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## Coping with Potential Currency Mismatches

If the vast majority of developing countries displayed a roughly equal susceptibility to currency mismatches, then it would be harder, *ceteris paribus*, to make the case that national policies and institutions matter a lot in controlling currency mismatches. Chapter 4 has shown that more reliable measures of aggregate currency mismatch indicate that such mismatches differ substantially both across countries and over time. This chapter presents complementary evidence that there is significant differentiation—a “tiering” if you will—among emerging economies in their capacity to cope with potential currency mismatches, as revealed in the liquidity and maturity of their foreign exchange, bond, and derivatives markets.<sup>1</sup>

Table 5.1, taken from the 1998 and 2001 BIS triennial surveys of foreign exchange and derivatives market activity, shows foreign exchange turnover for emerging economies (where this turnover is the sum of spot transactions, forwards, and foreign exchange swaps). Trading in local currencies of emerging economies accounted for 4.5 percent of global foreign exchange activity in 2001, up from 3.1 percent in 1998. In 2001, the

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1. In contrast, the original sin hypothesis (OSH) emphasizes the roughly equal susceptibility of the vast majority of developing countries to original sin (since their original sin ratios are very similar). Although Eichengreen, Hausmann, and Panizza (2002) find that about a half dozen emerging economies (the Czech Republic, Poland, South Africa, Hong Kong, Taiwan, and Singapore) have much lower degrees of original sin than the average, they point out that nonresidents, and especially international financial institutions, have been the dominant issuers of domestic-currency debt in these countries, and that this issuance pattern occurs because the markets value the ability to separate currency and credit risk.

**Table 5.1 Foreign exchange turnover** (daily averages in millions of dollars)

<b>Currency</b>	<b>1998</b> (reported by residents of the country of issue <sup>a</sup> )	<b>2001</b> (reported by dealers in the country of issue <sup>a</sup> )	<b>2001</b> (reported by dealers outside the country of issue <sup>a</sup> )	<b>2001</b> (total)
<b>Latin America</b>				
Argentine peso	2,131	n.a.	n.a.	n.a.
Brazilian real	3,418	4,612	627	5,239
Chilean peso	1,212	2,282	n.a.	2,282
Colombian peso	n.a.	371	n.a.	371
Mexican peso	6,961	5,888	4,198	10,086
Peruvian sol	n.a.	203	n.a.	203
<b>Asia</b>				
Hong Kong dollar	14,833	19,016	8,365	27,381
Indian rupee	1,337	2,762	78	2,840
Korean won	2,288	7,916	1,841	9,757
Taiwan dollar	1,658	2,609	558	3,167
Indonesian rupiah	850	535	17	552
Malaysian ringgit	579	923	n.a.	923
Philippine peso	408	455	47	502
Singapore dollar	16,819	9,841	3,045	12,886
Thai baht	2,123	1,274	585	1,859
<b>Central Europe</b>				
Czech koruna	4,169	1,135	1,099	2,234
Hungarian forint	528	173	24	197
Polish zloty	910	3,376	2,949	6,325
Russian rouble	4,519	4,158	124	4,282
Israeli shekel	n.a.	506	n.a.	506
Turkish lira	n.a.	231	202	433
Saudi Arabian riyal	1,235	840	n.a.	840
South African rand	6,087	6,846	4,481	11,327
<i>Memorandum:</i>				
Australian dollar	19,638	20,076	29,577	49,653
Swedish krona	4,847	11,466	18,680	30,146
Swiss franc	21,748	17,767	53,286	71,053
<b>Total<sup>b</sup></b>	<b>1,429,284</b>	<b>634,650</b>	<b>538,416</b>	<b>1,173,066</b>

n.a. = not available

a. Including local and cross-border transactions.

b. Since two currencies are involved in each transaction, the sum of transactions in all individual currencies would come to twice the total reported turnover.

Note: Figures are daily averages during April; the sum of spot, forwards, and foreign exchange swaps, adjusted for local and cross-border double counting.

Source: Bank for International Settlements, Triennial Central Bank Survey of Foreign Exchange and Derivatives Market Activity in 2001, March 2002.

Hong Kong dollar was the emerging-market currency with the largest turnover, followed by the Singapore dollar, the South African rand, the Mexican peso, the Korean won, and the Brazilian real. The ordinal ranking by the geographical location of market turnover (instead of turnover by currency) among emerging economies would be similar, although not identical (e.g., Singapore then replaces Hong Kong at the top of the list). Note from column 4 of table 5.1 that turnover in, say, the five most liquid emerging economies is 10 to 30 times greater than that in the least liquid markets (e.g., Colombia, Turkey, Peru, the Philippines, and Saudi Arabia).<sup>2</sup> If one concentrated only on currency derivatives, then a recent IMF (2003a) report indicates that Singapore (followed by Hong Kong) has the largest market among Asian emerging economies, that Mexico and Brazil lead the pack in Latin America, and that South Africa is preeminent among the other emerging economies (including Eastern Europe). Once again, cross-country differences within the emerging-market bloc are marked with, for example, the notional outstanding amounts of over-the-counter currency derivatives (at end-June 2001) being over 20 times greater in Singapore than in Malaysia. Observe also (as indicated in the bottom three rows of table 5.1) that even the most liquid of foreign exchange markets among emerging economies still fall short of what is available in the smaller industrial countries (e.g., Australia, Sweden, and Switzerland)—to say nothing about comparisons with the reserve-currency countries.

Two other qualitative conclusions also emerge from the BIS surveys: the more liquid the foreign exchange market, (i) the higher the share traded in the derivatives market relative to the spot market and (ii) the more sizable the share of trading activity undertaken outside the home market.

Again, bond markets also need to be taken into account because interest rate products can be used to hedge currency risk, because local currency-denominated bond markets create a natural demand for hedging currency risk, and because domestic local currency-denominated bond markets provide a source of local-currency finance that would otherwise be smaller if emerging-market borrowers had recourse only to external lenders. Here, too, there are large differences across emerging economies in liquidity and size as well as in the availability of (fixed-income) derivatives.

If the liquidity of local bond markets were to be measured by trading volume, then, as shown in column 4 of table 5.2, Mexico, South Africa, and Brazil would be the most liquid markets, followed by Poland, Hong

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2. One can also look at other measures of foreign exchange market liquidity, such as bid-ask spreads, spot/turnover, and turnover/trade; likewise, these measures throw up large cross-country differences among emerging economies.

**Table 5.2 Top 10 countries in bond trading volume, 2001**  
(billions of dollars)

Country	All issues	Rank in 2001	Country	Local instruments	Rank in 2000
Mexico	1,111	2	Mexico	868	1
Brazil	721	1	South Africa	99	6
Argentina	384	3	Brazil	82	2
Russia	299	4	Poland	73	8
South Africa	131	6	Hong Kong	70	3
Venezuela	92	8	Taiwan	50	—
Poland	90	10	Singapore	49	9
Hong Kong	87	7	Argentina	40	5
Turkey	67	5	Hungary	29	—
Singapore	64	—	Russia	28	7

— indicates the country was not in the top 10 in 2000.

Source: Emerging Market Trading Association, 2002, *Annual 2001 Debt Trading Volume: Supplementary Analysis*.

Kong, Taiwan, Singapore, and Argentina.<sup>3</sup> Trading volume in Korea's local bond market is five times greater than that in Thailand; it is over three times greater in Poland than in Hungary and more than 75 times greater in Mexico than in Chile. According to the IMF (2002c), the deepest and most liquid fixed-income derivatives markets among emerging economies are in Singapore, Brazil, and South Africa, with Hong Kong and Korea next in line; in Brazil and Hong Kong, the interest rate swap market is in fact more liquid than the underlying cash market and, as such, carries out functions normally provided by the cash market (e.g., supplying a benchmark for other bond yields).

Alternatively, if one asks which emerging economies have the largest domestic bond markets relative to the size of their economies (i.e., relative to GDP in 2001), then, as shown in table 5.3, Malaysia, Israel, Korea, Brazil, Singapore, Turkey, and Chile lead the way. Whereas the local bond market accounted for 50 to 94 percent of GDP in these countries in 2001, the corresponding figure was less than 35 percent of GDP in Mexico, Poland, Argentina, China, India, and Hong Kong, among others.

This impression (from central-bank surveys and bond-market statistics) of very significant cross-country differences among emerging economies in hedging facilities was reinforced by interviews with about a dozen large institutional players from industrial countries that were heavily involved in trading emerging-market currencies, or in managing emerging-market mutual funds, or in writing derivative contracts on

3. If one were to look at liquidity in the total bond market (local plus international), then the ranking would be: Mexico, Brazil, Argentina, Russia, South Africa, Venezuela, Poland, Hong Kong, Turkey, and Singapore; see column 2 of table 5.2.

**Table 5.3 Domestic debt securities outstanding, 1994–2002**  
(percent of GDP)

Country/region	1994	1995	1996	1997	1998	1999	2000	2001	2002
<b>Latin America<sup>a</sup></b>	<b>18.0</b>	<b>17.6</b>	<b>19.4</b>	<b>21.8</b>	<b>24.2</b>	<b>27.5</b>	<b>26.8</b>	<b>31.4</b>	<b>27.1</b>
Argentina	11.6	10.0	10.7	11.7	13.4	15.0	16.5	13.9	17.8
Brazil	31.7	32.8	38.3	42.6	49.6	54.8	49.6	61.2	46.8
Chile	48.5	43.8	42.6	44.1	42.6	45.2	46.2	50.9	52.1
Colombia	4.7	5.3	6.8	7.8	10.0	13.5	17.8	22.1	21.8
Mexico	8.8	7.6	7.2	9.6	8.9	11.8	12.7	14.3	13.8
Peru	1.8	1.9	2.4	3.1	3.6	5.8	6.7	7.6	7.0
Venezuela	n.a.	n.a.	6.6	4.8	4.2	5.2	8.2	10.9	12.5
China	12.2	13.3	14.5	17.9	23.9	29.3	32.9	35.1	38.8
India	19.7	19.3	21.0	17.9	20.3	22.8	24.3	26.7	30.7
Korea	46.0	46.4	45.9	27.3	75.7	65.4	58.3	68.5	79.9
Taiwan	28.0	28.6	35.8	34.9	46.5	43.7	39.7	44.2	50.1
Hong Kong	12.5	16.8	21.5	23.7	24.1	26.5	25.8	26.8	28.0
Singapore	28.3	27.3	26.7	24.9	35.9	44.5	47.2	60.4	63.4
<b>Other Asia<sup>a</sup></b>	<b>24.3</b>	<b>23.1</b>	<b>23.2</b>	<b>17.2</b>	<b>29.3</b>	<b>29.5</b>	<b>28.9</b>	<b>33.2</b>	<b>33.2</b>
Malaysia	72.0	70.2	72.5	56.9	85.4	83.9	83.7	94.1	87.7
Philippines	40.5	35.4	33.6	22.4	32.2	29.4	27.1	30.0	28.0
Thailand	9.6	9.3	9.6	6.3	21.1	25.7	25.4	31.3	37.3
<b>Central Europe<sup>a</sup></b>	<b>21.8</b>	<b>21.5</b>	<b>21.4</b>	<b>20.9</b>	<b>25.1</b>	<b>26.1</b>	<b>27.4</b>	<b>30.7</b>	<b>38.8</b>
Czech Republic	17.6	23.2	21.4	23.5	39.3	45.4	45.5	45.0	61.6
Hungary	29.0	26.5	33.5	30.6	33.6	34.5	35.4	38.0	47.5
Poland	21.0	19.5	17.9	17.4	18.3	17.6	19.5	24.1	29.2
Russia	1.1	5.3	10.9	15.9	2.9	4.7	3.0	1.7	2.0
Israel	114.6	103.7	103.8	99.9	95.7	97.9	89.8	90.0	102.2
Turkey	12.2	12.6	14.6	15.7	18.7	23.3	27.4	58.2	50.1
South Africa	71.3	64.8	55.3	53.5	51.5	52.3	45.2	34.0	51.3
<b>Total<sup>a</sup></b>	<b>22.6</b>	<b>22.6</b>	<b>24.1</b>	<b>23.4</b>	<b>30.6</b>	<b>32.5</b>	<b>32.0</b>	<b>36.6</b>	<b>38.3</b>
<i>Memorandum:</i>									
Australia	28.7	26.9	30.0	23.1	18.4	22.0	15.4	12.7	15.4
Sweden	106.9	109.1	103.7	97.4	100.7	94.7	82.3	73.2	85.8

n.a. = not available

a. Weighted average of the countries shown, based on 2000 GDP and PPP exchange rates.

Note: Data are by country of issuer; outstanding year-end positions.

Sources: Central banks, IMF's *International Financial Statistics*, national sources, and Bank for International Settlements.

emerging-market securities or currencies. Here it is sufficient to note (1) that the availability, liquidity, and maturity of hedging facilities were regarded as much better (e.g., currency swaps running out to ten years) for the Hong Kong dollar and the Singapore dollar than for, say, the Thai baht, the Philippine peso, the Indonesian rupiah, or the Malaysian

ringgit;<sup>4</sup> (2) that in Latin America, hedging facilities were seen as being best for the Mexican peso and the Brazilian real (albeit not as good as for the Hong Kong and Singapore dollars), with the Chilean peso next in line (and with much more meager opportunities available for other currencies in the region); (3) that the market for South African rand offered a full spectrum of hedging products—ranging from swaps (up to 10 years in maturity) to outright forwards and options on money-market instruments—and local companies were able to issue rand-denominated debt even in difficult conditions; and (4) that among the larger transition economies slated for EU membership (Poland, the Czech Republic, and Hungary), hedging facilities were benefiting from capital inflows based on “convergence plays”<sup>5</sup> and, with continued progress over the next 3 to 5 years, could resemble what is currently available in South Africa, whereas in Russia and Turkey a history of instability and recent financial crises have limited the appetite for all but short-term hedging instruments.

To sum up, while the ability to hedge against currency risk is considerably lower for emerging economies as a group than for industrial countries, emerging economies are not all alike in this regard. There is already a top tier of emerging economies with relatively good hedging facilities (in foreign exchange and bond markets). Without pretending to too much precision, this top tier would include Hong Kong, Singapore, South Africa, Mexico, Korea, and Poland. Brazil, the Czech Republic, Chile, and Taiwan might be regarded as making up a second tier, and so on. In most of the smaller emerging economies, current hedging offerings remain quite limited. It should be recognized that in most of the developing world, experience with *de facto* floating exchange rate regimes is still relatively new and limited; as such, the development of hedging instruments and markets should be expected to gain pace as that experience accumulates.<sup>6</sup>

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4. Market participants noted that liquidity for some of the Asian currencies was hampered because of considerable segmentation between the onshore and offshore markets.

5. A convergence play is a market position taken in the expectation that interest rates on high-yield securities will “converge” to those on lower-yielding ones, thereby generating capital gains for the purchaser of the high-yield securities.

6. It is noteworthy that some emerging economies in our top tier (Mexico and Korea) are not on the list of outliers to original sin; indeed, under the OSH, Mexico faces the same external currency mismatch as Peru or Colombia, and Korea’s original sin ratio is higher than those of both Thailand and Indonesia—even though liquidity measures and interviews with market participants paint quite a different picture.