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# Foreign Exchange Trading and Volatility in Emerging Market Currencies Lessons from the Asian Crisis

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## Abstract

Starting from banks' proprietary trading in emerging market currencies the paper draws the attention to a widely neglected element of financial instability and presents a proposal of how to cope with it. After a short introduction, section two provides a survey of the sources of financial instability observed in recent years. Here, the focus is on the linkage between financial scandals and failures of individual traders and the collective market failures that become manifest in crises. Then, turning to the technicalities of currency markets, section three demonstrates what is special in foreign exchange trading compared to other financial market segments. Section four studies some peculiarities of trading in emerging market currencies and the policy implications. Section five presents a proposal which in taking into account the limits to influence the market from outside calls for an active private sector involvement in the solution process.

Keywords: Currency crises, forex trading, interbank market, emerging market currencies and New International Financial Architecture.

JEL Classifications: F31, F33, G18 and G21

## b) Introduction

Recent international financial crises impose particular challenges to the world economy. In contrast to earlier turbulences, most of them are not rooted in, and widely limited to, industrial countries but, above all, concern developing countries and emerging market economies for which the consequences are much harder to bear. This is calling more urgently for a solution – and probably for another kind of solution than those traditionally envisaged for the industrial world. There is an abundance of proposals and suggestions on how to stabilise the system, focusing on aspects such as controlling capital flows, improving countries' macroeconomic performance and developing standards for transparency and good governance. Starting from the microbehaviour in one specific market segment – banks' proprietary trading in emerging market currencies – the following paper aims at drawing the attention to a widely neglected element of financial instability and presenting a proposal of how to cope with this problem.

In recent years, global financial markets have experienced an unprecedented series of turmoils. On the one hand, there were the crises in Mexico (1994-95), Asia (1997), Russia (1998), Brasilia and Ecuador (1999) and Turkey and Argentina (2001-02). But, on the other hand, international financial developments were also overshadowed by failures of individual traders of firms like Metallgesellschaft, Barings, Daiwa, Sumitomo, or lately AIB. Both can be regarded as two sides of the same coin: an exaggeration of reactions to seemingly favourable conditions in highly speculative markets. In the first case, the *successful* strategy

of a few "testing" a currency, which is imitated by the many jumping on the bandwagon, may evolve into a full-blown financial crisis or fuel the dynamics of an existing one. In the second, an *unsuccessful* individual is ending up with spectacular losses that may even drive a firm to the brink of bankruptcy with or without leaving its marks on the international financial system. With respect to the latter, these days, internationally operating banks and other big players in the markets are constantly facing a dilemma: On the one hand, in times of high competition and sinking profit margins in their core businesses they are more and more relying on traders' successes. On the other, the degree of negligence and lack of control required for granting the successful trader the scope of action needed bears high risks both for the individual institute and for the financial community as a whole. In what follows, a linkage will be drawn from individual failures to collective crisis phenomena focusing on the insights the former may provide for containing the latter.

Financial crises stand for market failure in at least three respects:

- They show obvious *informational inefficiencies*. Prices do no longer properly reflect activities and conditions in the real economy and the resulting financial demand and supply. Instead, individual price expectations and beliefs increasingly concentrate on anticipating one another's behaviour and the direction the market will go often ending up in a self-reinforcing process widely detached from underlying fundamentals.
- Second, financial crises signal *allocational deficiencies*. Traders become highly myopic and funds are withdrawn from where they were needed most and channelled to options where quick profits lure.
- Third, financial crises are *socially and politically undesirable* in that they threaten the subsistence and well-being of people in the countries concerned, and the stability of the world financial system.

As a rule, market failure is rooted in individual behaviour. It is the reactions of the many to unusual situations, rumours and events that produce those inefficient and undesirable market outcomes and crisis scenarios. Thus, to contain a crisis calls for concentrating on this individual behaviour and steering it either by influencing market expectations or by curbing excessive trading itself. Given the strength and uniformity of expectations once crisis struck this paper will concentrate on the second alternative. It will draw the attention to the small circle of big international banks that specialise in trading in emerging market currencies arguing that those are an obvious policy target. However, a lack of information and transparency in the market, and the general sensitivity of the subject of financial market interference, call for a rather modest approach, preferably involving the banks themselves in some form of voluntary self-restraint appealing to their overall responsibility. In the realm of international finance, there are informal rules and regulations that in this respect may serve as a template.

For several reasons, in what follows special importance is given to the Asian crisis and to the lessons it bears for the containment of currency crises in emerging market economies. First of all, in spreading across many countries and regions, and a wide range of financial markets, the Asian crisis had a much broader scope than most crises before and afterwards, clearly illuminating some of the weaknesses and failures of the international financial system, and some of its abuses by parts of the international financial community. Further, following the distinction made by several authors<sup>1</sup>, the Asian crisis contains elements of both banking crises that interrupt the internal payments system and currency crises that disrupt the external payments relations with the interplay of both posing a particular challenge to international

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<sup>1</sup> See Neal and Weidenmier (2001) and the references cited there.

policy making. Second, while each case is special, the Asian crisis offers a particularly striking example of three characteristics or patterns resulting from the cumulative effects of individual decisions. Those are herd behaviour, contagion and a kind of "quasi-periodicity" in market dynamics. The third reason for focusing on the Asian crisis is that, in recent years, in course of the introduction of the euro, the emergence of electronic communications networks (ECNs) and other influences, currency markets and the nature of foreign exchange trading underwent tremendous changes. Those changes are blurring the picture in later crises without invalidating the general conclusions of this study.

The paper is divided into five sections. The following one gives a brief survey of the sources of financial instability observed in recent years. Here, no explanation of motives and strategies is sought. Instead, the focus is on events and behaviour patterns with a linkage drawn between the financial scandals and failures of individual traders and the collective market failures that become manifest in crises. Then, turning to the technicalities of the currency markets, section three demonstrates what is special in foreign exchange trading compared to other financial market segments. Section four goes one step further focusing on some peculiarities of trading in emerging market currencies, on turnover, market volume and volatility, and on the main actors in these markets. Section five presents a policy proposal which in taking into account the limits to influence the market from outside calls for an active private sector involvement in the solution process.

## **2. Financial instabilities in retrospect**

Studying the causes of financial instabilities in the recent past there are two lessons to be learned. One is about individual behaviour in the markets, about personalities, activities and trading strategies involved. The second is about mass behaviour, crisis patterns and market dynamics. This chapter will show the relation between the two drawing on examples from a wide range of speculative markets with similar traits, of markets for commodities, financial products and foreign exchange.

### **a) From individual to collective failure**

Starting with a chronology of individual failures and financial scandals reveals an astonishing fact. In the first years after the transition to floating exchange rates in the early 1970s, and the beginnings of capital and financial liberalisation in many parts of the world in the 1980s, despite the inexperience and uncertainties involved, those incidents – at least those that became publicly known – had been rare events. There was one major exception occurring in the foreign exchange market shortly after the transition to floating which was the Herstatt case:

Bankhaus Herstatt was a small German bank in Cologne which was heavily engaged in foreign exchange trading. On 26 July, the Bundesaufsichtsamt für das Kreditwesen (BAKred), the German banking supervisory authorities, closed the bank in the early afternoon, German time. At that time, settlement of same-day interbank systems in Germany had taken place, and several of the bank's counterparties from the United States and elsewhere had paid out D-mark to Herstatt to meet their obligations from D-mark/dollar trades. Although payment for the transaction of the dollar legs had also already been ordered by Herstatt's correspondent bank in New York, where it was still late morning, the failure of the bank prevented the completion because it was shut before the New York settlement system opened leaving foreign exchange trades of over \$620 million worth undone.

Scandals and failures of individual firms became more frequent and more spectacular with increasing globalisation and international business activities' growing complexity (Table 1). One of the most hotly debated incidents of the early 1990s was the case of Metallgesellschaft, then Germany's 14<sup>th</sup>-largest industrial group, whose US subsidiary had made large losses in trying to hedge oil products in the futures markets. By 1993, the firm had entered into contracts to supply customers with 180 million barrels of oil products over a period of 10 years. These commitments exceeded many times the firm's refining capacity. In order to hedge against possible price increases that would have required it to buy the products for a higher price in the market to meet its obligations at maturity, the firm entered short-term contracts – there was no market for respective long-term contracts – and implemented a rolling hedge. But, it underestimated the risk of margin calls depleting its reserves. In the end, the positions had to be unwound realising losses of about DM2.8 billion.

**Table 1: Famous financial losses\***

<b>Company</b>	<b>Instrument</b>	<b>Amount</b>
<i>Between 1984 and 1994:</i>		
Klöckner	Commodities futures	380
Merill Lynch	Principal only mortgage-backed securities	335
Allied Lyons	Currency options	275
Volkswagen	Foreign exchange futures	260
Nippon Steel	Foreign exchange derivatives	130
<i>After 1993/94:</i>		
Showa Shell Sekiyu	Foreign exchange forwards	1,580
Kashima Oil	Currency derivatives	1,450
Metallgesellschaft	Energy derivatives	1,340
Codelco, Chile	Commodities futures	200
Procter&Gamble	Leveraged D-mark/US dollar spread	157
Barings	Stock futures and options	1,300
Daiwa	US Treasury bond dealings	1,100
Sumitomo	Copper derivatives	1,800
NatWest	Interest rate options	138
UBS	Equity derivatives	421
AIB	Foreign exchange dealings	750

\* In millions of US dollars.

Source: Shirreff (1994: 29), Financial Times.

Among academics, the case of Metallgesellschaft attracted much attention because of the hedging strategy applied (Edwards and Canter 1995). However, in the context of this paper, the aspect which is of far greater interest is initial contract volumes. As in the Herstatt case the amounts involved exceeded by far what would have been expected from the firm's core business and daily activities. Another parallel is an obvious inexperience or lack of fantasy to imagine how risky those positions may become, and how strong markets may develop against traders' odds, and to take into account the resulting consequences.

Inexperience and an apparent lack of fantasy are also characteristics of another case that caught the headlines a little later: Barings. In February 1995, Barings Bank, one of the oldest British merchant banks, went bankrupt after one of its traders at Baring Futures (Singapore)

Ltd, Nick Leeson, lost about \$850 million on the Singapore and Osaka futures exchanges. The losses stemmed mostly from positions in Nikkei 225 futures. When in January 1995 the Japanese city of Kobe was hit by an earthquake, and Japanese stock prices became highly volatile falling more than 15 per cent in two months, Barings' fate was sealed. The losses were made worse by the sale of options implicitly betting on a stable market. In the end, the trader was unable to make the cash payments required by the exchanges and all came out.

Next came Daiwa. In September 1995, the Japanese Daiwa Bank announced accumulated losses of \$1.1 billion from the activities of a bond trader of its New York branch, Toshihide Iguchi, which he had managed to hide over a period of 11 years. Mr. Iguchi, a former car dealer who was with the Bank since 1976, became manager of its New York branch's trading operations in 1979. In 1984, he lost \$200,000 in betting on US-government bonds. Instead of confessing he went on with unauthorised activities and began to use customers' accounts and forge documents to cover them up. The losses which grew over the years went unnoticed despite the fact that Japan's bank regulators as well as the Federal Reserve Bank of New York and the New York State banking authority examined the branch's operations. In the end, they only became known because the dealer confessed.

Only several months later, on 13 June 1996, Sumitomo Corporation, the big Japanese general trading house, caught the headlines with the announcement that its chief copper trader, Yasuo Hamanaka, had been running up estimated losses of \$1.8 billion in unauthorised trades at the London Metal Exchange (LME). Mr Hamanaka had joined Sumitomo in 1970. In contrast to many other Japanese who are subject to the system of job rotation, he specialised very early in copper trading and in the metal markets became known as 'Mr Copper' due to his control of international copper stocks and the sheer size of his trades. Along to other traders' estimates, in June 1996, Sumitomo had more than two million tonnes of copper to sell, or about 20 per cent of the total used in the western world every year. As soon as the first rumours about the firm's losses circulated, the situation became precarious to both producers and banks. Eventually, the copper price was driven into a free fall and Sumitomo and those banks which had sold put options to producers that had sought to hedge themselves against falling prices suffered huge losses.

The latest case so far is AIB. In February 2002, the Allied Irish Bank's US subsidiary, Allfirst, announced a loss of \$750 million in currency dealings. One of its two currency traders, John Rusnak, who had been with Allfirst since 1993, had made losses in yen-dollar spot and forward exchange contracts and generated the cash needed to cover these losses by selling undeclared option contracts. In one instance, he sold call options that entitled his counterparty at a future date to buy dollars at about ¥70 – significantly below the market rate.

In all these cases, the pictures are very similar. There is a conventional corporation with a high reputation and a trader far away from headquarters and largely uncontrolled who has been with the firm for many years, deeply trusted and successfully engaged in mostly profitable trades in speculative markets – be it for commodities, foreign exchange or financial products. Traders like these ones are no adventurers working for an exotic hedge fund or dreaming of quickly becoming rich by all means. For example, in the investigations that followed their downfalls, no evidence could be found that Mr Rusnak or Mr Leeson were driven by a desire to enrich themselves in any way other than the preservation of their jobs. Another aspect is that those traders usually do not engage in sophisticated trading strategies involving latest financial innovations but rely on traditional straightforward sets of instruments.

A further common characteristic of those cases is inexperience in the broadest sense. Apparently, neither the traders, nor the firms they were working for – nor the regulatory authorities – had the slightest idea how bad things could go and how far and persistent markets could move against their odds. And when things went wrong, panic arose and the traders tried to hide losses by doing more trades in the same way, fake trades or disguise them by forging documents or using clients' accounts. Although well-trained and long successful those traders were inexperienced in the sense that they were not used to cope with unusual and highly improbable markets strains. They were not able to imagine the consequences of extreme events such as an earthquake, as in the Barings case, or the total breakdown of a market used for hedging, as the one the banks experienced in the Sumitomo case, or only a long-lasting downward spiralling of prices with no recovery in sight – and they could not practice them. In this, they do not differ from traders in financial institutions and corporations all over the world.

Beside those cases there are many other, less spectacular losses every year that are not made public because banks and corporations fear to lose credibility and clients' confidence when they become known. The fault here is at least as much with the traders as with their employers. Beside the scale of the losses, there is not much that distinguishes the spectacular "rogue" trader from the ordinary one. Big international banks and corporations are encouraging a certain type of trader. With growing competition in open global markets and shrinking profits in their core businesses they become increasingly used to rely on traders' successes and abilities leaving the best among them largely uncontrolled as long as their luck holds. Traders are encouraged by big bonuses if risky positions pay off. They are often said to be "reckless" and involved in "unauthorised" trades. Reckless they may be in not paying much attention to anything outside the trading room, but, usually they have few incentives to engage in "unauthorised" trades and criminal activities to become rich. All they have to do is to assume the risks they are encouraged to take, be successful and pocket the bonus.

For the subject of this paper, which aims at drawing a link between individual and collective market phenomena, the question is under which circumstances traders succeed. The answer tells much about market dynamics. Except for those rare cases when traders have insider information, success only comes when the odds are in favour of them betting on an expected price change. However, this means that, above all, they succeed

- when they move with the market,
- when their expectations are in line with those of others becoming in a sense self-fulfilling,
- or, ideally, when they even manage to drive the market, either as first mover whose actions are carefully observed by others – think of the Soros case – or by establishing a position big enough to have a felt direct influence on prices.

The latter is rather unlikely in the majority of deep and liquid financial markets, and in particular in currency markets where the equivalent of trillions of US dollars is traded in industrial countries' currencies every day. However, it is more likely to occur in markets for emerging market currencies that, in regular times, are narrow, often illiquid and highly volatile.

The interplay of actions and reactions in the markets results in three phenomena that any attempt to prevent or dampen down a crisis will have to take into account. The first is herd behaviour. Traders searching to go with the market tend to observe and imitate one another. In particular in times of turbulence, they are less attentive to economic scenarios or political attempts to influence markets than to their direct environment. The second is contagion:

Traders are testing one market and, after a while, when they have been successful, turn to other markets or regions. In this, they strongly look for similarities neglecting circumstances that call for a more differentiated approach. The third phenomenon is a kind of "quasi-periodicity" in market dynamics. Crises are coming in waves with windows of tranquility in between. Traders jump on a bandwagon, then stop realising profits, pausing, and, when observers and policy makers got the impression that all is over, sometimes start anew. The Asian crisis may serve as an example for all three.<sup>2</sup>

## **b) A short chronology of the Asian Crisis**

Figure 1 presents a short chronology of events during the Asian crisis focusing on its first year which shows all characteristics mentioned above. Here, no explanations are sought why the crisis happened, or spread to particular countries, but the aim is to draw the attention to overall crisis patterns.

It all started in early 1997 with pressures on the Thai baht. As those aggravated they were met by heavy interventions, first by the Thai central bank and later by Thai and Singaporean authorities in a joint effort to defend the currency. Then, on 15 May, after another massive attack by speculators, Thailand introduced capital controls but pressures on the currency continued. For the first time, there were also signs that another country, the Philippines, might be affected as well.

On 2 July, the Thai authorities decided to float the baht. Pressures began to spread not only to the Philippine peso, but also to the Malaysian ringgit and the Indonesian rupiah. After heavy interventions and other measures, on 11 July, the bands of the Philippine peso and the Indonesian rupiah were widened. End of July, the Malaysian ringgit came under renewed pressure falling by 4.8 per cent and hitting a 38-month low after the Malaysian central bank abandoned the defense of the currency.

On 11 August, the IMF unveiled a rescue package for Thailand including loans totaling \$16 billion from the IMF and Asian countries. On 14 August, after the Indonesian rupiah hit a historic low to the dollar despite massive interventions, Indonesia abolished its system of managed exchange rates. On 15 August, the Hong Kong dollar came under strong pressure, overnight interest rates in Hong Kong rose by 150 basis points the day and the Hong Kong stock market ended sharply lower.

On 20 August, the IMF standby credit for Thailand of \$3.9 billion was approved. During the following weeks, pressures on the Philippine peso, the Indonesian rupiah and the Malaysian ringgit never stopped, but compared to what was before and after, there was a period of relative calm, and some observers already started to believe that the worst was over. Then, in October, the crisis again gathered momentum spreading further and further. On 14 October, the band of the Vietnamese dong was widened. On 17 October, the authorities in Taiwan stopped supporting the Taiwanese dollar. In the following days, the Hong Kong stock market and the Hong Kong dollar came under severe pressure again, with the Hang Seng index falling by more than in the 1987 crash.

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<sup>2</sup> A detailed chronology of the events during the Asian crisis can be found in the internet (Roubini 2002). See for national Asian financial markets involved the contributions in Menkhoff and Reszat (1998).

**Figure 1: Chronology of the first year of the Asian crisis**

<b>Early 1997</b>	<b>Pressure on the Thai baht</b>
<b>15 May</b>	<b>Thailand introduces controls aimed at segmenting the onshore and offshore markets but strong pressure continues.</b>
<b>2 July</b>	<b>Floating of the Thai baht. Pressure spreads to the Philippine peso, Malaysian ringgit and Indonesian rupiah.</b>
<b>11 July</b>	<b>Band of the Philippine peso widened. Band of the Indonesian rupiah widened from 8% to 12%.</b>
<b>end-July</b>	<b>Malaysian ringgit falls by 4.8%.</b>
<b>11 August</b>	<b>The IMF unveils a rescue package for Thailand including loans totaling \$16 billion from the IMF and Asian nations.</b>
<b>14 August</b>	<b>Floating of the Indonesian rupiah.</b>
<b>15 August</b>	<b>Speculative attack on the Hong Kong dollar.</b>
<b>20 August</b>	<b>IMF standby credit for Thailand of \$3.9 billion approved.</b>
<b>17 October</b>	<b>Authorities stop supporting the New Taiwan dollar, which falls by 6%. Pressure on Hong Kong dollar and equity markets intensifies.</b>
<b>14 October</b>	<b>The band of the Vietnamese dong is widened to <math>\pm 10\%</math>.</b>
<b>20–23 October</b>	<b>Financial turbulence in Hong Kong. Hang Seng index falls by 23% in three days. Pressure on Korean won mounts.</b>
<b>27 October</b>	<b>7% decline in US equity prices. Sharp declines in Latin American equity markets.</b>
<b>28 October</b>	<b>3% decline in Russian equity prices.</b>
<b>31 October</b>	<b>After intense pressure on the real the Central Bank of Brazil strengthens its interventions.</b>
<b>5 November</b>	<b>IMF standby credit for Indonesia of \$10.1 billion approved; \$3 billion made available immediately.</b>
<b>10 November</b>	<b>Interest rates raised by 7 percentage points in Russia and authorities announce that the intervention band for the rouble will be widened from <math>\pm 5\%</math> to <math>\pm 15\%</math>.</b>
<b>20 November</b>	<b>Daily fluctuation band for the Korean won widened from <math>\pm 2\frac{1}{4}\%</math> to <math>\pm 10\%</math>.</b>
<b>21 November</b>	<b>Korea applies for IMF standby credit.</b>
<b>4 December</b>	<b>IMF standby credit for Korea of a record \$21 billion over three years approved; \$5.6 billion disbursed immediately.</b>
<b>16 December</b>	<b>Floating of the Korean won.</b>

On 5 November, the IMF approved a standby credit for Indonesia of \$10.1 billion, of which \$3 billion were made available at once. On 10 November, in Russia interest rates were raised by seven percentage points and the authorities announced to widen the band of the rouble from  $\pm 5$  per cent to  $\pm 15$  per cent. Ten days later, Korea caught the headlines widening the band for the Korean won and applying for an IMF standby credit. On 4 December, the standby credit of a record of \$21 billion over three years was approved with \$5.6 billion to be disbursed immediately. But, to no avail: The year ended with the floating of the won.

This short chronology of events contains all crisis elements mentioned before. Herd behaviour dominated in the various stages of a crisis. Traders started testing a currency because economic data looked unfavourable, signals of financial institutions' weakness became apparent, rumours of unsustainable developments arose or they simply believed to have found similarities with other countries in crisis. After a while, pressures on the currency intensified because others were jumping on the bandwagon and it became ever harder for the authorities to defend it.

Second, apparently there were no limits to contagion. As the crisis unfolded, one domino after the other was falling. At the trading desks, parallels were drawn at first between one crisis-prone country and its neighbours, next between countries of the same region, then between emerging market economies worldwide, and eventually not even industrial countries' financial markets were spared.

The third phenomenon is market dynamics. Comparable to other crises before and after, this one did not unfold straightforward but was coming in waves. One particularly striking example is the long period of relative calm between August and October 1997.

What can policy do to influence these patterns? There is one lesson concerning currency markets. Apparently, in times of financial turmoil, foreign exchange trading and currency developments are at least as important as the role of private investors' behaviour and capital flows. While for a single country such as Korea, Thailand or Brazil the flight of capital at the slightest indication of crisis may be highly precarious, for the severeness and duration of a crisis it is less so. Here, what matters more is the pressure on a country's currency and the strength of self-reinforcing downward tendencies triggered by the events.

In contrast to a widely held view, currency trades are not simply the other side of private capital flows and international investors' portfolio decisions. The foreign exchange market is a distinct market with a distinct circle of participants following rules that differ markedly from other financial market segments. It is a wholesale market in which, as a rule, foreign exchange traders do not buy a currency in order to invest it in foreign bonds, shares or other financial instruments, and do not sell it fleeing the country. Instead, they open a plus or minus position either to match an already existing one of opposite sign but equal amount and maturity as part of a hedging strategy, or, more often, in search of profits from an expected change in the exchange rate.

Compared to other financial markets, the size of the foreign exchange market is huge as some figures may illustrate. For instance, in 2001, estimated daily global foreign exchange turnover was about \$1.2 trillion. By comparison, quarterly foreign consolidated bank claims worldwide were \$11.3 trillion. The world total of market value of domestic equity markets in August 2001 was \$27 trillion, the outstanding value of world bonds markets in June 2001 was more

than \$29 trillion (Table 2). Beside, in contrast to another popular view, market turnover is largely unrelated to world trade flows which it exceeds by many times.<sup>3</sup>

**Table 2: World financial markets in figures\***

Volume of estimated daily global foreign exchange turnover in April 2001	1,210
Foreign consolidated bank claims worldwide, first quarter 2001	11,315
Domestic equity markets, world total of market value, August 2001	27,109
Outstanding value of world bonds markets, June 2001	over 29,300
In comparison: world annual exports for the year 2000	5,740

\* In billions of US dollar.

Sources: BIS, IFSL, Fischer Weltalmanach.

As the Asian example demonstrates, often mounting pressures on a currency, which sooner or later may end up in a free fall of the exchange rate fuelling investors' panic, mark the beginning of a country's decline. The higher the pressures on the currency, the stronger is the vicious circle of successive rounds of depreciation, domestic failures, economic worsening and investors panicking, the longer will the financial crisis last, the deeper will it be and the greater is the danger of contagion. Or, to put it the other way around: The sooner exchange-rate expectations turn again, and/or pressures on the currency are eased, the higher is the chance that the crisis will stay a local phenomenon. Thus, influencing exchange-rate expectations and/or curbing excessive trading in a currency becomes a matter of utmost urgency once crisis struck.

There is a vast literature on the ineffectiveness of foreign exchange interventions,<sup>4</sup> and experience confirms their limited use even in the very short run. Thus, other means to influence currency trading have to be found. One obvious solution, to alter expectations by abandoning "bad policies" or introducing economic reforms, must fail because of different time horizons of economic policy and foreign exchange traders. While the latter are becoming increasingly myopic in a crisis policy reforms take time, and the mere announcement under market pressure would lack credibility.

Another option is to exert some form of direct, formal or informal, pressure on the market as is common practice in the relations between authorities and major players in national financial systems. At first view, the sheer size of the foreign exchange market, its global nature and its dynamics make the prospects for such an approach appear rather bleak. However, a look at the mechanics of foreign exchange trading, and the circle of actors involved, shows a way how this might be done. But, this requires some familiarity with market technicalities.

<sup>3</sup> In this, in principle not much has changed since the Middle Ages. As Paul Einzig wrote in his History of Foreign Exchange: "All FX markets depended for their turnover largely on various types of fictitious bills. At times the volume of such business was much larger than that of the genuine business. ... the books of medieval merchants show many more bills than commercial transactions." (Einzig 1970: 74).

<sup>4</sup> Compare Sarno and Taylor (2001) and the references cited there.

### 3. Forex trading and currency instability

Observers and analysts often stress how much financial markets have changed in recent years. There are new regions and countries opening up their markets, new global players such as financial institutions from emerging markets, transnational corporations and institutional investors, new technologies and ever more sophisticated financial instruments. But, they tend to overlook how much, at least in currency trading, market mechanics have stayed the same since the early days.

**Table 3: Daily global foreign exchange turnover**  
(billions of US dollars, in parantheses percentage shares)

Category	April 1989	April 1992	April 1995	April 1998	April 2001
Total of traditional foreign exchange instruments	590	820	1,190	1,490	1,210
• Spot transactions	350 (59)	400 (49)	520 (44)	590 (40)	387 (32)
• Outright forwards	27 (5)	58 (7)	97 (8)	128 (9)	131 (11)
• Foreign exchange swaps	190 (32)	324 (40)	546 (46)	734 (49)	656 (54)
• Estimated gaps in reporting	56	44	53	60	36

Source: Bank for International Settlements: Central Bank Survey of Foreign Exchange and Derivatives Market Activity in April 2001: Press Release, Basle, 09 October 2001.

The bulk of trades in the foreign exchange market is still in traditional foreign exchange instruments, that is spot transactions, outright forwards and swaps. In April 2001, global average daily turnover in this market was estimated at US\$ 1,210 billion (Table 3), 32 per cent of which were spot transactions, 11 per cent outright forward and 54 per cent foreign exchange swaps. By comparison, over-the-counter (OTC) derivatives other than those traditional instruments (i.e., currency swaps and options) were US\$ 67 billion – a small fraction of overall trading.

Above all, what has changed, is market volume which grew dramatically over the last decade – far more than international trade and direct investment.<sup>5</sup> In 1985, daily average turnover was an estimated \$150 billion, and this was already double the volume of five years before (Hamilton 1986). This growth is one reason why the markets have become more and more

<sup>5</sup> Between 1998 and 2001 there had been a transitory decline in average daily turnover due to special events. Partly this is directly related to the Asian crisis, partly it is the result of the introduction of the euro and the reduction in the number of European currencies, the growing share of electronic broking in the spot interbank market and consolidation in the banking sector.

volatile, and why traditionally assumed textbook links between exchange rate movements and fundamental economic data are ever harder to nail down.

Many observers feel that trading has become "excessive", but the divide between "normal" and "excessive" trading is hard to tell. In principle, "excessive" refers to some form of currency speculation. There is widespread agreement that speculation has a useful function in adding liquidity to a market in normal times. But, there is equal unanimity that, in the fragile environment on the brink of a financial crisis, its effects can become disastrous.

There are several definitions of currency speculation. In what follows a purely technical one is given, disregarding the motives and strategies behind a foreign exchange transaction. Accordingly, a speculative foreign exchange position is one that is deliberately established or held without a respective matching position of equal amount and maturity, but opposite sign, in the same currency. When positions are kept open for very short time spans, dealers in this context also use to speak of "arbitrage". Initially, arbitrage defined a riskless activity to take advantage of differentials in the price of a currency in different markets. Nowadays, those occasions have become rare, and the bulk of "arbitrage" taking place means the exploitation of price differences in time which - albeit for minutes or hours - necessarily involves keeping the position open, i.e. exposed to currency risk.

In principle, currency speculation defined in this way can be done – and actually happens – in all three traditional foreign exchange instruments. Each of them has advantages and disadvantages that make them more attractive to some actors than to others allowing to identify those market participants whose strategies matter most in currency crises and to draw some conclusions about policy implications. In order to see this, it is necessary to have a closer look at the basics of classic foreign exchange trading:

A *spot transaction* is an exchange of two currencies for settlement within two business days. A dealer who buys US dollars against euro spot has an open position in dollar which is exposed to the risk of a change in the exchange rate as long as there is no matching position such as a due dollar payment of equal amount. When the dollar rises against the euro the position can be sold at a higher price. Therefore, if the dollar is expected to rise actors may become tempted to buy dollars spot and hold them until their expectations prove right - or wrong and they can no longer afford. In this, they are not bound to the period of two days. If the exchange rate rises in between, the position can be closed instantaneously by selling the dollars again.

Using a spot transaction for currency speculation in this way can become a costly matter for those who are not directly participating in the market because in this case it requires liquidity. But, this does not hold for direct market participants such as banks and other financial institutions. When they buy a currency in the interbank market holding it for a short time during the day or overnight, and then sell it again, due to established customs it is only the difference, i.e. the gain or loss, that has to be paid which gives them a high degree of flexibility.

An alternative for bank customers which in a spot transaction fully would have to pay for the currency to be held is a *forward transaction*. This is an exchange of two currencies for more than two business days at a rate fixed at the time the transaction is agreed with maturities stretching days, months or even years into the future. There are specific exchange rates for each forward maturity. Again, as long as there is no matching position of equal amount and

maturity, but opposite sign, in the same currency there is an exposure towards risk which can be exploited for currency speculation.

Forward transactions have the advantage that in this market - comparable to the interbank spot market - generally no accounts are debited or credited, that is no money actually changes hands, until maturity. Their main disadvantage is low flexibility. Due to the longer period the risk of inverse price movements is higher. In addition, in practice, forward contracts are mostly tailor-made to meet customers' needs with non-standard amounts or maturities which makes it difficult to unwind exposures. Beside, a smaller number of participants and lower volumes in this market segment "imply somewhat less competitive pricing" (Bank for International Settlements 1996: 17).

Both spot and forward positions need not be closed at maturity but can be prolonged by a transaction known as *foreign exchange swap*. A swap is an exchange of two currencies for a specific period and a reversal of that exchange at the end of the period consisting either of a combination of a spot and a forward leg or of two forward trades with different maturities.<sup>6</sup> For example, in a euro/dollar spot against forward swap transaction a dealer may buy the euro for in two days at an agreed spot rate selling it simultaneously back for in a week, a month, or three months. The loss or gain in this case is fixed and known: It is determined by the swap rate, i.e. the difference between the spot and the forward rate. Due to the high interdependence of money and foreign exchange markets worldwide, the swap rate is equal to the difference in interest rates between the two currencies. Any deviations would instantaneously trigger interest rate arbitrage movements eliminating them again:

For example, if the interest differential were higher than the swap rate market participants in search of risk-free profits would have an incentive to raise funds in the market with the lower interest rate, swap them into the other currency, invest the amount for the respective period at the higher rate and then reverse the transaction at the end. The conditions of the reversal would be fixed at the beginning by the forward leg of the swap. The cost of this transaction would be the swap yield which is determined by the difference between spot and forward rate. Another possible strategy were to raise funds at the higher interest rate, swap them into the lower-interest currency and invest them there. Since the swap yield is always paid to the buyer of the lower-interest currency the result should be the same. This relationship is known to all market participants, and prices are constantly adjusted respectively, so that those kinds of deviations are extremely rare.

Due to these close links to the money markets swaps are often considered as credit rather than currency instruments. A swap alone contains no foreign exchange risk. The dealer contracts both to pay and to receive the same amount of currency at specified rates. As the Bank for International Settlements puts it: "Since currency risk is replaced by credit risk, the transaction is conceptually different from spot transactions." (Bank for International Settlements 1996: 18) To cite the Bank of England: Swaps are transactions "in which neither counterparty assumes currency risk. They are closely linked to money market deals ... and often used to hedge currency risk and manage liquidity." (Bank of England 1998: 1) For example, banks may hedge a forward transaction with a customer by combining a spot transaction with a swap. Investors may exploit market distortions and interest rate differences borrowing at low rates in one currency and swapping the amounts into another currency to

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<sup>6</sup> Foreign exchange swaps must not be confused with currency swaps which are a combination of interest rate and currency instruments. A currency swap consists of an exchange of streams of interest payments in different currencies for an agreed period of time and of principal amounts in different currencies at a pre-agreed exchange rate at maturity.

finance investments there or to replace costly liquidity in one currency by cheap liquidity in another.<sup>7</sup>

**Table 4: Average daily turnover in the UK and the United States by counterparty**  
(billions of US dollars, in parantheses percentage shares)

	UK			USA		
	1992	1998	2001	1992	1998	2001
Net turnover	290	637	504	167	351	254
<i>of which</i>						
• Interbank <sup>1</sup>	225 (78)	530 (83)	341 (68)	112 (67)	173 (49)	
• Other financial institutions	42 (14)	61 (9)	138 (27)	31 (19)	107 (31)	
• Non-financial customers	24 (8)	47 (7)	25 (5)	23 (14)	70 (20)	

1 For the UK cross-border plus net domestic interbank, for the USA reporting dealers.  
Source: Bank of England; Federal Reserve Bank of New York.

Nevertheless, swaps *are* used for currency speculation. The "credit view" neglects the dual role swaps play in today's foreign exchange markets. With a swap currency risk can be replaced by credit risk, but, as already mentioned, it need not. In combination with a spot or outright forward position a swap enables the dealer to hold and prolong an open foreign exchange position and, at the same time, keep a highest possible flexibility. To cite the Bank for International Settlements once again: "...foreign exchange swaps are often initiated to move the delivery date of foreign currency originating from spot or outright forward transactions to a more optimal point in time. By keeping maturities to less than a week and renewing swaps continuously, market participants maximise their flexibility in reacting to market events."(Bank for International Settlements 1996: 18) This appears to be one reason<sup>8</sup> why the volume of swaps has risen so much in recent years - the years in which financial crises occurred ever more often and became ever more severe - and even replaced the spot market as the biggest foreign exchange market segment.

The mechanics of currency trading may help identify the main actors in currency crises. Liquidity and cost considerations require a direct market access for most expectation-driven foreign exchange transactions - in particular, those extending over a short time horizon. The foreign exchange market is largely an interbank market. In 2001, interbank transactions accounted for 68 per cent of all trades in London, the world's leading centre of foreign exchange, where trading with other financial institutions was 27 per cent and with non-

<sup>7</sup> For instance, in the 1990s, many yen/dollar transactions were done for these reasons. See also Reszat (1997): 48.

<sup>8</sup> Although it is not the only one: For example, beside the mentioned hedging and money market transactions swaps are used also in a strategie known as swap-rate arbitrage, which is a technique to speculate on variations in the swap rate, i.e. the interest differential. See for the details Reszat (1997): 60 ff.

financial customers only 5 per cent (Table 4). In the United States, the Number Two in the world, the situation looks slightly different. Here, the share of interbank trading is traditionally lower than elsewhere – although banks are still the largest group – and fell in recent years, which is mainly explained by a greater use of automated order-matching systems.

From the described market mechanics it is obvious that banks are trading mainly spots and swaps. As a rule, there is no need for them to accept the lack of flexibility of a forward contract except for hedging purposes. Most of their trades are short-term by nature with the bulk of forward and swap maturities of seven days or less (Table 5).

**Table 5: Proportion of gross turnover in the UK and the USA by transaction type**  
(percentage of total turnover)

Instrument	UK			USA		
	1992	1998	2001	1992	1998	2001
Spot	52	57	30	42	35	41
Forwards	6	8	11	11	7	14
FX Swaps	42	35	59	47	58	45
Maturity of forwards <sup>1</sup>						
• up to and for 7 days				69	51	
• 7 days and up to 1 year				30	13	
• over 1 year				1	1	

<sup>1</sup> For the UK outright and swaps, for the USA swaps only.

Source: Bank of England; Federal Reserve Bank of New York.

Anecdotal evidence and the scarce information available of the market shows that, apparently, taking risks pays for the banks, in particular in times of turbulence. Again, the Asian crisis may serve as an example. Most of the world's leading institutions could be seen making large profits on the currency front out of the crisis as increases in foreign exchange trading revenues of American banks in the third quarter 1997 demonstrate. In some cases those ranged between 60 and 100 per cent (Table 6).<sup>9</sup>

**Table 6: Third-quarter 1997 foreign exchange trading revenues**  
(in millions of US dollars)

	Year to date 1997	Year to date 1996	% change
Citibank <sup>1</sup>	1,043.0	640.0	63
Chase <sup>1</sup>	572.0	341.0	68
Bank of America <sup>1</sup>	312.0	269.0	16
JP Morgan <sup>1</sup>	302.0	206.0	47
State Street	170.0	91.0	87
Bank of New York <sup>2</sup>	87.0	43.0	102
Republic National	86.3	73.9	17
Northern Trust	77.8	42.7	82
Bank Boston	57.0	37.0	54

<sup>1</sup> Includes net interest income.

<sup>2</sup> Includes other trading income.

Source: Financial Times, 28 October 1997.

<sup>9</sup> Besides, activities are not limited to emerging-markets currencies. For example, when Deutsche Bank reported a 23 per cent jump in group net profit for 1993, this included a 76 per cent increase in earnings from proprietary trading, a success which probably owes much to the near-collapse of the European Exchange-Rate-Mechanism that year. Compare Financial Times (1994).

There is a long-standing debate about the nature of these revenues. The banks hint at the increase of customer trading in times of crisis. Rising volatility encourages speculators among their customers to bet on exchange rate moves, and companies and fund managers to stronger rely on hedging. On the other hand, the comparably small share of customer trading in the market, and the sheer volume of market turnover compared to trade and investment flows worldwide, indicate that this cannot be the whole story.

Then, whose trades are driving the market? In foreign exchange interbank trading, concentration is high and the circle of actors is limited. End of the 1990s, there were an estimated thirty to forty banks in the world which were internationally active in a narrow sense making two way prices in multiple currency pairs in usually more than one trading centre. In London, the top ten banks accounted for more than 40 per cent of turnover, the top twenty's share was 69 per cent. In the United States, the top five firms had a market share of 31 per cent. Meanwhile, concentration is even higher due to the increasing competition in the banking sector in recent years. In 2001, in London the combined market share of the top ten reached 58 per cent, the top twenty's share was 79 per cent. The number of firms accounting for more than one per cent of total turnover fell from 25 in 1998 to 21 showing a growing concentration of business even among the largest institutions (Wharmby 2001).

**Table 7: Foreign exchange turnover in Asian currencies**  
(in billions of US dollars per day)

Currencies	April 1995	April 1996	April 1997	October 1997
Indonesian Rupiah	4.8 <sup>1,2</sup>	7.8 <sup>1,2</sup>	8.7 <sup>1,2</sup>	8.5 <sup>1,2</sup>
Korean won	3.1	3.2	4.0	3.6
Thai baht	2.6	4.0	4.6	2.5
New Taiwan dollar	1.5	1.6	1.7	2.3
Indian rupee	1.6	1.2	1.7	2.0
Malaysian ringgit	n.a.	1.1	1.2	1.5
Philippine peso	0.02	0.1	0.2	0.1

1 On a gross basis.

2 Includes other currencies

Source: Bank for International Settlements (1998), 68<sup>th</sup> Annual Report, Basle, Table VI.5.

### 3. Emerging-market currencies

Concentration is even still higher in trading in emerging-markets currencies, the main targets of speculative attacks in recent years. In the US market, in April 1998, at the height of the Asian crisis, there were 15 dealers reporting trades of \$250 million and more in Thai baht, 14 in Brazil real, five in Korean won, and only two in Chilean peso and Russian ruble respectively (Federal Reserve Bank of New York 1998). In the UK, when asked to identify currencies with turnover exceeding \$100 million in April 1998, equivalent to \$5 million per day, 19 dealers reported trades in Malaysian ringgit, 16 in Thai baht and 13 in Indonesian rupiah (Thom et al. 1998). Why those currencies are traded mainly by a small number of banks can be explained by need for specialization. Only the biggest institutions with great financial strength can afford the risks in these narrow and often illiquid markets and this highly volatile environment.

**Table 8: Volatility in Asian currencies\***  
(in percentages)

Currencies	April 1995	April 1996	April 1997	October 1997
Indonesian Rupiah	1.5	1.5	3.2	39.3
Korean won	2.5	1.5	1.6	9.3
Thai baht	2.3	1.6	1.9	15.6
New Taiwan dollar	8.7	0.9	1.2	18.2
Indian rupee	1.5	6.0	0.5	1.3
Malaysian ringgit	5.3	3.4	2.7	31.5
Philippine peso	2.9	0.6	0.4	25.0

\* Annualised standard deviation of percentage changes in the exchange rate against the US dollar.  
Source: Bank for International Settlements (1998), 68<sup>th</sup> Annual Report, Basle, Table VI.5.

In contrast to major industrial countries' currencies, trading in emerging market currencies is low and, some years ago, except for some trade-related transactions even had been almost nonexistent. Even during the Asian crisis, daily market turnover did not rise markedly and in some cases such as the Indonesian rupiah, the Korean won and the Thai baht even fell between April and October 1997 (Table 7). Prices, not volumes, were driving the crisis. Another indication of this fact is volatility:

**Table 9: Top ten in foreign exchange**

Top ten by estimated market share (in %)		Who's best in London		Who's best in New York		Who's best in Tokyo	
1	Citibank (8.54)	1	HSCB	1	Chase Manhattan	1	Bank of Tokyo-Mitsubishi
2	Deutsche Bank (5.57)	2=	Citibank	2	Citibank	2	Chase Manhattan
3	Chase Manhattan (4.78)	2=	Chase Manhattan	3=	Bank of America	3	Sumitomo Bank
4	Goldman Sachs (4.04)	4	Deutsche Bank	3=	Merrill Lynch	4	Sanwa Bank
5	HSBC (4.00)	5	NatWest	5	Deutsche Bank	5	Industrial Bank of Japan
6	JP Morgan (3.05)	6	JP Morgan	6	HSBC	6	Citibank
7	SBC Warburg Dillon Read (2.69)	7	Barclays Capital	7	JP Morgan	7	JP Morgan
8	Merrill Lynch (2.65)	8	Royal Bank of Canada	8	SBC Warburg Dillon Read	8	HSBC
9	NatWest (2.60)	9	Merrill Lynch	9=	Commerzbank	9=	Fuji Bank
10	Industrial Bank of Japan (2.53)	10	Bank of America	9=	Goldman Sachs	9=	Sakura Bank

Source: Euromoney, May 1998.

Although trading turnover remained low, volatility rose sharply during the crisis. For example, in April 1996, it was 3.4 per cent for the Malaysian ringgit, falling even back to 2.7 per cent in April 1997, only to rise to 31.5 per cent in October 1997. A similar picture can be found for the Philippine peso. For other Asian currencies a slight increase in volatility is observed from April 1996 to April 1997, followed by a sharp rise in October 1997 which in the case of the Indonesian rupiah even reached 39.3 per cent (Table 8). In the second half of

1997, the Indonesian rupiah fell by a total of 87 per cent, the Korean won by 85 per cent, the Thai baht by 63 per cent, the Philippine peso by 34 per cent and the Malaysian ringgit by 32 per cent (Miller 1998). It is this potential rise of volatility in times of turbulence, this extraordinary increase of profit opportunities, which makes emerging market currencies such an attractive target of foreign exchange dealing. Speculative markets in general live off volatility and, these days, emerging market currencies prone to crisis are among the most profitable ones.

**Table 10: Top ten in emerging-market currencies trading**

Asian currencies		East European currencies		Latin American currencies	
1	Citibank	1	Citibank	1	Citibank
2	HSBC	2	Deutsche Bank	2	Chase Manhattan
3	Standard Chartered Bank	3	Chase Manhattan	3	Bank of America
4=	Chase Manhattan	4	JP Morgan	4=	Deutsche Bank
4=	Deutsche Bank	5	ABN Amro	4=	JP Morgan
6	ABN Amro	6	ING Barings	6	ABN Amro
7=	Crédit Agricole Indosuez	7	Merrill Lynch	7	Bank of Boston
7=	Bank of America	8	Société Générale	8	HSBC
9	Barclays Capital	9	HSBC	9	ING Barings
10	SBC Warburg Dillon Read	10	Bayerische Vereinsbank	10	Merrill Lynch

Source: Euromoney, May 1998.

Although there are no direct data and at best anecdotal evidence of the activities of individual banks, some idea of the main actors can be gained from an annual foreign exchange poll conducted by the magazine Euromoney among banks' clients on the one hand – including individuals at industrial and commercial corporations, financial institutions and state agencies – and chief dealers and heads of foreign exchange on the other. The results indicate that the circle of institutions at the top is almost always the same across regions. Table 9 shows the top ten financial institutions in foreign exchange ranked by market shares worldwide and those considered "best" in the main foreign exchange trading centres during the Asian crisis. Table 10 lists the top ten in trading in emerging-market currencies at that time.

The implication is straightforward. Apparently, except for the Tokyo market, there is a small circle of western banks dominating the overall scene. The argument of this paper is that those, as well as perhaps a few others, are the obvious target group of policy efforts to cope with currency instability. It is the banks in this group which need to be integrated into a broader concept of international cooperation to contain financial crises. The question is how this could be done.

#### 4. Containing Currency Crises – A Proposal

These days, there is an abundance of proposals and suggestions how the world financial system should be stabilised. Elements of the New International Financial Architecture include

- the promotion of transparency, accountability and good governance;
- the adoption of international standards and codes as benchmarks against which to assess the performance of individual countries;
- the strengthening of countries' financial systems;
- an orderly capital account liberalisation under careful management and sequencing;
- an implementation of sustainable exchange regimes;
- the development of modalities for the involvement of the private sector in forestalling and resolving crises, and
- a reform of the IMF's nonconcessional lending facilities to focus more on crisis prevention and to ensure more effective use of IMF resources (Le Gall and Nsouli 2001).

Beside, there are two proposals that have gained widespread attention beyond academic and financial circles recently: The Tobin tax that – although some European countries like France and Belgium have made some advance in this direction – so far has not won sufficient international support to become implemented (Reszat 2002), and the Krueger proposal for a new approach to sovereign debt restructuring which is strongly debated (Krueger 2002).

Few approaches to contain financial crises are directly dealing with the currency side. The Tobin tax, intended to slow foreign currency speculation by imposing a small tax on foreign exchange transactions, is one of them. Others concern the exchange rate regime. Typically, emerging market economies and developing countries tend to fix their currencies to a large-country currency or a basket. With growing capital mobility they often move towards greater flexibility of exchange rates, at least in official classification. However, at a closer look, most of those flexible exchange-rate arrangements turn out to be highly managed as well. There appears to be a widespread "fear of floating" which is largely explained by the risk premium for currencies with a high degree of volatility unrelated to macroeconomic fundamentals and the credibility problem that is reflected in low credit ratings and high interest rate variability.<sup>10</sup>

Recent currency crises have demonstrated the limited use of those practices. The shortcomings of intermediate systems like pegged-but-adjustable exchange rates, managed floating and narrow bands explain why the "two-corners" approach of either free floating or super-fixity through a currency board or dollarisation gained so much support in recent years (Edwards 2001). A currency board goes beyond a mere fixing of the exchange rate in providing a constitutional guarantee of a currency's foreign value and explicitly restricting governments' ability to print money. Under this regime, currency can be issued only in exchange for the foreign currency against which its rate had been fixed. The advantage of such a system, as long as it holds, is credibility. The central bank can no longer provide free liquidity to banks. Financial sector reforms which are difficult to implement otherwise, so the argument, are forced, and discretion is removed from corrupt and incompetent economic managers. The main disadvantage is a loss of sovereignty. Monetary policy is determined in the country of the reserve currency and fiscal policy can no longer print money to finance a deficit by borrowing from the central bank. As a result, the authorities lose the means to shield the economy from shocks and can become very restricted in their economic policy. They cannot raise interest rates to defend the value of their currency or fight inflation. They

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<sup>10</sup> See Kawai and Takagi (2000) and the references cited there.

cannot act as a lender of last resort in the local currency. If there is a bank run, banks cannot turn to the central bank.

Dollarisation is going one step further in unilaterally adopting a foreign country's currency. For small countries in the vicinity of a large one its introduction may provide an immediate solution to the problem of distracting exchange rate expectations in times of turbulence since it takes the country's currency out of the limelight at once thereby reducing its attractiveness for currency traders to zero. One major drawback of this solution is the financial tribute to the foreign country it requires in form of foregone seignorage which makes it hardly sustainable in the long run (von Furstenberg 2002a).

Even before Argentina, experience has shown that super-fixity, too, has other deficiencies.<sup>11</sup> An alternative were to directly influence market developments by focusing policy attention on the main actors involved in speculation in emerging market currencies. Recently, in the literature, studies of the behaviour of individual groups of market participants have grown in number. Some authors draw the attention to the role of institutional investors in financial crises such as mutual funds (Borensztein and Gelos 2000, Kaminsky et al. 2000, Corsetti et al. 2001). Others concentrate on analysing activities in the foreign exchange interbank market for major industrial countries currencies.<sup>12</sup> None of these, so far, is paying attention to the small group of banks specialised in trading in emerging market currencies. Lack of data and at best anecdotal evidence for developments in these markets<sup>13</sup> may explain this negligence.

Lack of data also limits the scope of policy interference. As demonstrated, the foreign exchange market is largely an interbank market. Traditionally, trading among banks is the least regulated financial area worldwide. The reasons for this are threefold. First, the interbank market is widely considered as classic example of an efficient market which needs no official interference, and, more than that, in which any interference only risks disturbing an otherwise efficient outcome.

Above all, efficiency in this context relates to the way in which information is gathered and processed, and prices determined. Banks "make" the market. They are assumed to act rational in the sense that their decisions are based on risk and return considerations, and expectation formation is following strict rules. Unlimited market access guarantees availability of latest news and rumours that are reflected instantaneously in prices. Prices are "fair" in the sense that in containing all available information they allow no extraordinary trading profits.

The second reason is that the interbank market is widely considered to be an expert market. There are no private investors or consumers in this market that needed extra protection. But, both arguments have to be put into perspective:

- The assumption of information efficiency and rationality usually relates to a special set of generally available information and a special way of information processing; there is no insider knowledge, no herding, panics or other phenomena observed in practice.

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<sup>11</sup> For instance, contrary to the credibility claim currency-board arrangements do not prevent the emergence of occasionally high and variable risk premia (von Furstenberg 2002b).

<sup>12</sup> Examples are Williams (2000) and the contribution of Covrig and Melvin to this conference (Covrig and Melvin 2002).

<sup>13</sup> An evidence which, above all, is sought for the influence of particular groups of investors under suspicion. See, for example, the Financial Stability Forum report on the role of highly leveraged institutions in various markets during the Asian crisis (Financial Stability Forum 2000).

- Information efficiency says nothing about allocative or distributive efficiency or whether market outcomes are socially desirable. In particular the case of emerging market crises with their negative effects both on the countries involved and the world economy calls for other intervention criteria.
- The protection argument does not take into account that the effects of this "expert" trading are reaching far beyond the markets and that its spread to developing countries and emerging markets is adding a new dimension to the policy problem.

A third reason why interbank trades are not regulated is technical: Those trades are hard to monitor and control from outside. Traditionally, foreign exchange trading is done by telephone and screen and not bound to a fixed location or region of supervision. In most trades only differences are paid and settled. In addition, a large part of trades are netted before being settled through official payment systems, or flowing through private networks instead.<sup>14</sup> Statistics are meagre. Even the three-annual foreign exchange survey under the auspices of the BIS allows no more than a glimpse at a market at a – not necessarily representative – point in time.

Influencing currency trading is a classic globalisation problem. Of all financial market segments the foreign exchange market is the most often cited example of how globalisation and financial integration challenge the sovereignty of governments and regulatory authorities.<sup>15</sup> In general, there are three kinds of policy options to meet this challenge.<sup>16</sup>

The first is *defensive intervention*. Policymakers may try to maintain or resurrect barriers to globalisation through protectionism or other regulative measures. For example, after the outbreak of the Asian crisis countries with strongly regulated financial systems such as India which found their suspicion of freely flowing international capital confirmed by the events suspended further plans for liberalisation, at least temporarily. Others, such as Malaysia, which had become a strong promoter of financial liberalisation in recent years, reintroduced capital controls. Defensive intervention may temporarily ease pressures for individual countries. It is no solution for the world financial system for which it means a clear backlash jeopardising the achievements of liberalisation and integration reached so far.

A second policy option is *offensive intervention*. Here countries themselves become global competitors either searching to provide an attractive environment for global companies within their own territorial boundaries or lobbying other countries on behalf of the worldwide activities of their domestic corporations. In international finance, examples can be found for both strategies. On the one hand, financial centres such as London, Frankfurt and Paris try hard to create favourable conditions to attract foreign banks, on the other hand, countries' politicians and financial authorities sometimes deliberately search to influence international negotiations and regulations in a direction that would benefit the international activities of their domestic financial institutions at the expense of others. The drawback here is that offensive interventions easily end up in a kind of ruinous competition between states leaving all worse off.

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<sup>14</sup> Beside economic reasons, this is the main technical argument against the implementation of the Tobin tax destroying all hopes to record foreign exchange transactions by monitoring major official payment systems. A paper mistakenly stressing the role of those systems for the feasibility of the tax is Schmidt (1999).

<sup>15</sup> The most apparent case is the constraints it places on national monetary policy.

<sup>16</sup> The following is relying heavily on Reinicke (1998).

A third option to cope with the challenges of globalisation is known as *global public policy*. This concept was developed as a direct reaction to the observation that, generally, nowadays the activities of multinational firms do no longer take place within national boundaries but extend to "a much broader and more fluid geographic space", resulting in a mismatch between political and economic geography which is weakening the internal sovereignty of states. Financial services are only one example of this trend.

Global public policy aims at realigning the political with the economic geography. Under this concept states' sovereignty is no longer defined by territoriality but on a functional or sectoral basis. This requires a qualitatively new form of cooperation among countries corresponding to the structure of global corporate networks. Global public policy does not intend to establish a global government. There is no attempt to create a new Bretton Woods system or any other form of institution or rule governing financial markets from above, which in all its inflexibility would be considered unsustainable. Rather the concept adheres to the idea of global "governance" addressing the operational and not the formal dimension of state sovereignty.

Global public policy is structured around legally nonbinding international instruments. One example is the capital-adequacy rules of the Basle Accord for internationally operating banks. For the problem presented in this paper the lack of information and transparency, and the overall sensitivity of the subject of policy interference in the interbank market, would call for an even more modest approach. One solution were to come to a kind of voluntary self-restraint developed and monitored by the banks themselves. This is not as unusual as it seems at first view:

In particular in the realm of international finance, there are many cases of voluntary self-restraint that may serve as a template. One example is the Model Code of the international association of foreign exchange dealers (the ACI or Association Cambiste Internationale). Other, more recent ones, are the Wolfsberg Principles, guidelines concerning anti-money laundering established by 12 internationally operating banks, or the sound practices for banks' interactions with highly leveraged institutions issued by the Basle Committee on Banking Supervision in 1999. There is even one example directly related to the foreign exchange market: In February 2001, leading financial intermediaries agreed on establishing trading principles concerning customer relations in foreign exchange trading in reaction to mounting public worries.<sup>17</sup>

## 5. Open Issues

Negotiating the scope for voluntary self-restraint of banks' proprietary trading in emerging market currencies in times of crisis would require careful preparations. First of all, a clear definition of policy goals is needed. There is no possibility – and, given the overall efficiency of the market, not much need – to control foreign exchange trading at large. Instead, efforts

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<sup>17</sup> The full text of the Wolfsberg Principles can be found at <http://www.wolfsberg-principles.com/>. See for the Model Code of the ACI - The Financial Markets Association of foreign exchange dealers: [http://www.aciforex.com/mktpractice/model\\_code.htm](http://www.aciforex.com/mktpractice/model_code.htm). The *sound practices* for banks' interactions with highly leveraged institutions were issued by the Basle Committee on Banking Supervision in 1999: <http://www.bis.org/publ/bcbs46.htm#pgtop>. The mentioned *Trading Principles* of leading banks are reprinted in: Progress in Implementing the Recommendations of the Working Group on Highly Leveraged Institutions (HLIs), Note to the FSF by the Chairman of the HLI Working Group, March 2001: <http://www.fsforum.org/Reports/RepHLIprog.pdf>.

should concentrate on emerging market currencies and the small group of banks dominating this market segment.

Further, mixing of targets should be avoided. For example, in contrast to the initial proposal made by Nobel-laureate James Tobin in the 1970s, these days, proponents of the Tobin tax usually add a second element: to use the proceeds to reduce poverty in the world. There are estimates by the European Commission that a turnover tax of 0.01 per cent to 0.1 per cent would generate between \$20bn and \$200bn a year. But, combining the fight for financial stability with the one against poverty only risks rousing desires of interest groups not directly concerned and sending wrong signals to the markets.

Another task were to define the circle of market actors to be addressed and carefully to describe the kinds of instruments, trading strategies and situations considered as undesirable coming to a clear definition of "good" and "bad" behaviour. At this stage, there were no need of detailed data about market activities since the banks themselves were taking care of compliance. It is only when this approach fails that further measures to increase information and transparency would have to be considered.

The latter leads to the question of sanctions. In a global environment, direct controls and restrictions are circumvented easily. The alternative is a "name-and-shame" approach. Experience has shown the sensitivity of internationally operating banks to public critique, and this vulnerability may be exploited for enforcing the rules imposed by the international financial community.

The advance to contain crises in emerging market currencies in this way calls for a cooperation of many parties both on a private and official level. Experience with "regulatory arbitrage" has shown that the single-handed action of individual countries, or groups of countries, must fail. Given the overall uncertainty and lack of information surrounding foreign exchange trading in general, and trading in emerging market currencies in particular, even a joint approach might be no guarantee of success. But, given the dimension of the policy problem, and the examples in other areas for how to come to a solution, it should be given a trial.

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