instance of euros against yen, is equivalent to “call” option, in this case: of yen against euros.
- ▶ The bulk of currency options is traded OTC, i.e. through bilateral contracting between two partners.<sup>15</sup> The overwhelming part consists of generic „*plain vanilla* contracts“, which are standardized for the major currencies, amounts and maturities. The instrument works as a sort of truncated insurance against exchange rate vola-

ilities, and it is typically employed for hedging purposes. However options can also be used for speculation, but only if there are conforming speculative operations in both the spot and forward markets at the same time. The latter aim at driving the option “in the money”. It is only then that the holder of the option can benefit from the operation. If an option is not executed, it has to be assumed that it was bought for hedging purposes only (or that a speculation has not worked out!)

- ▶ The pricing of an option is rather complex, but this need not be discussed here. It is based on the empirical volatility of a currency, i.e. options for currencies with high fluctuations of the exchange rate are more expensive than those for currencies whose exchange rate is comparably stable. Prices of options reflect therefore the costs of exchange rate volatility in an explicit and observable form.
- ▶ As regards the significance of options for a PFTT, it has to be noted that there are no direct transactions associated with the contract, unless the option is executed later on. However, as in the case of forwards and swaps, there are indirect transactions that are triggered by the trade on the trader’s side who will aim at closing open commitments. For instance, if a trader has sold a call option in euros against US dollars (= put option in US dollars against euros) of a notional amount of \$20 million at a strike price that lies at the current forward rate („at-the-money forward“), the probability that the value of the option will increase or fall is 50 percent. In order to eliminate the risk, the trader will immediately sell 50 percent of the notional value in dollars on the spot market (i.e. \$10 million) and buy a corresponding amount of euros in the market to be solvent in the

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<sup>14</sup> In a few cases the option can also be executed before maturity.

<sup>15</sup> A limited number of standardized options is also traded on the stock market, which is not considered here.

case of the option being executed. However the risk that the option is struck will change continuously over time. If the euro appreciates against the dollar, the probability of the option being executed will increase. The trader will have to purchase more euros on the spot market. Other factors affecting his risk are changes in interest rates and exchange rate volatility. These must also be considered when hedging against the risk of the option being executed.<sup>16</sup>

### ► The structure of foreign exchange markets and the development of exchange rates.

As regards the influence of the market structure on the exchange rate, the following has to be noted:

- First it has to be reemphasized that it would not be reasonable to peg the volume of currency trading to the value of real economic activities. The bulk of foreign exchange transactions is effected to procure liquidity. This is not equivalent to speculation. On the contrary: Liquidity renders a specific and positive contribution to stabilizing exchange rates, because it creates opportunities for ubiquitous real-time access to foreign exchange markets at a limited price risk. Liquidity is primarily used for hedging purposes, whereby various instruments can be used.
- Traders/banks do not engage in speculation on foreign exchange markets, because they typically close their “open positions” immediately. For liquidity trading they are guided by market makers for

pricing, whereby they indirectly act as arbitrageurs by responding to small changes of the exchange rate.

- Pricing of liquidity is always based on information that is based on the actual rate. Traders/banks typically ignore fundamental data or charts when trading, because this would drive them into open positions. On the contrary: They are usually “blind” *vis-à-vis* noise trading, and they react exclusively to changes in the last digits after the comma, the so-called “pips”. This entails the focusing on extremely short trading periods. Traders/banks may however not be immune against rumors in the market, which could eventually trigger speculative activities, albeit not necessarily.
- The daily liquidity cycles are highly important for the development of the exchange rate. If there were strong fluctuations during phases of diminished liquidity (for instance because of speculation), actors would generally react barely, waiting until the markets in London and New York will open. The greater liquidity then improves the conditions for the price discovery process, and markets usually calm down rapidly. This behavior of actors illustrates the importance of liquidity for the stabilization of exchange rates. If a tax on foreign exchange transactions would reduce liquidity more generally, this would lead to greater uncertainty and ultimately greater exchange rate volatility.
- Contrary to liquidity traders, actors outside the financial industry will typically base their decisions on other criteria. This may well lead to speculative behavior and noise trading.
- As to pure speculation, i.e. the deliberate acceptance risky of open positions, which are often re-

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<sup>16</sup> This is effected through a parameter „delta“ in the Black-Scholes formula, which is used for pricing an option. The delta measures those price changes of an option that result from small changes of the underlying exchange rate. This is also called a “delta hedge”.

inforced through leveraging *via* implicit lending (for instance a foreign exchange swap), the so-called hedge funds have a particularly bad press. These funds often take significant risks through open positions, by contrast to their misleading label. The result of such speculations can of course go in both directions. These funds may however reckon to be on the safe side if they can expect governments to intervene in the market (see also the reflections on speculation in Appendix 3). Fortunately the presence of these funds on international foreign exchange markets has recently been declining according to the BIS.<sup>17</sup>

- ▶ The behavior of these and other actors in foreign exchange markets is more decisive on the development of exchange rates than the activities of traders/banks. Interestingly, two different kinds of reactions can be observed:

1. On the one hand, institutions that follow a longer-term strategy (such as investment funds or life insurers) would orient their behavior on a fixed grid for their portfolio structure, the so-called “gatekeepers”. For instance a fund decides that its assets (say, in Brazilian reais) should represent  $x$  percent of its portfolio. If there is a devaluation of the real, the corresponding share will fall below the mark, to the effect that assets in real will be *increased*. This contributed to a strengthening of the real and countervails the tendency of devaluation, although—theoretically—one could classify such behavior as “speculative”.<sup>18</sup>

2. On the other hand, there may be an abrupt restructuring of portfolios whenever investors lose confidence in a particular currency and reduce the share  $x$  radically (even to 0). One might also call this speculation. I personally regard it as an attempt to protect, in the interest of investors, the value of the portfolio against expected losses. The repercussions of such behavior on the exchange rate may of course hardly be distinguishable from speculative trading.

- ▶ As to the assessment of commitments by longer-term investors in particular currencies, we have to realize that these employ very different methods in trading. Generally they will adjust their behavior to economic fundamentals and political risk factors, but when trading shorter-term they would also employ mechanical extrapolation methods such as chart techniques. This can lead to noise trading and provoke a systematic drifting off from equilibrium of the exchange rate. It increases the volatility in foreign exchange markets because sooner or later larger corrections of the rate become unavoidable.<sup>19</sup>

▶ **Summary and consequences.** The presentation of the market structure and of instruments used in currency exchange markets was determined by two objectives:

1. On the one hand, the analysis leads to further, economically mo-

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buyer, while he/she would sell reais whenever their share will go beyond the fixed mark following an evaluation.

<sup>19</sup> Insofar as the PFTT charges exactly this type of transactions, it can contribute, at small tax rates, to stabilize exchange rates even without the ERND. The latter would assume an auxiliary role as a circuit breaker against very short-term speculative attacks that the PFTT alone cannot cope with.

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<sup>17</sup> Galati (2001, p. 45) argues that this is likely to be a consequence of the LTCM debacle of fall 1998.

<sup>18</sup> The „speculative character“ of this stabilizing operation could be seen in the fact that the portfolio manager expects a reevaluation of the real and therefore enters the market as a

tivated limitations of a PFTT. These will be discussed in the remainder of this Chapter.

2. On the other hand, there are consequences for the technical implementation of a PFTT, which will be addressed in the following Chapter.

Which are these further, economically motivated limitations of a PFTT?

If the significance of liquidity trading for a globalizing economy is recognized, in particular its stabilizing—because risk-diminishing and cost-reducing—functions, the potentially damaging effects of a PFTT on international financial markets cannot be ignored. This has significance for the level of taxation. Furthermore it points toward some consequences for the distribution of tax revenue.

As to the tax rate, the following seems to be compelling:

1. If one enters a market that operates with a spread of one to three basis points (see Appendix 3) with a tax whose rate is 10 basis points (as in the French legislation), one risks to smash up (or even eliminate) this market. It is unimaginable that trades with a (gross) profit margin of one basis point would be carried out if this margin were taxed with 900 percent of its gross benefit. If one wants *the tax to be borne by traders*, their profit margin will limit the tax rate. If the actual spread is one basis point, and the tax rate is half a basis point, the presumptive tax on their gross income would still be as high as 50 percent.
2. If one assumes, however, (as the supporters of higher tax rates do) that the tax can be shifted, one overlooks that the counterparts of most of the currency transactions are again currency traders who work with similar profit margins. This implies that the tax can ultimately be shifted only onto final,

non-financial, customers of the real sector of the economy—exporters/importers and direct investors, but also portfolio investors, life insurers, and so on. It is then incompatible to exempt exporters/importers and direct investors from the tax, as is the case for a number of proposals of a Tobin tax (for instance for the legislation of the French parliament).<sup>20</sup>

3. If one further considers that non-financial institutions are responsible for only 13.3 percent of the trading in foreign exchange markets, this would imply a relatively high burden on the real sector due to a leverage effect. For a tax rate of 10 basis points on all transactions, for instance, a burden of 75 basis points is calculated on the non-financial customers of traders/banks ( $= 10 / 0.133$ ). The net capital return of a direct investor must fall accordingly.<sup>21</sup>
4. If one accepts the profit margin as a limitation of the tax rate trying to find a compromise by which the financial industry would be willing to bear at least part of the tax, i.e. at tax rates that do not exceed the margin, there would still be a further dilemma: The most liquid markets display the largest tax base, but they operate with the smallest profit margins. Less liquid markets operate with greater margins, but they realize substantially smaller transactions. If this is taken into account and if one wants to tax the less liquid markets more heavily, it follows that

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<sup>20</sup> The exemption of transactions that are triggered directly by the exporter/importer and the investor is only partial anyway, because it cannot indemnify for charges that are compounded, in a cascading fashion, *in the price of the trade*.

<sup>21</sup> Of course, this may be intended by those who advocate for an indirect presumptive income tax on capital income from international investments in a globalizing world.

the PFTT would have to have *different rates for different currency markets*.

Such differentiation is of course not operational. I therefore plead for a PFTT with a uniform tax rate that focuses on the most liquid market. This may be advantageous for smaller markets, but this should be accepted by design.<sup>22</sup>

Whereas, previously, I had proposed a tax rate of two basis points (Spahn 1996), I now plead for a tax rate of only one half to one basis point. At that order of magnitude there is no need to formally exonerate exporters/importers, for instance through the value-added tax, or *a fortiori* through the income tax as asked for by Zee (2000).<sup>23</sup>

5. Kenen (1996, p. 114/15) has argued that wholesale traders in the market would have to be charged half the standard tax rate since it would be levied on both ends of a trade. Otherwise the burden on wholesales would be twice as high than on the clients of the financial sector. This is correct only formally. It is to be expected that a large part of the burden on wholesalers would be shifted onto the non-financial sector anyway, *via* larger spreads. The statutory rate does not say anything about the effective incidence of the tax. I therefore believe that such a distinction is unnecessary, even more so as this would entail the need to differentiate transactions in accor-

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<sup>22</sup> It would implicitly relieve the tax law from exempting certain transactions, for instance those involving the currencies of developing countries (Kenen 1996). Such transactions play a minor role anyway. Currency transactions of central banks and international organizations would also be taxed for operational reasons, but they could obtain a tax reimbursement *ex post*.

<sup>23</sup> Huffs Schmidt (2000) makes a proposal similar to Zee's as to an exoneration of exporters/importers.

dance with the counterpart of the trade. If the tax were levied only asymmetrically on the "euro leg" of the trade, as in the case of a unilateral introduction of the tax, this would automatically lead to half the charge as long as the other leg of the trade remains untaxed.<sup>24</sup>

6. Moreover there is a discussion on whether, and which, transactions should be exempt from tax (or be taxed at a zero rate). In this context one often declares currency interventions of the central bank, public transfers (for instance to the IMF, but also official public aid to developing countries, etc.) sacrosanct without further elucidation. I think this would complicate the tax unnecessarily, because it would lead to a host of exemptions that are difficult to administer and to control. A transactions tax is by nature inappropriate to pursue public, social, ecological, and other sensible policy objectives. Even if a currency transfer to developing countries would be exonerated from the tax (as requested by Kenen 1996, p. 115/16), this would still not remove the accumulated compound effects of the tax incorporated in the price through tax shifting. And finally: A minute tax of half or one basis points charged at the final stage is hardly perceptible by the customer, and it should also be carried by governments that engage in development aid.

I have argued earlier (1995) that foreign exchange transfers of currency boards should be exempt from the Tobin tax. This argument is still on firm grounds and should

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<sup>24</sup> This translated the proposed tax rate of 0.5 – 1.0 basis point on one side of the transaction into a rate of 1.0 – 2.0 basis points in Kenen's definition (which he would divide by two for wholesalers). This leaves sufficient room for the American legislature in case it would want to introduce a similar unilateral PFTT on the dollar leg of the trade in the future.

be the only essential exception. Such interventions can also easily be identified and therefore the tax is easy to administer.<sup>25</sup>

7. As to the tax base, I think that it should include only spot transactions as well as forwards (and therefore, indirectly, swaps) up to a maturity of one month (or its standardized equivalent<sup>26</sup>). These transactions constitute the “relevant foreign exchange operations (RFXO)” mentioned in the previous Chapter.<sup>27</sup>
8. Because of the concentration of trade in a time-zone specific financial center, the PFTT is inappropriate as a national policy instrument. It means that the calculations of the French parliament, that tie the revenue to the transaction volume of its financial center Paris, do not correspond to the reality of markets. The PFTT can only be realized *within the time zone for the EU in toto*, including

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<sup>25</sup> Simplicity of administration is not the main objective for this restriction (although it should be aimed at also for a PFTT). I think that the feasibility of the tax requires a high degree of transparency, and any exemption, how ever well motivated, is likely to lead to political pressures that aim at obtaining special treatment. This would be highly counter-productive, inefficient and probably unfair because it creates loopholes and opens up the door for corruption.

<sup>26</sup> It could be a market reaction to define standard contract (instead of one month, as now) as one month + one day, for instance, in order to formally escape the tax. This is why I speak of a “standard equivalent to one month”.

<sup>27</sup> It is understood that the transition from spot to forward transactions is continuous, and it would not be sensible to tax spot transactions alone, while outright forwards of three days would be exempt (see also Kenen 1996). Since 75 percent of all transactions are settled within a week however (BIS, 2001), this definition of RFXO would suffice to cover the overwhelming part of all transactions. Financial innovations, such as currency options, would be taxed indirectly through the corresponding hedging activities on spot and forward markets.

of course its main center London (and the non-EU financial center Zurich). This implies that the revenue cannot be assigned to national tax authorities, but it falls to all cooperating countries in the time zone collectively. The tax revenue for Europe must therefore be considered to represent a “pool” whose means are either transferred to the member states through formula-based grants, or go directly into a “European Fund for Economic Cooperation and Development”. Of course there are other possibilities to make use of the funds for “global public goods”. The decisive point is that such funds are *multilateral European*, and not *bilateral national*. Since I do not trust the success of negotiations on formula-based transfers<sup>28</sup>, the only feasible solution is likely to be a European fund.

9. Positive factors for the implementation of the PFTT are the concentration on one financial center as a „natural monopoly“ as well as the complexity of currency trade and the substantial positive network externalities that this entails for the various market segments and foreign exchange instruments. It excludes, for all practical purposes, that trading desks will be moved to other financial centers following the unilateral introduction of the PFTT. London (and its European financial satellites) exhibits such unique advantages as a foreign exchange center of three overlapping time zones that a dislocation of trade *into other time zones* is not to be worried about. To establish a rivaling financial center *within the European time zone*, but *outside the EU and Switzerland*

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<sup>28</sup> I simply remind the difficulties of coordinating tax policies in the EU, for instance in the context of a clearing system for the value-added tax in line with the origin principle, or the problems relating to the introduction of a withholding tax on interests.

would entail prohibitive high costs, and is totally absurd. It would mean *to transplant a whole network at once and in one piece*. The dislocation of single terminals is not sufficient (see also Kenen 1996). The very idea that individual actors of foreign exchange markets could break out of the

complex network of foreign exchange trade and move with their computers to exotic places such as the Bahamas is utterly ridiculous and entirely grotesque. But much depends, of course, on how the tax policy is implemented and whether it respects the peculiarities of liquidity trading