



BANK FOR INTERNATIONAL SETTLEMENTS

Managing foreign exchange reserves during and after the crisis

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*Views expressed are those of the authors and not necessarily those of the BIS.

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Agenda

- Where were reserve managers in June 2007?
- Where were they by June 2008?
- Where were they by June 2009?
- 5 questions for the future:
 - Bigger liquidity portfolios?
 - Restore previous weight on bank deposits?
 - Do US agencies have a future?
 - What about corporate bonds?
 - In short, is the diversification of portfolios continuing?



Where were reserve managers in June 2007?

- Can assemble a reasonably comprehensive view of US dollar investments by instrument using US Treasury/Fed survey, BIS and other data.
- Includes both dollars held in US and outside US– though misses dollar bonds issued and in custody outside US.
- Not your father's reserve management: longer, less Treasuries!
- Only 30% short-term; US Treas bills only 15% of this 30%.
- In L-T port: Perhaps no more than 50% Treasury notes & bonds.
- Half as much US agency as Treasury, and more agency bullet and callable debentures than mortgage-backed securities.
- 3% corporate bond share but 8% equity share.
- Considerable diversification; still cautious by private standards.



Identified official holdings of US dollars by instrument

In billions of US dollars as of end-June 2007

	Treasury	Other	Repo & Deposit in US	CP & CDs in US	Deposit outside US	Agency	(Of which ABS)	Corp bonds	Equities	Total
Short-term*	159	941	237	27	597	80				1,100
Long-term*	1,452	1,115				750	(236)	99	266	2,567
Total	1,611	2,056				830				3,667**

•By original maturity. **Total IMF identified dollar reserves as of end-June: \$1,999.

Sources: US Treasury/FRBNY/Board of Governors, *Report on foreign portfolio holdings of U.S. securities as of June 30, 2007*; US Department of Commerce; SDDS; BIS.



Identified official holdings of US dollars by instrument

In billions of US dollars as of end-June 2008

	Treasury	Other	Repo & Deposit in US	CP & CDs in US	Deposit outside US	Agency	(Of which ABS)	Corp bonds	Equities	Total
Short-term*	226	871	199	23	519	130				1,097
Long-term*	1,684	1,435				967	(435)	105	363	3,119
Total	1.910	2.306								4,216**

•By original maturity. **Total IMF identified dollar reserves as of end-June: \$2,782.

Sources: US Treasury/FRBNY/Board of Governors, *Report on foreign portfolio holdings of U.S. securities as of June 30, 2008*; US Department of Commerce; SDDS; BIS.



Identified official holdings of US dollars by instrument

In billions of US dollars as of end-June 2009

	Treasury	Other	Repo & Deposit in US	CP & CDs in US	Deposit outside US	Agency	(Of which ABS)	Corp bonds	Equities	Total
Short-term*	575	573	166	43	330	34				1,148
Long-term*	2,117	1,212				795	(475)	107	311	3,329
Total	2,692	1,785								4,477**

•By original maturity. **Total IMF identified dollar reserves as if end-June: \$2,682.

Sources: US Treasury/FRBNY/Board of Governors, *Report on foreign portfolio holdings of U.S. securities as of June 30, 2009*; US Department of Commerce; BIS.



Identified official holdings of US dollars by instrument

In billions of US dollars as of end-June 2010

	Treasury	Other	Repo & Deposit in US	CP & CDs in US	Deposit outside US	Agency	(Of which ABS)	Corp bonds	Equities	Total
Short-term*	454	457	145	30	255	37				911
Long-term*	2,592	1,223				714	(443)	83	426	3,815
Total	3,046	1,680								4,726**

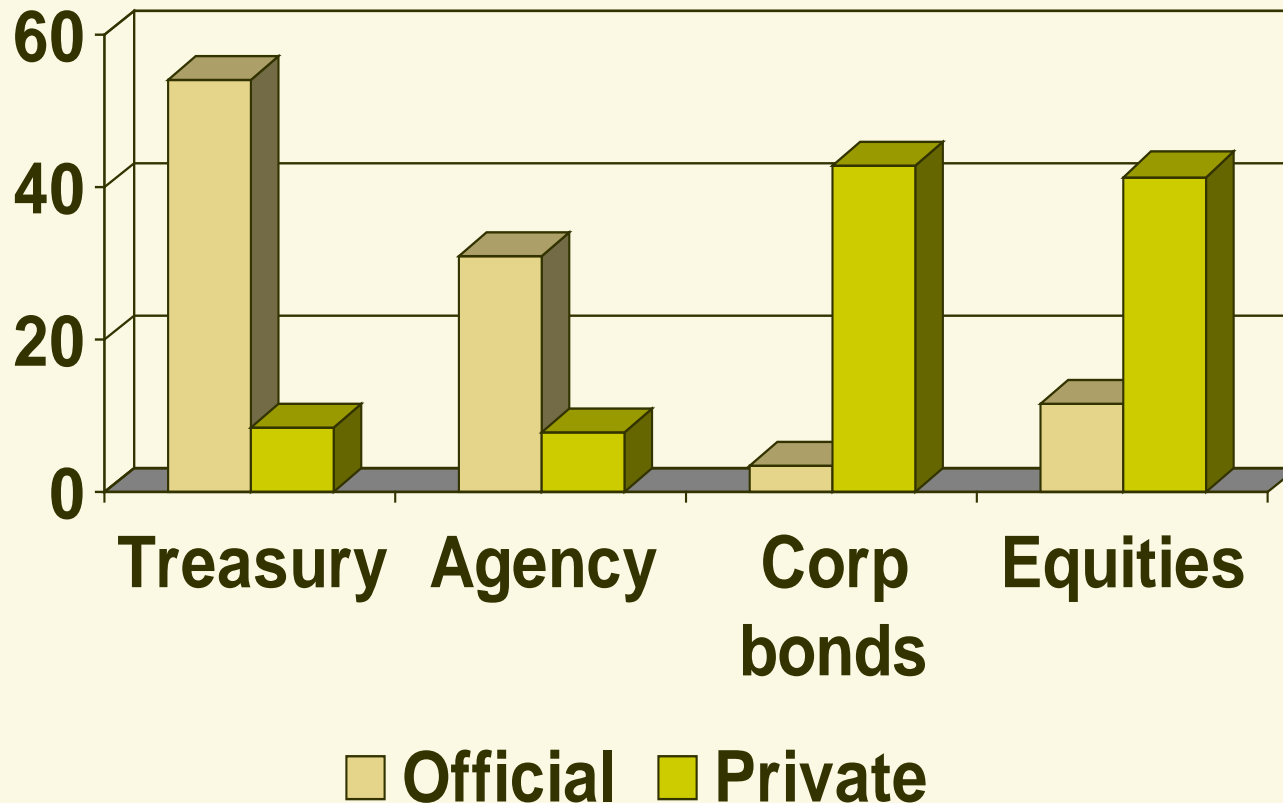
•By original maturity. **Total IMF identified dollar reserves as if end-June: \$2,995.

Sources: US Treasury/FRBNY/Board of Governors, *Report on foreign portfolio holdings of U.S. securities as of June 30, 2010*; US Department of Commerce; BIS.



Contrasting official & private portfolios of US securities

Percent of holdings of long-term US securities as of June 2008





Where did reserve managers get by June 2008?

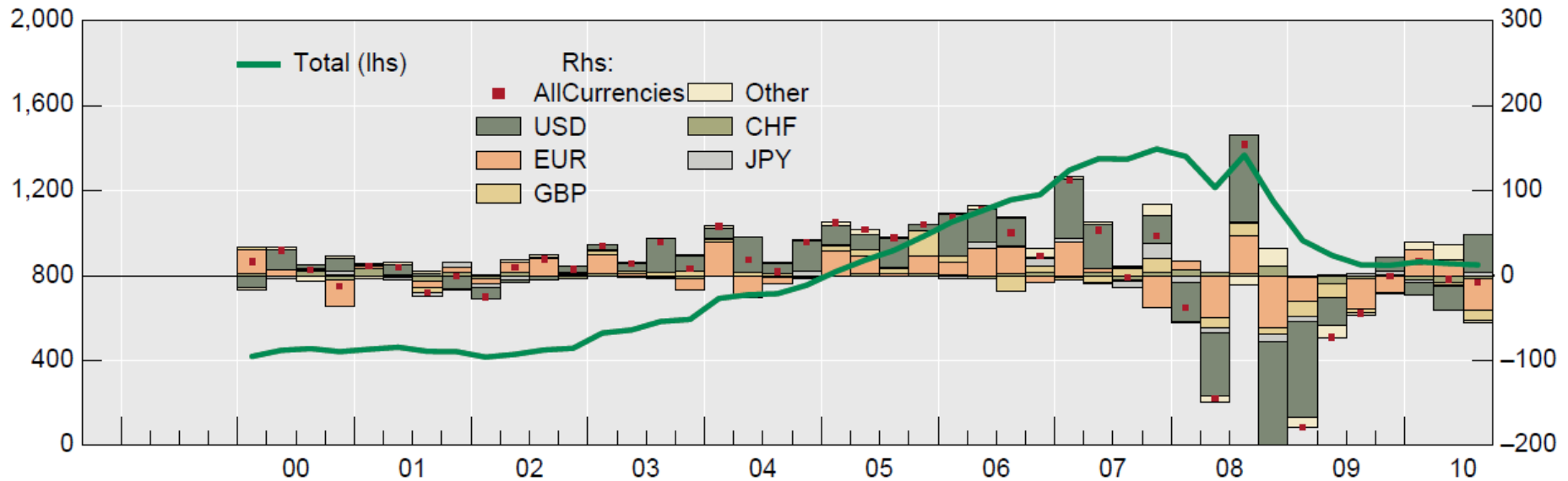
- Recall August 2007 BNP announces suspension of cash redemptions in fund.
- Central banks “walk to safety”: marginally reduce weight on bank deposits and increase Treas & agency bill holdings.
 - Reserve managers begin to shift funds out of Swiss banks in third quarter, then French, UK, German and US banks.
 - Overall, bank deposits peak in fourth quarter of 2007.
 - Reverse long decline in T bill share of short-term portfolio.
- Also increase in placements with central banks.
- Within agency securities, hold debentures steady while increasing holdings of mortgage-backed securities.
- Increase holdings of corporate bonds and equities.



Graph 1

Bank liabilities to official monetary authorities by currency¹

In billions of US dollars

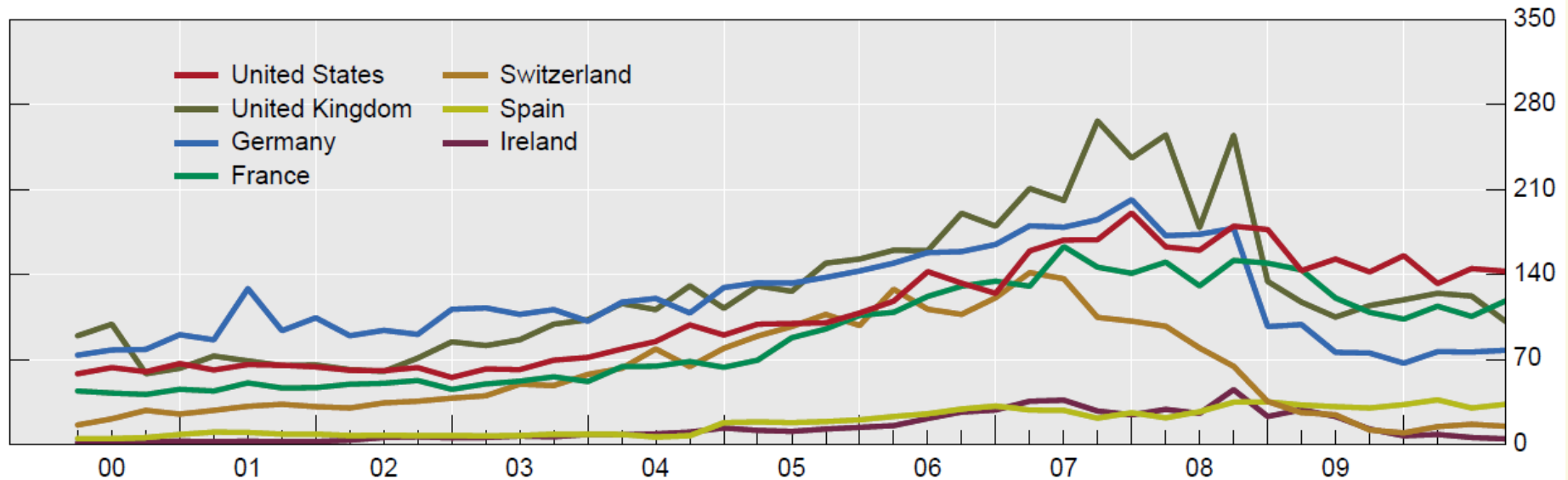


¹ Liabilities booked by BIS reporting banks vis-à-vis official monetary authorities; expressed at constant Q3 2010 exchange rates. Green line relates to total amount outstanding; bars and dots relate to exchange rate and break adjusted changes in amount outstanding.

Sources BIS locational banking by residence statistics; BIS calculations.



Graph 2
Liabilities to official monetary authorities by bank nationality¹
Amounts outstanding, in billions of US dollars



¹ Liabilities booked by BIS reporting banks vis-à-vis official monetary authorities; expressed at constant end-Q3 2010 exchange rates.

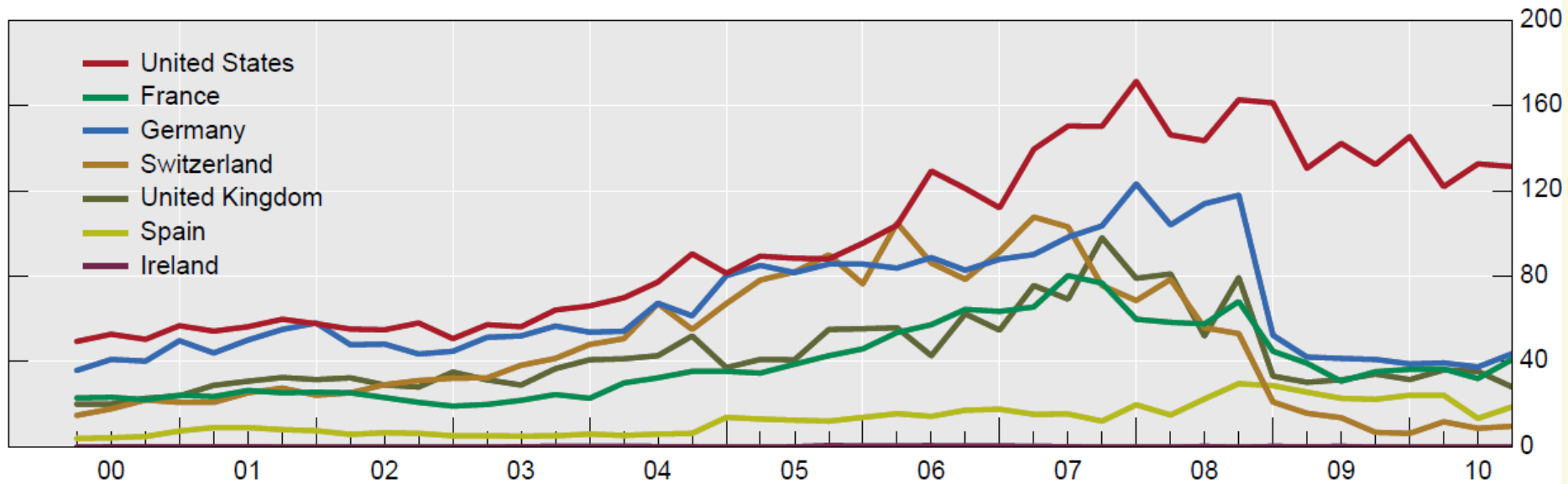
Sources: BIS locational banking statistics by nationality; BIS calculations.



Graph 3

US dollar-denominated liabilities outstanding to official monetary authorities

By bank nationality; amounts outstanding; in billions of US dollars



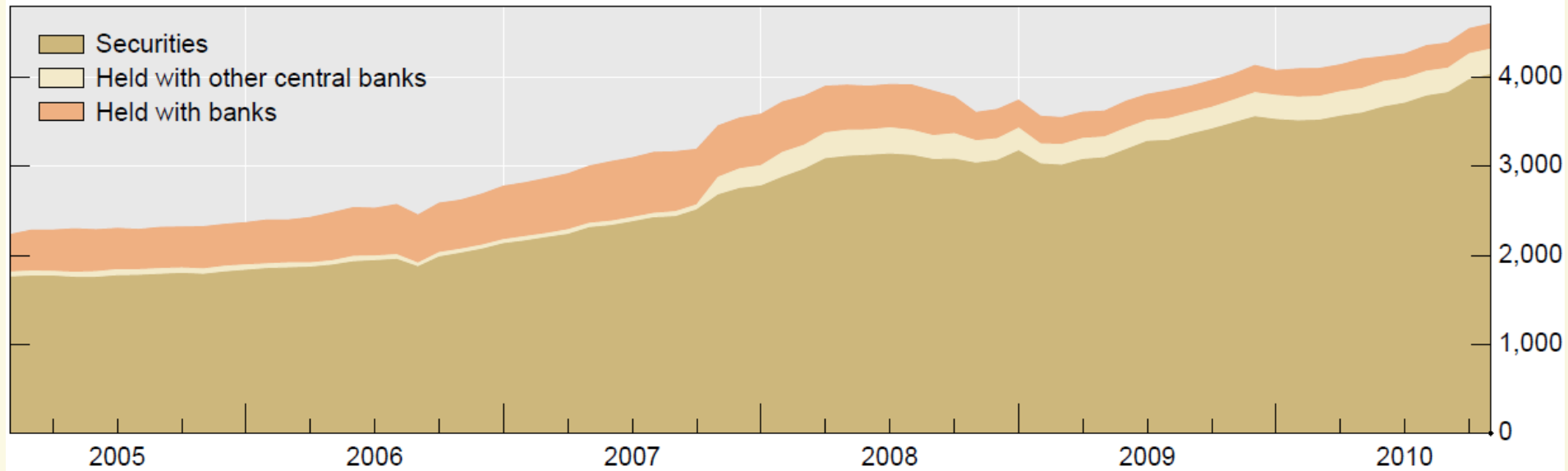
Source: BIS locational banking by nationality statistics.



Graph 4

Foreign exchange reserves by broad instrument¹

In billions of US dollars



¹ Holdings of foreign exchange reserves by 63 monetary authorities that report SDDS data to the IMF.

Source: IMF SDDS.



Where did reserve managers get by June 2009?

- From walk to quality to flight to quality after Lehman default.
 - Treasury bills back up to half of the short-term portfolio.
 - Agency bills allowed to run off.
 - Massive sell-off of dollars deposited offshore in non-US banks.
 - Troubled investments associated with securities lending.
- In long-term portfolio, sale of agency debentures (in part into Fed bid) and net buying of Treasury notes.
- Stable corporate bond (albeit shift from private MBS) and equity holdings.



Table 2

Official dollar deposits by location and nationality of banks

In billions of US dollars

Nationality of banks	June 2007 Location of deposits			June 2008 Location of deposits			June 2009 Location of deposits		
	US	Off-shore	Total	US	Off-shore	Total	US	Off-shore	Total
US	128.9	21.4	150.3	116.0	27.4	143.4	117.7	23.5	141.2
Others	96.9	452.7	549.6	75.5	380.8	456.3	47.1	217.7	264.8
Total	225.8	474.1	699.9	191.5	408.3	599.8	164.8	241.1	405.9

Source: BIS.



Where have reserve managers done since June 2009?

- Flight to quality to Treasury bills reverses.
- Run-down of agencies continues, concentrated in debentures but including MBS.
- Buying of Treasury coupon securities continues.



Table 3
Capital gains/losses on official holdings of US securities

In billions of dollars

Year ending:	Treasury	Agency	Corporate bonds	Equities
June 2002	52			
June 2003	36 (6.4%)			
June 2004	-43 (-6.6%)			
June 2005	24 (2.6%)			
June 2006	-67 (-6.2%)			
June 2007	6 (0.5%)	2 (0.4%)	-1 (0.6%)	41 (18.8%)
June 2008	76 (5.2%)	20 (2.7%)	-4 (-3.6%)	-38 (-14.2%)
June 2009	40 (2.4%)	41 (4.2%)	-3 (-2.8%)	-103 (-28.3%)

Note: Valuation adjustment reported for official holdings of US Treasuries, but only for all holdings of agencies, corporate bonds and equities. Percentage adjustments for all holdings are applied to holdings of officials.

Sources: US Treasury et al (2008-10), authors' estimates.



5 questions for the future:

1. Will there be more emphasis on worst-case liquidity and bigger liquidity tranches?
2. Will official investors restore the previous weight on bank deposits?
3. Do US agencies have a future as an asset class for official investors?
4. Do corporate bonds have a future as an asset class for official reserve managers?
5. Is the diversification of official reserve portfolios continuing?



1) Will there be more emphasis on worst-case liquidity and bigger liquidity tranches?



Table 4
Foreign official holdings of US dollars by instrument and maturity¹
In billions of US dollars

	June 2007		June 2008		June 2009		June 2010	
	Short-term	Long-term	Short-term	Long-term	Short-term	Long-term	Short-term	Long-term
Treasuries	159	1,452	226	1,684	575	2,117	454	2,592
Agencies	80	750	130	967	34	794	27	714
Other	861	365	741	468	539	418	430	509
Total by maturity	1,100	2,567	1,097	3,119	1,148	3,329	911	3,815
<i>Memo: maturity shares</i>	30%	70%	28%	72%	26%	74%	19%	81%
Total official holdings	3,667		4,216		4,477		4,726	

¹ By original maturity.

Source: Table 1.



Table 5
Concentration in the holdings of global foreign exchange reserves
In per cent

	Largest holder	Top 3 holders	Top 5 holders	Top 10 holders
1980	12.0	24.6	36.0	52.8
1985	10.2	22.5	32.9	50.0
1990	8.3	23.5	36.1	53.6
1995	12.4	24.5	34.7	50.2
2000	17.9	32.0	42.5	54.7
2005	19.2	44.0	52.9	66.7
2010 latest	29.7	46.6	55.7	70.3

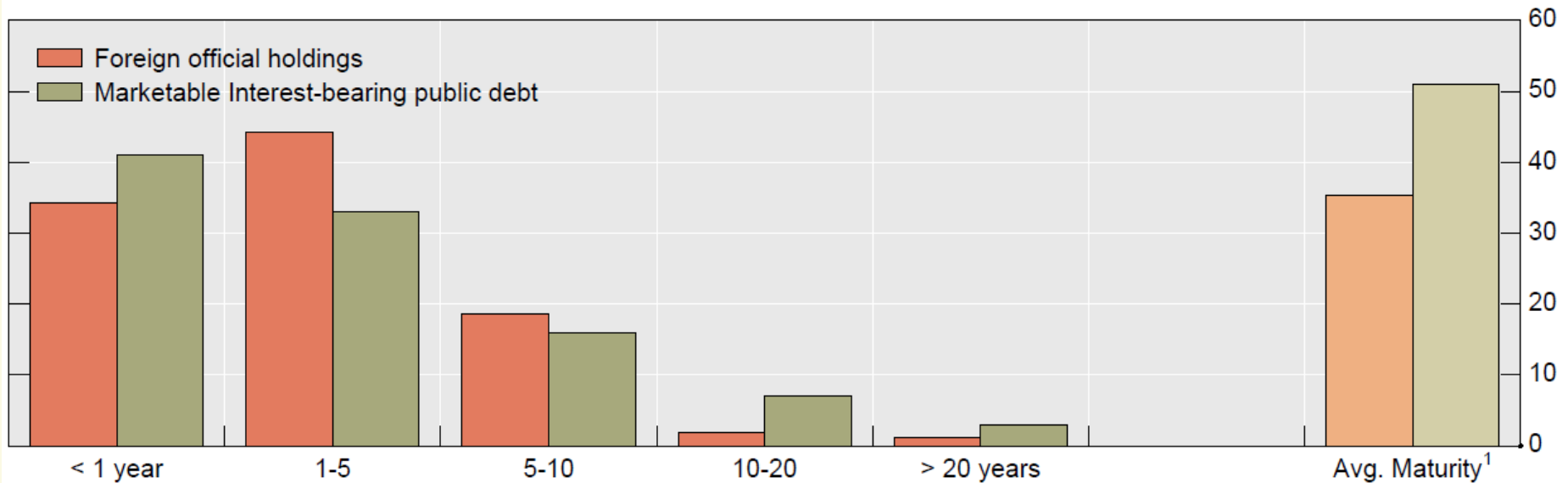
Source: IMF, Central Bank of China.



Graph 5

Maturity of foreign official holdings of Treasury securities and total outstanding, June 2009

In per cent



¹ Number of months.

Source: Department of Treasury, Federal Reserve Bank of New York, Board of Governors of the Federal Reserve System, *Survey of foreign portfolio holdings as of June 30, 2009*, April, 2010; and US Treasury.



No obvious increase of short-term official portfolios, but..

- increased concentration of the holdings**
- most reserve portfolios are more liquid
than in 2007**



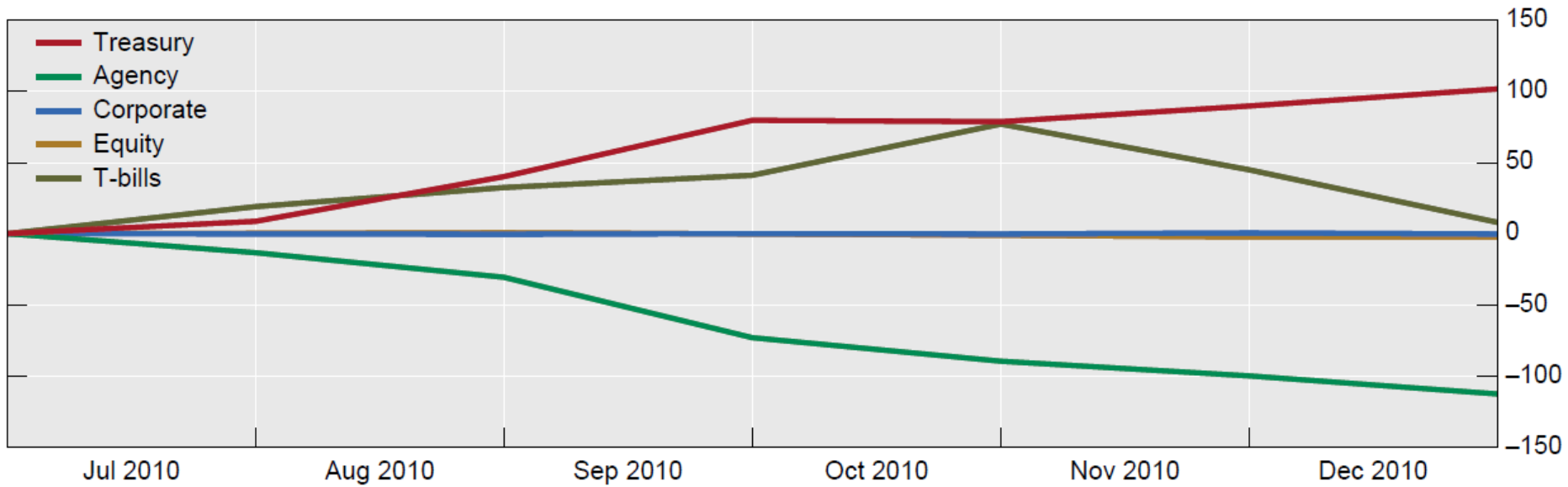
2) Will official investors restore the previous weight on bank deposits?



Graph 6

Cumulative purchase of US securities by foreign officials

Since end-June 2010, in billions of US dollars



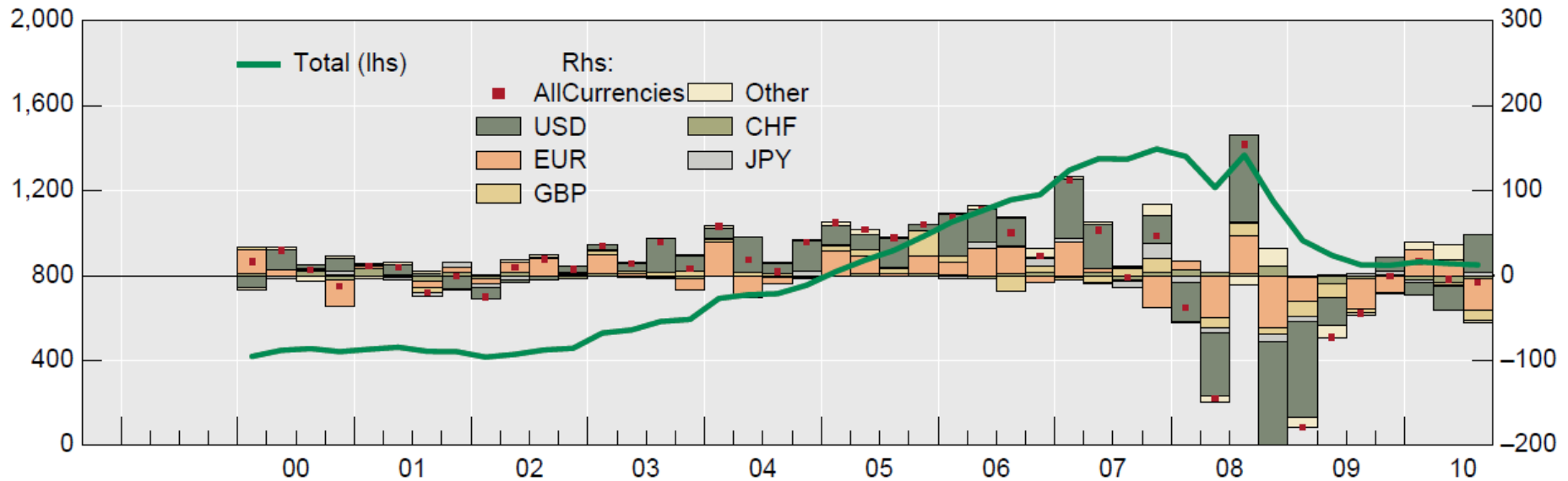
Source: Treasury International Capital.



Graph 1

Bank liabilities to official monetary authorities by currency¹

In billions of US dollars



¹ Liabilities booked by BIS reporting banks vis-à-vis official monetary authorities; expressed at constant Q3 2010 exchange rates. Green line relates to total amount outstanding; bars and dots relate to exchange rate and break adjusted changes in amount outstanding.

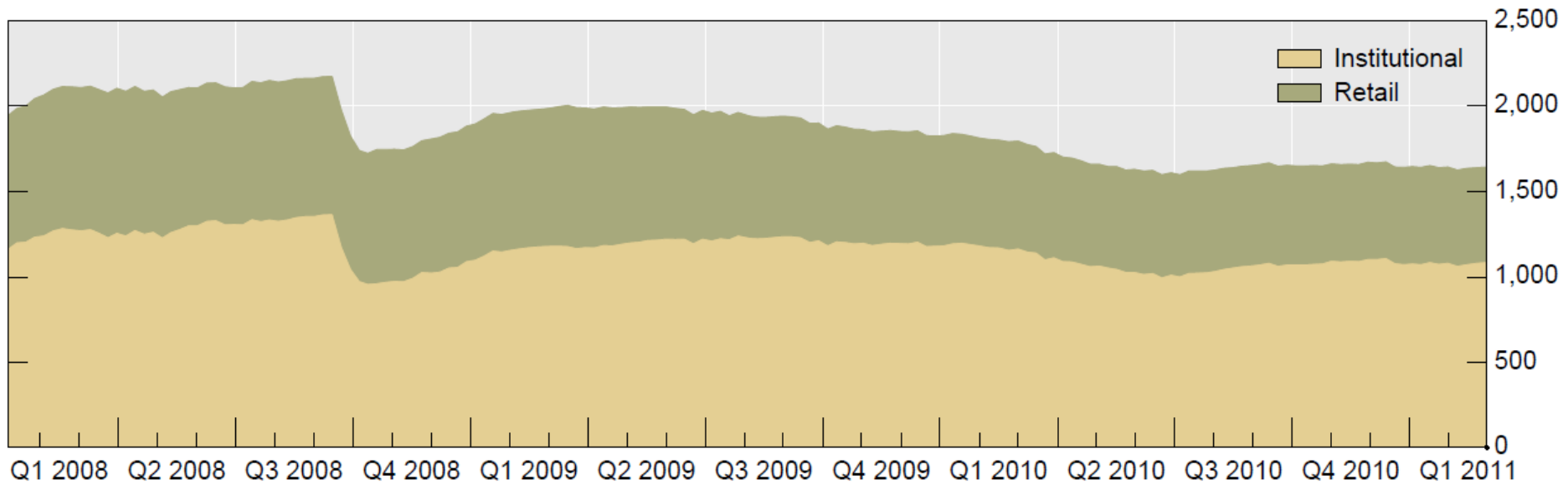
Sources BIS locational banking by residence statistics; BIS calculations.



Graph 7

Total net assets of non-government money market mutual funds

In billions of USD dollars



Source: Investment Company Institute.

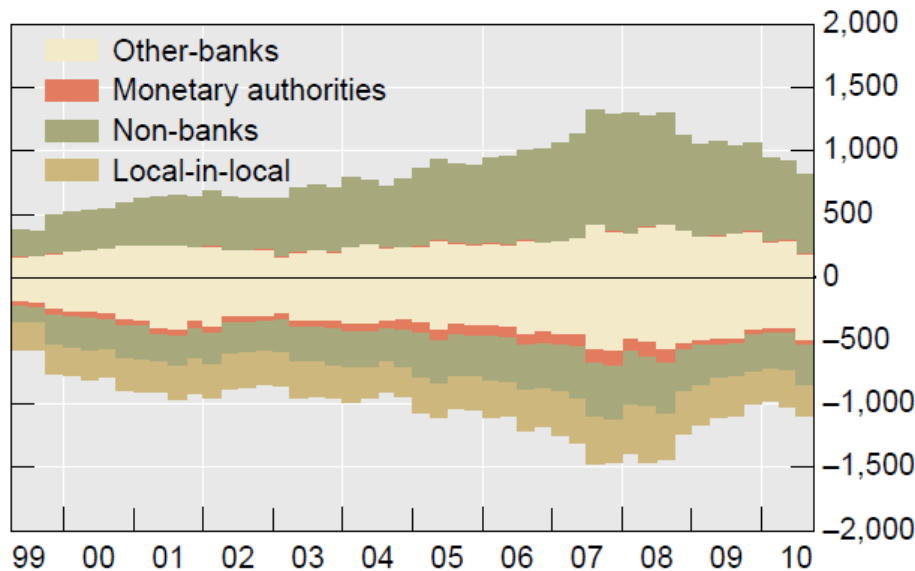


Graph 8

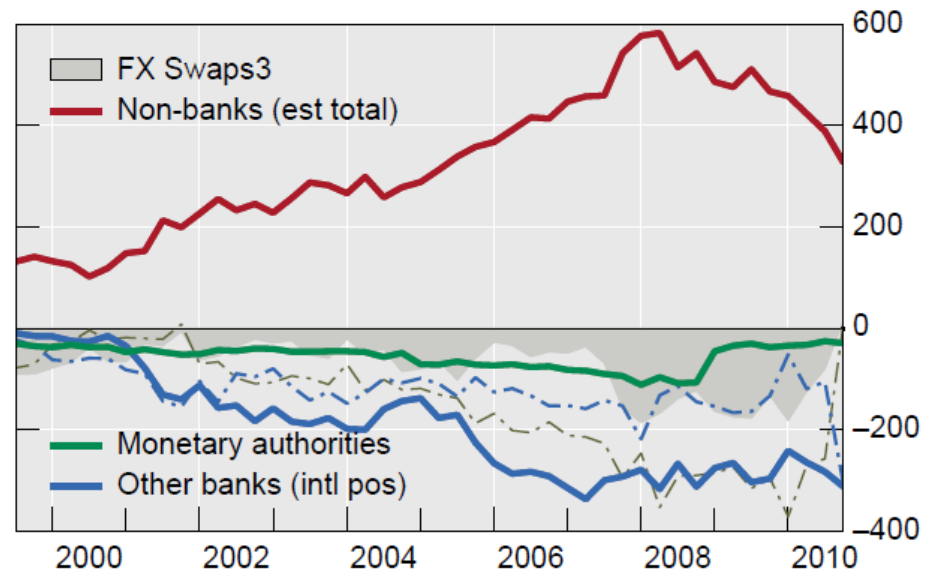
German big banks' USD positions by sector

In billions of US dollars; dates indicate positions at end-Q1 of each year

Gross



Net



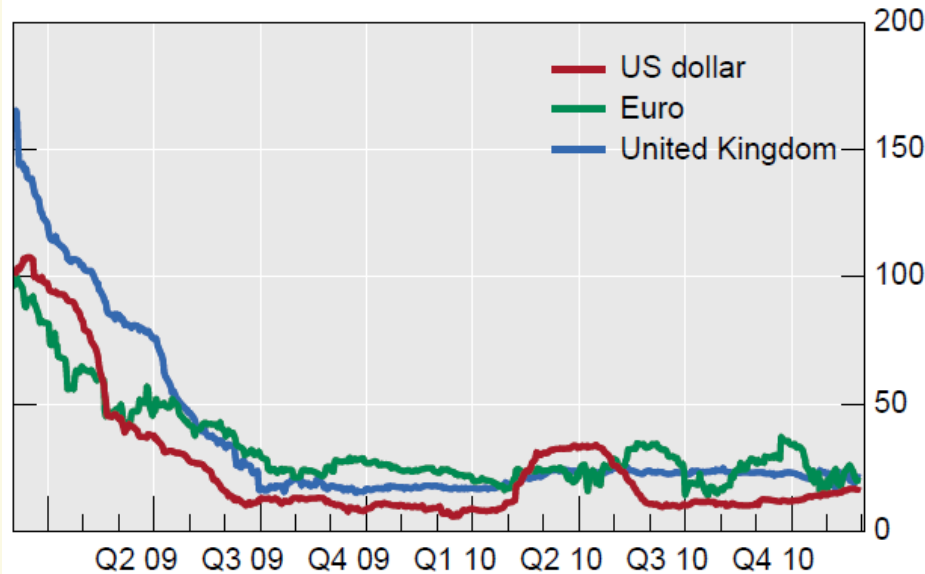
Source: BIS consolidated banking statistics (IB basis), BIS locational banking statistics by nationality, BIS calculations.



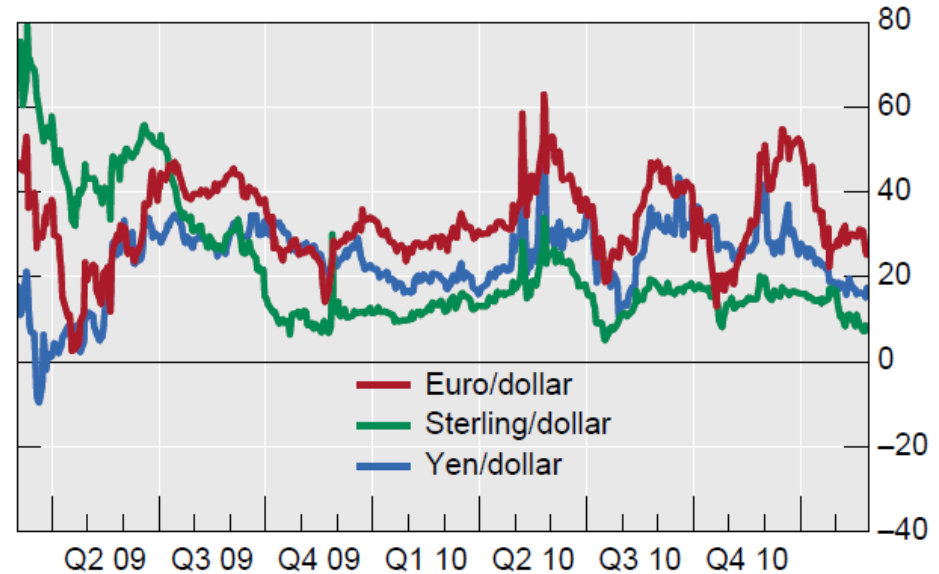
Graph 9

Domestic money market and foreign exchange swap spreads, 2009-10

3-month Libor-OIS (bp)



FX swap spread (bp)¹



¹ Spread between three-month FX swap implied dollar rate and the three month USD Libor, the FX swap implied rate is the implied cost of raising US dollars via FX swap using the funding currency.

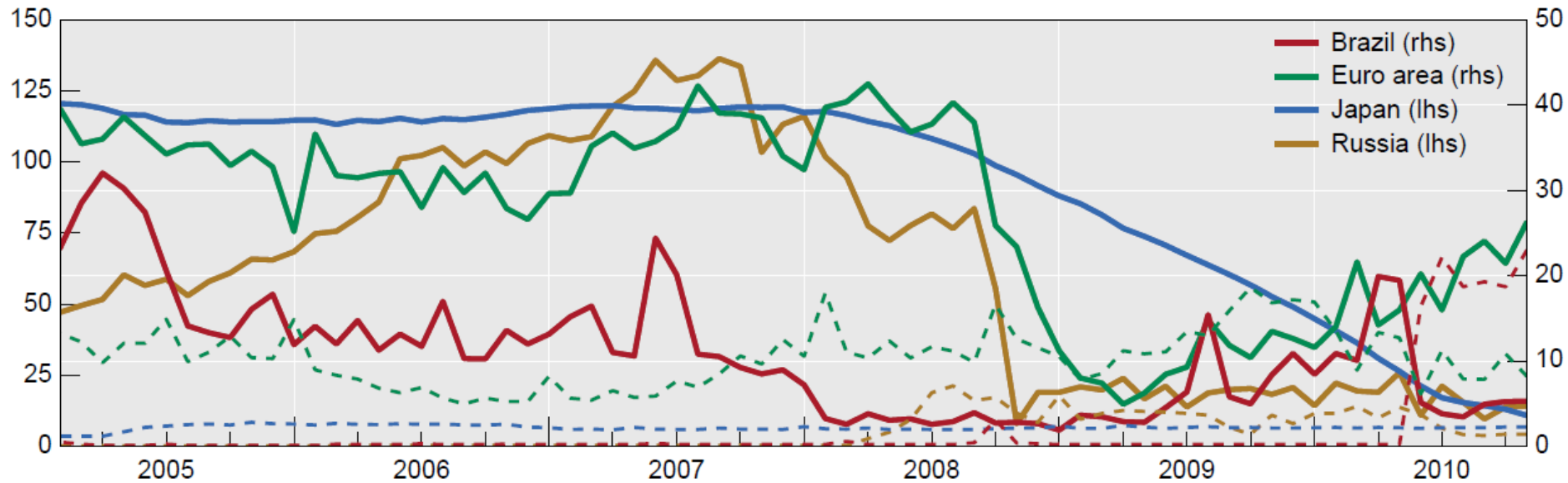
Sources: Bloomberg; Datastream; Markit; national data.



Graph 10

Central bank deposits

In billions of US dollars



Note: the solid lines refer to deposits in banks (domestic and foreign) and the dotted lines indicate deposits with other national central banks, the BIS and the IMF.

Source: IMF SDDS.



3) Do US agencies have a future as an asset class for official investors?



Table 6
Official holdings of US agency debt

	Long-term	MBS	Deben- tures	Bills	Total	<i>Memo: Fed + Treasury holdings</i>
March 2000	88					0
June 2002	134					0
June 2003	180					0
June 2004	211	23	194			0
June 2005	324	63	261	112	436	0
June 2006	473	118	355	110	583	0
June 2007	751	236	515	80	830	0
June 2008	967	435	532	130	1096	0
June 2009	795	475	320	34	828	724
June 2010	714	443	271	27	741	1508*

Source: Treasury et al (2008-10); Treasury (2011); Federal Reserve H.4.1 Release for 1 July 2010 and *Flow of Funds*.



4) Do corporate bonds have a future as an asset class for official reserve managers?



Table 7

Official holdings of US corporate bonds and paper

	Asset-backed securities*	<i>Of which mortgage-backed</i>	Other corporate bonds	Commercial paper	Total
March 2000				na	12**
June 2002				na	18**
June 2003				na	21**
June 2004	18		29	na	47**
June 2005	17		44	7	68
June 2006	30		67	12	108
June 2007	44	26	55	17	116
June 2008	40	18	65	18	124
June 2009	35	9	72	9	116
June 2010	20		63	7	90

Note: * Corporate ABS are backed by a wide variety of assets, such as car loans, credit card receivables, home and commercial mortgages, and student loans. ** Does not include commercial paper.

Source: US Treasury et al (2008-10); US Treasury (2011).



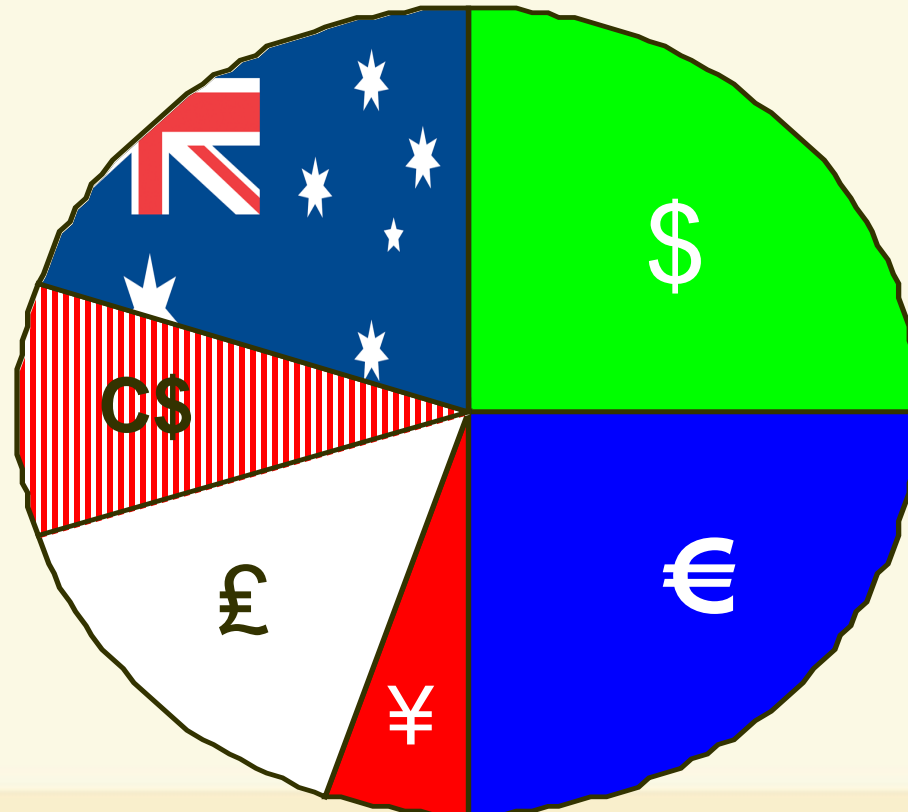
5) Is the diversification of official reserve portfolios continuing?

A continued interest in diversification...



... some real investments in commodity currencies & emerging market sovereign government securities...

Currency allocation of New Zealand's foreign exchange reserves





... but most alternative markets are too limited in size and liquidity to accommodate the needs of large reserve managers.



Conclusion:



Reserve Management Before the Crisis





The Crisis





After the Crisis: More Rough Water Ahead...

