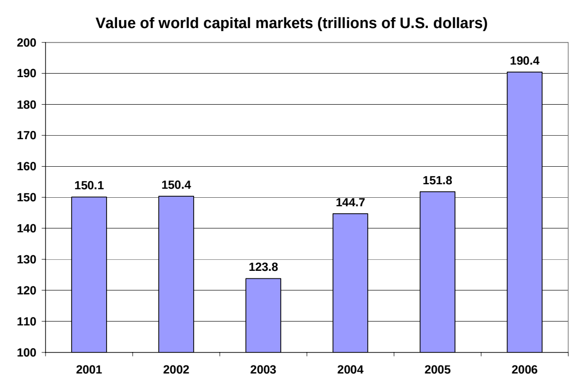
Appendix 1: Cross Border Capital Flows and Foreign Exchange Market Activity

A key feature of the international financial system over at least the last decade has been the unprecedented expansion of cross-border financial transactions with wide-ranging implications for asset prices, economic performance, global imbalances and exchange rate determination. Often called the globalization of finance, cross-border capital transactions have grown so quickly, both in absolute size and relative to global GDP, that they dwarf in size global trade in goods and services.

A variety of explanations has been given for the rapid growth of global financial activity: (1) rapid growth and diversification of investor bases, including those of private institutional money under management, rapid growth of hedge funds, and increased activity by official monetary sources; (2) growing internationalization of investment patterns as investors search for higher yields and greater portfolio diversification; (3) technological advances and liberalization of financial markets, each of which has improved and expanded market access to global financial services; and (4) the rapid expansion of savings, particularly in emerging markets. This appendix focuses on a few key developments (size of global financial markets, volume of daily foreign exchange activity, funds under institutional money management, selected investment activity by official sources, and net capital inflows and outflows) to highlight some broader trends in global financial activity over the past decade.

Size of Global Capital Markets

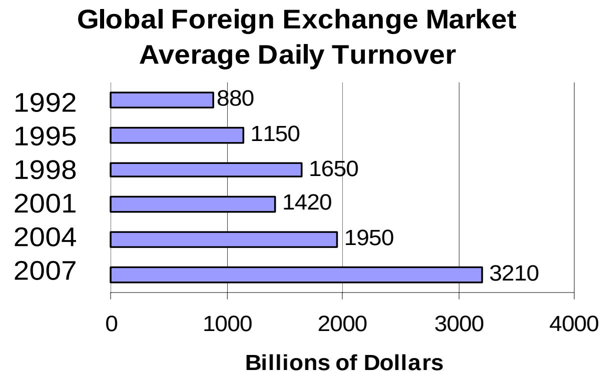
As of end-2006, the estimated value of the world's outstanding bonds, equities, and banking assets was $190.4 trillion, roughly four times the size of global GDP.[1] Eight-five percent of these financial assets were attributable to advanced economies but the share attributable to emerging markets has grown steadily over the last five years, from 9.6 percent of the total to 15.2 percent.



After reaching $150 trillion in 2001, the total size of financial markets fell to $124 billion in 2003, mostly as a result of declining commercial bank assets. Equity market capitalization declined in 2002, but then more than doubled from 2002 to 2006. The outstanding value of fixed income securities in circulation globally, particularly that of privately-issued debt instruments, grew steadily throughout the period,. In the three years from 2003 to 2006, total global financial assets increased in value by 53 percent, or $65 trillion. Over the same period, global GDP increased by $12 trillion, and the value of global trade in goods and services increased by $5.4 trillion.[2]

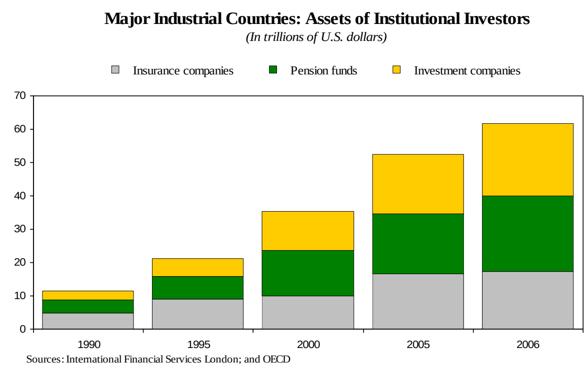
[1] See page 139 of the IMF's *Global Financial Stability Report*, October 2007.
[2] See page 231 of the IMF's *World Economic Outlook*, October 2007.

Daily Foreign Exchange Trading



Since 1992, the Bank for International Settlements (BIS) has been collecting data on foreign exchange and derivatives markets activity.[3] Its 2007 survey put *average daily turnover* at $3.2 trillion, a 71 percent increase in daily volume since 2004. Average daily volume has doubled since 1998, when it was $1.65 trillion, and it has nearly quadrupled in the 15 years since 1992, when it was $880 billion. If OTC derivatives market activity also is included, then the average daily volume of foreign exchange activity rises to $5.3 trillion. These figures are for all currencies, with any given transaction involving two currencies. The U.S. dollar is involved in 86.3 percent of all transactions. The euro is involved in 37 percent of all transactions, for daily market activity of $1.2 trillion. The Japanese yen is involved in 16.5 percent of all transactions, for average daily market activity of $530 billion.[4] On a full-year basis, assuming 250 business days, foreign exchange volume approaches $800 trillion. How much of this is the result of customers' taking positions in foreign assets as opposed to trading by financial institutions for their "own account" is not known.

Money under Institutional Management



Much of this foreign exchange activity involves cross-border investment decisions by institutional investors in mature financial markets: pension funds, insurance companies, and mutual funds. The value of assets under professional management by these entities has grown more that five-fold since the early 1990s, from an estimated $11 trillion in 1990 to over $60 trillion in 2006. Much of the increase is attributable to the expansion of funds of under investment company management, followed closely by the expansion of pension fund assets.

Not only is a much larger amount of money under professional management, but both institutional and retail investors are much more inclined today to diversify their investments across currencies than across asset classes. This ongoing decline in "home bias" (the tendency to invest predominantly in one's own market and own currency) is also a major factor in the growing internationalization of global capital flows. Although it is difficult to know precisely how much of this money under institutional management is placed in foreign financial assets, an

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[3] Bank of International Settlements, Triennial Central Bank Survey of Foreign Exchange and Derivatives Market Activity in April 2007, September 2007; http://www.bis.org/publ/rpfx07.htm.
[4] The percentages sum to 200 percent because there are two currencies involved in each transaction.

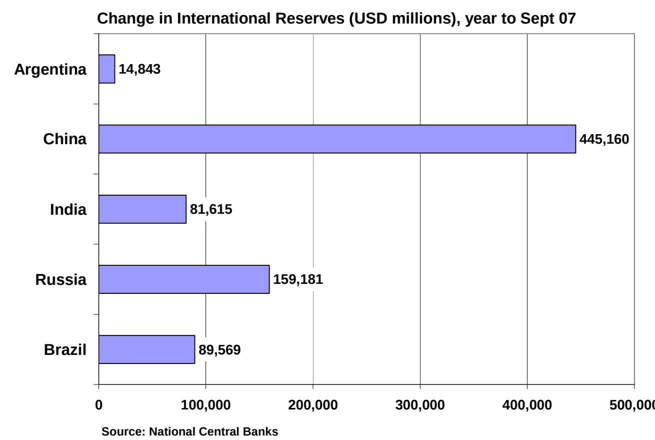
approximation based on the international bond/equity allocations of advanced economy pension funds suggests perhaps $14 trillion of the $60 trillion under management is placed in foreign assets.[5] Depending on how often investment positions are turned over during the course of a year, some multiple of the $14 trillion likely flows through foreign exchange markets each year as a result of changing investment positions of institutional money managers.

Official Investment Activity

Reserves:

Official institutions, mostly from emerging market economies, also have greatly increased their participation in global financial markets. This has been especially so since the financial crises of 1997/98, as monetary authorities in many emerging markets have chosen to stockpile foreign exchange reserves, often far in excess of traditional thresholds.[6] As of end-June 2007, IMF data show emerging market foreign exchange reserves to have totaled $5.7 trillion, roughly a threefold increase since 2000. The majority of these reserves are held in U.S. dollars, though a significant share is held in euros.

Emerging Asia, and China in particular, account for the largest share of foreign reserve accumulation, but other regions including Latin America, Russia, and oil exporters in the Middle East also have sharply boosted their reserves over the last 1-3 years.



Sovereign Wealth Funds:

In addition, some official entities are adding to cross-border investment totals through high foreign currency exposure sovereign wealth funds (SWFs).

Aggregate Cross-Border Capital Flows

Lastly, the sum of total ***net*** capital inflows and outflows, which includes direct investment, portfolio investment, reserve accumulation, and other investment flows, has tripled over the last 10 years to nearly $13 trillion. Virtually every economic area has experienced a roughly three-fold increase in inflows and outflows over the past decade, with the vast majority of the increase occurring within just the last five years.

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[5] See Table 2.1, page 71, of the IMF's *Global Financial Stability Report*, April 2007.

[6] See, for example, "The Adequacy of Foreign Exchange Reserves", Annex 3 of the December 2006 semi-annual Report on International Economic and Exchange Rate Policies.

Total of Net Capital Inflows and Outflows
($ Billions)

	1996	**2001**	**2006**	**% Change**
U. S.	964.5	1165.5	2914.8	301.9
Japan	251.1	188.3	342.0	35.7
Euro	1429.0	1536.4	4045.5	283.1
UK	691.3	888.1	2444.6	353.6
Canada	93.0	133.1	272.0	292.5
EmergMarkets/ Devel Ctries	732.4	397.3	2717.0	371.0
Total (of above)	4162.3	4308.7	12735.9	306.0

Source: IMF *World Economic Outlook*, October 2007

Cross-border capital flows swamp global trade flows. Although there are no adequate comprehensive data on global gross capital flows, the Treasury's International Capital Reporting System (TIC) shows gross purchases and sales ***in long-term US securities alone*** totaled over $52 trillion in 2006. In comparison, total annual world trade in goods and services is less than $30 trillion.

Foreigners' Gross Purchases of US Long-Term Securities	21,101 ($ Billions)
Foreigners' Gross Sales of US Long-Term Securities	19,959
U.S. Residents' Purchases of Foreign Securities	5,815
U.S. Residents' Sales of Foreigners Securities	5,568
Total Gross Transactions (Inflows and Outflows)	52,443
NET of Above	895

Source: Treasury's TIC System; Data for 2006.

Conclusion

This appendix highlighted a few areas in cross-border financial activity to give some notion of the relative magnitude of portfolio capital flows and international investment positions and how they have and continue to become a much larger part of exchange rate determination. Additional measures of international financial activity, such as margin trading, swaps, international bond offerings and syndications, could supplement the analysis but the main point would remain the same: any full accounting of the influences affecting exchange rates, and especially exchange rates determined in large, liquid markets, should adequately focus on activity in international financial markets.