CAMBRIDGE ASSOCIATES LLC

GLOBAL MARKET COMMENTARY

POTENTIAL IMPLICATIONS OF FOREIGN EXCHANGE RESERVE DIVERSIFICATION

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Potential Implications of Foreign Exchange Reserve Diversification

The Growth in Foreign Exchange Reserves

The traditional way of evaluating a country's level of foreign exchange (FX) reserves is to ask whether they are sufficient. Today, however, the question for some countries has become: are FX reserve levels so high that some sort of asset allocation strategy should be implemented? Writ large, an FX strategy has potentially far-reaching implications for asset valuations and global economic growth, as countries rethink not only the currencies in which current reserves are denominated, but also which asset classes are held. This paper will therefore provide some background concerning and explore some possible effects of large-scale reserve diversification.

From 2001 through 2006 total foreign exchange holdings grew from $2 trillion to $5 trillion, an average annual increase of 19.8%. To put this in perspective the *cumulative* growth in reserves during the prior five years was just 27.9% (Table A). The increase in FX reserves has several other striking aspects. First, it has far outpaced the growth in both GDP (53%)[1] and trade (~70%) over this period. FX reserves were equal to 10.4% of world GDP at the end of 2006 compared with 6.5% five years earlier. Three countries accounted for 53.7%, and ten for 73.5%, of the increase in FX reserves.[2] In United States and the European Monetary Union (EMU), meanwhile, FX reserve levels *dropped* between 2001 and 2006 (Table B).

Seven of the ten countries with the highest FX reserve levels at the end of 2006 are emerging markets. Measured against such criteria as GDP, average monthly imports, and external debt their FX reserve holdings are much higher now than in 2001 (Table C). Moreover, reserves continue to increase rapidly due to structural trade imbalances and high commodity prices.

Is (Greater) Reserve Diversification the Next Step?

Foreign reserves have traditionally been held in government bonds, particularly those issued by the U.S. government, which are generally considered the most risk-free investments available. Nevertheless, it has been argued for some time that the composition of existing reserves is too U.S. dollar-centric, that the United States' large fiscal and budget deficits portend a long-term decline in the value of the dollar, with obvious negative implications for dollar holdings. Since a precipitous move out of the U.S. dollar could accomplish the very weakening of the dollar sovereign investors are trying to protect against, diversification proponents generally favor purchasing relatively fewer U.S. dollar-denominated reserves going forward, rather than shifting the existing mix significantly. Statistics from the IMF indicate that there has in fact been a gradual movement over the past six years out of U.S. dollar-denominated and into euro-denominated

[1] The figure for 2006 GDP is an International Monetary Fund (IMF) estimate.
[2] We define "countries" or "markets" here to include Hong Kong, but to exclude the countries in the EMU (none of which individually is a top ten holder of FX reserves).

reserves. However, the former still account for 65% of worldwide reserves that the IMF can categorize by currency.[3]

Over the last year or so the argument for reserve diversification has moved well beyond this risk-based concern over a possible overweighting of U.S. dollar-denominated instruments. Former Treasury Secretary Lawrence Summers and others have argued the case for central bank diversification of FX reserves into different asset classes. The theory is that so long as reserve holdings remain sufficient to serve their traditional purposes there is good reason for governments to adopt asset allocation strategies aimed at seeking higher returns.

Admittedly, governments such as those of Singapore, Norway, and some of the Gulf states have for some time invested "excess" foreign reserves or other funds in non–sovereign bond asset classes via separate entities. What is new is the fact that all of the governments with the largest—and most rapidly growing—reserves are reported to be embarking upon or actively considering asset diversification. Exhibit number one is China, which surpassed Japan in 2006 to become the largest holder of reserves. China accounted for 28.6% of the increase in FX reserves worldwide from 2001 to 2006 and now holds about $1.2 trillion in reserves. It reportedly plans to use some $200 billion to $300 billion to establish an investment fund and, with Chinese reserves growing by over $20 billion a month, that number could grow quickly. Japan is not nearly as far along, but senior Japanese officials have suggested that the country may invest some of its $900 billion plus reserves more aggressively. Russia, whose reserves rose about $65 billion during the first four months of 2007, meanwhile, has already announced plans to split its stabilization fund (created out of "excess" energy revenues and already separate from its reserves) into two new funds in February 2008, one of which will be about $30 billion and will target higher returns. Korea set up an investment corporation in 2005 to initially manage $20 billion in state assets; it became operational in 2006.

Potential Implications of Reserve Diversification

Reserve diversification has potentially profound implications. It stands to reason that a *relatively* lower level of future U.S. government bond purchases by foreign governments would put upward pressure on U.S. bond rates, with negative implications for holders of U.S. bonds and, potentially, equities and for the U.S. economy as a whole. A hint of what this might entail came in June when U.S. bond yields rose sharply across the yield curve in the wake of a government bond auction in which foreign investors' interest was lower than in the past.

Moreover, a rise in U.S. rates would impact interest rates—and perhaps economic growth—in other countries. From a broader perspective, a relative reduction in dollar-denominated reserves could weaken the influence of the dollar and, by extension, the United States globally. However, we believe this scenario

[3] The IMF's COFER database breaks foreign exchange holdings down into allocated reserves—those whose currency composition has been identified—and other FX holdings. The currency composition of virtually all developed countries' FX holdings is known, compared to only a little more than half of emerging markets FX holdings.

would require a massive shift out of the U.S. dollar by foreign central banks and is therefore unlikely in the short term.

A diversification of reserves into other asset classes, which would likely be accomplished through non–central bank vehicles now generally referred to as sovereign wealth funds (SWFs), would have other important implications. Morgan Stanley, which estimates current SWF holdings at about $2.5 trillion (Table D) believes that their growth will result in a higher "global degree of risk tolerance," causing government bond yields to rise 30 basis points (bps) to 40 bps over the next ten years, the equity risk premium to fall by 80 bps to 110 bps, and the price-earnings ratio to rise by 5% to 10%.[4] Even without trying to make these sorts of detailed, long-term projections, it is clear that the impact of diversification into other asset classes would be significant. For example, $350 billion worth of newly investable reserves, a figure which is easily within the realm of possibility, is more than the total dollar value of leveraged buyouts (LBOs) during 2006 (by far the largest year for LBOs). Moreover, SWF investment will not be a one-time event and, given that reserves have been growing more than 50% faster than the investable public equities market has, diversification by SWFs into equities could reasonably be expected to put upward pressure on equity valuations.

Asset price inflation would be positive news for holders of equities (and other asset classes) and, given the depth and quality of the U.S. markets, might be particularly beneficial to holders of U.S. assets. Of course, increased demand from SWFs for private assets could introduce a crowding-out factor that could reduce opportunities for other investors in this area. And a rise in equity prices (and, presumably, valuations) globally could encourage emerging markets to open up further or to increase the pace of state asset privatization, which would lead to a larger investable market and potentially create downward pressure on valuations.[5]

Finally, while we have focused on SWFs pursuing economic return-based investment policies, the *strategic* deployment of foreign reserves to purchase assets also would have significant implications. Such a use of funds can range from the blunt (e.g., buying natural resources or companies with valuable technologies) to the artful, an example of the latter being China's decision in May 2007 to invest $3 billion for a 9.9% stake in Blackstone. This investment was likely made on the basis of perceived political rather than financial benefits.

Conclusion

Morgan Stanley estimates that SWF holdings will equal the level of foreign reserves within four years and reach $17.5 trillion by 2017. The debate over reserve diversification, which is just getting started, thus appears likely to be with us for the foreseeable future. There are legitimate reasons to expect that such

[4] David Miles and Stephen Jen, "Sovereign Wealth Funds and Bond and Equity Prices," Morgan Stanley Research, June 1, 2007.
[5] The $39 trillion free-float-adjusted market cap of world equity markets accounts for only about 75% of the total market cap of securities listed on the world's stock exchanges.

diversification will be a boon for investors in both public and private markets. However, the broader implications, particularly with respect to how the more developed markets react to the attempted strategic deployment of reserve funds in both developed and emerging markets, are unknown. The results of diversification will also influence—and be affected by—how other large government holdings such as pension plans are invested.[6]

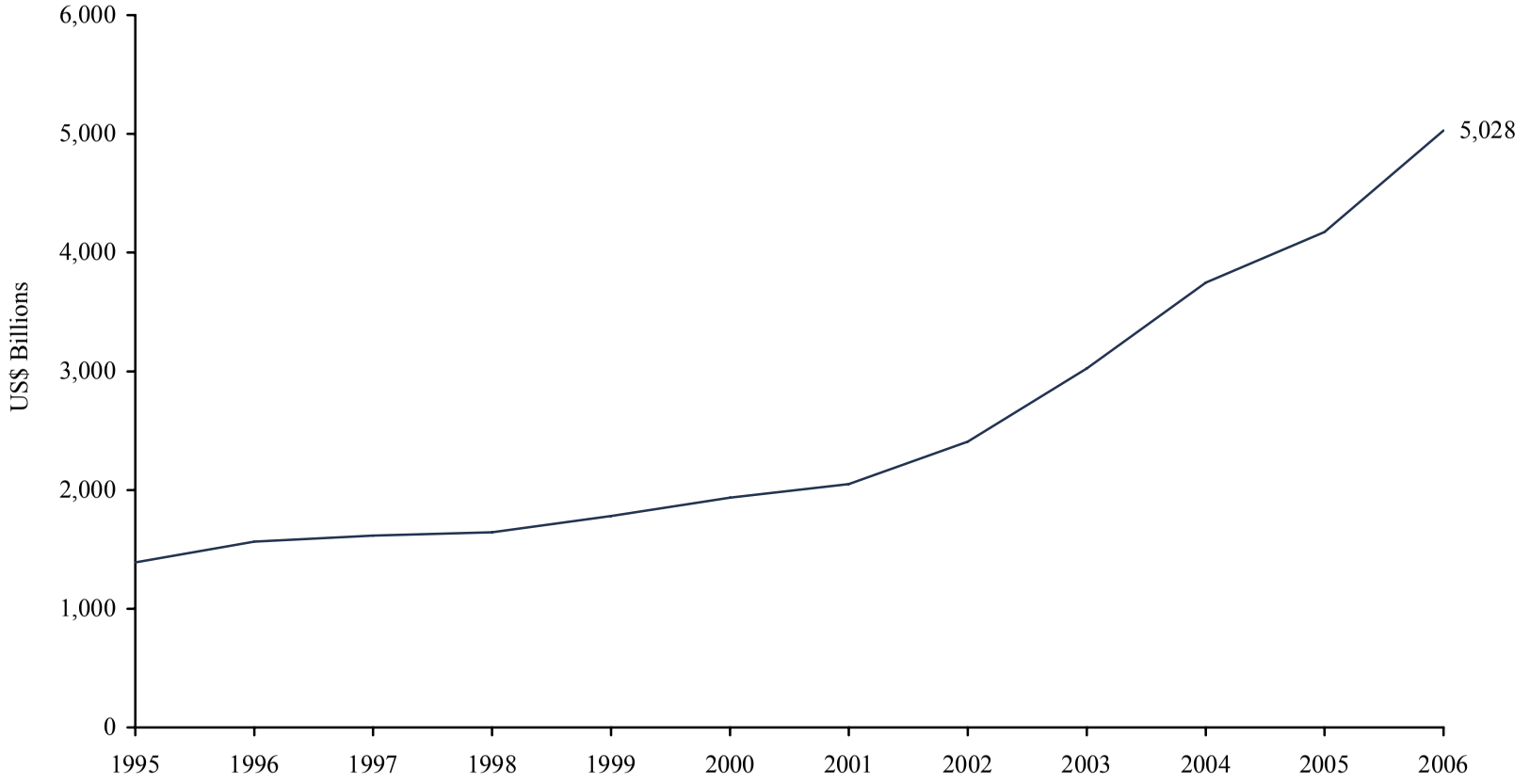
In short, diversification of reserves carries manifold implications that will likely play out over an extended period. There are legitimate reasons to believe that SWF-led diversification will support an asset boom or even a secular rise in equity valuations. However, in the current environment investors should remain wary and reduce downside risk in their equity portfolio by overweighting what is cheap (currently large-cap growth and quality securities).[7] This path to riches could be derailed by changing macroeconomic conditions such as a slowdown in global growth that causes a decline in the growth of reserves, a rise in the level of perceived risk that leads reserve-rich countries to decide they require more of a cushion, or a change in the perceived attractiveness of equities or other asset classes.

[6] For example, there has been discussion concerning the possible breakup of Japan's $1.35 trillion Government Pension Investment Fund, the world's largest, in order to secure higher returns.
[7] Please see our March 2007 Global Market Commentary *Asset Allocation in the Current Environment: It's Getting Late—Risks Are Rising*.

Table A

FOREIGN EXCHANGE HOLDINGS

1995-2006



Source: International Monetary Fund Statistics Department COFER database.

Note: According to the IMF, certain countries with sizable reserves either began or stopped reporting in 1996.

Table B

CHANGES IN FOREIGN EXCHANGE HOLDINGS

2001-06

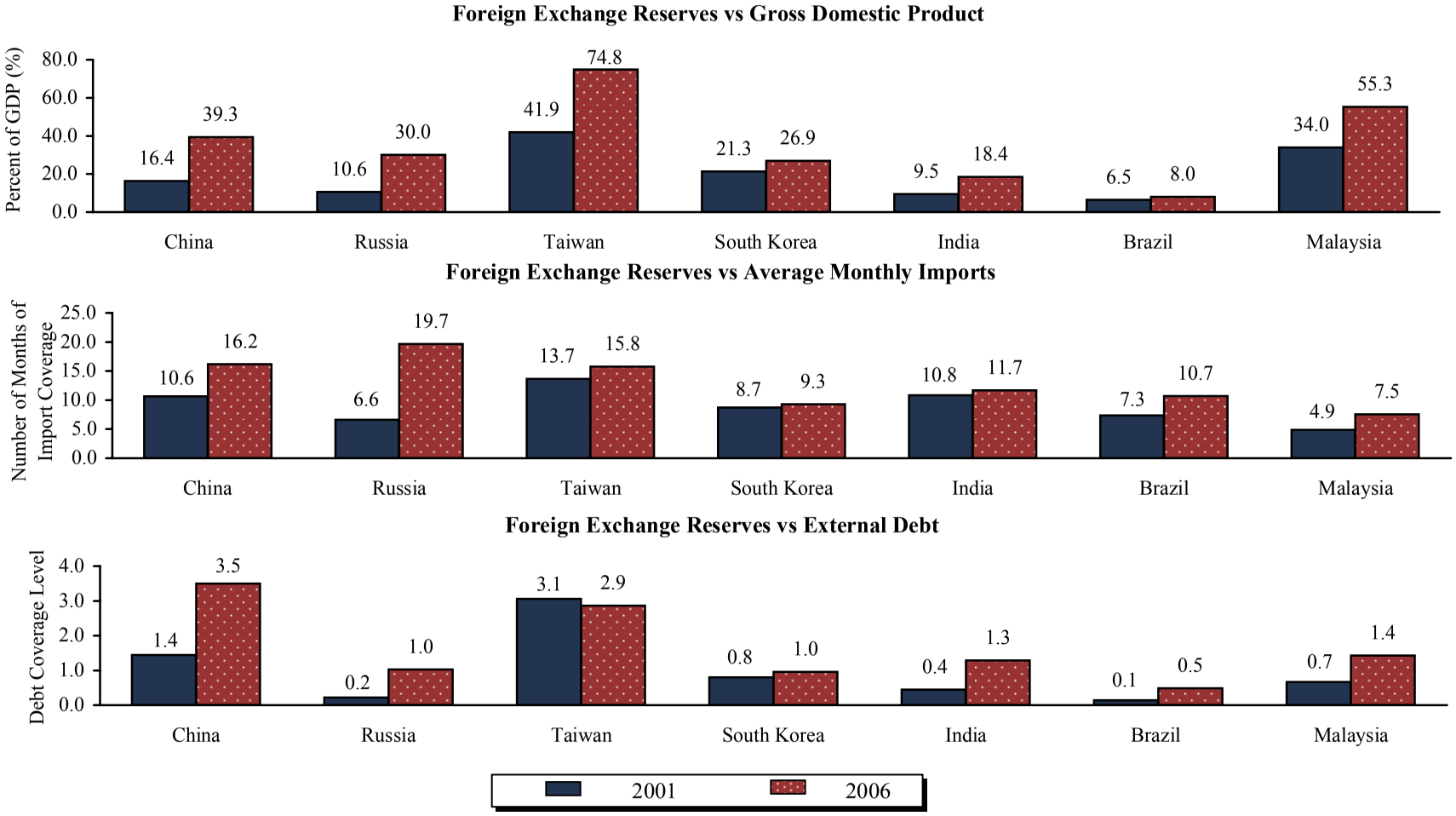
	FX Reserves (US$ Billions)		Growth in FX Reserves 2001-06		
	2001	2006	US$ Billions	By Percentage (%)	Compared with Change in World Reserves (%)
China	215.6	1,068.5	852.9	395.6	28.6
Japan	395.2	879.7	484.5	122.6	16.3
Russia	32.5	295.3	262.7	807.4	8.8
Taiwan	122.2	266.1	143.9	117.8	4.8
South Korea	102.8	238.9	136.1	132.5	4.6
India	45.3	170.2	124.9	276.1	4.2
Singapore	75.8	136.3	60.5	79.9	2.0
Hong Kong	111.2	133.2	22.1	19.8	0.7
Brazil	35.7	85.6	49.8	139.4	1.7
Malaysia	29.9	82.3	52.4	175.4	1.8
European Monetary Union	237.4	197.3	-40.0	-16.9	-1.3
United States	57.6	54.9	-2.8	-4.8	-0.1
Worldwide Total	2,049.8	5,027.8	2,978.0	145.3	---

Sources: Factset Research Systems and International Monetary Fund Statistics Department COFER database.

Notes: FX reserve information for individual markets is from Factset Research Systems. Reserve information for total world FX reserves is from the International Monetary Fund Statistics Department COFER database.

Table C

EMERGING MARKETS HOLDING THE LARGEST FOREIGN EXCHANGE RESERVES: COMPARING 2001 AND 2006 LEVELS



Sources: CIA World Factbook, Factset Research Systems, and Thomson Datastream.

Table D

SOVEREIGN WEALTH FUNDS

Country	Fund Name	Assets US$ Billions
United Arab Emirates	Adia (Abu Dhabi Investment Authority)	875
Singapore	GIC (Government of Singapore Investment Corporation)	330
Saudi Arabia	Funds of various types	300
Norway	Government Pension Fund - Global	300
China	State FX Investment Corp and Hueijing Co.	300
Singapore	Temasek Holdings	100
Kuwait	Kuwait Investment Authority	70
Australia	Australian Future Fund	40
United States (Alaska)	Permanent Reserve Fund	35
Russia	Stabilization Fund	32
Brunei	Brunei Investment Authority	30
South Korea	Korea Investment Corporation	20
Malaysia	Khazanah Nasional BHD	18
Taiwan	National Stabilization Fund	15
Canada	Alberta Heritage TF	13
Iran	Oil Stabilization Fund	11

Sources: *Financial Times* and Morgan Stanley Research.

Notes: Thus far China has announced plans only to capitalize a new fund in the amount of $200 billion. Russian reserves are not scheduled to be placed in an investment fund until early 2008.