ATTACHMENT

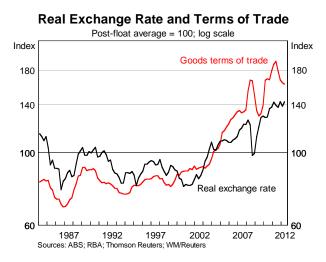
Is the Australian Dollar Overvalued?

The high level of the Australian dollar has been an important factor in the adjustment of the Australian economy to the higher level of the terms of trade over recent years. However, the exchange rate has remained near its highs notwithstanding the deterioration in the global economic outlook, the recent decline in the terms of trade and ongoing fragility of global financial markets. This paper discusses recent developments in the Australian dollar relative to its fundamental determinants.

The Australian Dollar and Fundamentals

Over a long run of years, the terms of trade have been the predominant influence on the Australian dollar. However, at various points in time, other factors have also been important, including differences in interest rates between Australia and other countries, and perceptions about Australia as an attractive place to invest. For example, around 2000, at the height of the tech bubble, the Australian dollar was lower than suggested by fundamentals. The perception was that Australia was a less attractive place to invest because of its reliance on commodities and lack of a sizeable tech sector.

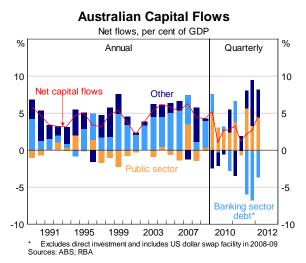
The terms of trade have fallen by around 15 per cent from their historical high in September last year and are expected to fall further. Nevertheless, they still remain at a very high level and part of the recent decline reflects the unwinding of the temporary increase in Australian export prices (most notably coal prices) due to natural disasters.



The strong demand for Australian government debt – reflected in increased foreign ownership of Commonwealth Government securities – has been highlighted as a factor contributing to the higher Australian dollar. Australia has been one beneficiary of the global portfolio reallocation to highly rated assets resulting from the increased relative riskiness of holding euro-denominated assets. Canada and a number of Scandinavian countries, as well as Switzerland, have seen similar flows.

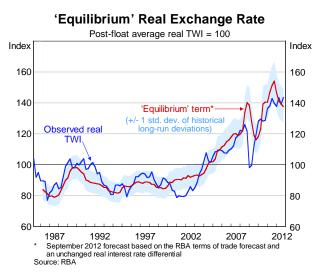
While increased demand for Australian government debt by foreign sovereigns would put upward pressure on the currency, other things equal, it is important to note that the strong foreign demand for Australian government debt over recent years has largely replaced capital inflows into the

Australian banking sector. Aggregate net capital inflows relative to GDP over the past two years have generally been below the historical average.



Econometric modelling can be used to more formally estimate a medium-term 'equilibrium' level of the exchange rate based on its historical relationship with economic fundamentals. These exercises, while subject to a reasonable degree of uncertainty, suggest that the Australian dollar is overvalued, but not substantially so:

- Most models including the staff's internal models and the IMF's models suggest the exchange rate is overvalued by 4–15 per cent. The range of estimates reflects differences in the choice of economic fundamentals and time periods that are used to estimate the 'equilibrium' levels.
- The staff's preferred model is based on the long-run relationship between the real exchange rate and the terms of trade and the real policy rate differential with the G3 (US, euro area and Japan) over the post-float period. It suggests the exchange rate is around 5 per cent overvalued. However, given the uncertainty of the estimates, the model also suggests that the exchange rate could be reasonably assessed (at roughly a 70 per cent probability) as being anywhere between 4 per cent undervalued and 12 per cent overvalued (shown by the shaded band on the graph).



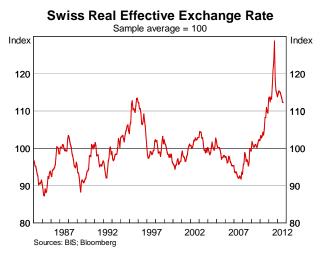
• Illustrating the sensitivity of the model results, if this model is estimated over a substantially longer (starting in 1971) or shorter (starting in 2002) period, the current level of the exchange rate is estimated as being between 23 per cent undervalued and 13 per cent overvalued.

	Estimated exchange rate valuation						
	Under/over—valuation	Per cent deviation					
Staff models							
From 1971*	Under	23					
From 1986	Over	4					
From 2002	Over	13					
External models							
IMF models	Over	5–15					
Big Mac Index (PPP based)	Over	8					

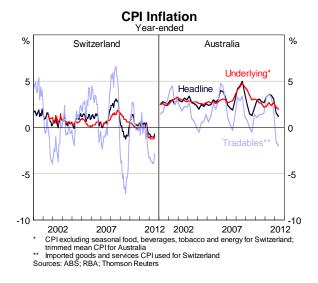
• It should be noted that there are some external estimates that suggest the Australian dollar is more than 30 per cent overvalued. In contrast to the staff's preferred model, these estimates typically exclude both cyclical and structural factors – such as real interest rate differentials and the terms of trade – from their assessments of 'equilibrium'.

The Swiss Case

Last September, the Swiss National Bank (SNB) imposed a 1.20 Swiss franc (CHF) per euro ceiling, and made a commitment to purchase 'unlimited quantities of foreign currency' as necessary to defend the ceiling. As a result of this commitment, the SNB purchased around €130 billion worth of foreign exchange in total over May, June and July this year, taking their foreign exchange reserve holdings up to almost 70 per cent of annual GDP from around 40 per cent of GDP three months earlier. The introduction of the ceiling was based on their assessment that the CHF was 'massively overvalued' and posed an 'acute threat' to the Swiss economy. As a traditional 'safe-haven' currency, the CHF had been the recipient of strong safe-haven flows that resulted in the currency appreciating by 28 per cent against the euro in the four months leading up to its peak in August 2011. Between end 2009 and the August 2011 peak, the real effective exchange rate appreciated by 26 per cent.



The unusually rapid pace of appreciation in the CHF last year occurred against a background of vulnerabilities in the Swiss economy, particularly given its exposures to the rest of Europe and its very large (and already stressed) financial sector. The Swiss traded sector is equivalent to around 90 per cent of domestic GDP (compared to 40 per cent for Australia) and around 70 per cent of its merchandise trade is with the European Union (compared to 15 per cent for Australia). Furthermore, Switzerland has a large reliance on manufacturing exports that are sensitive to exchange rate fluctuations (whereas the rural and resource sectors account for the largest share of Australian exports). As a result, the Swiss authorities were particularly concerned about the loss of external competitiveness and deflationary pressures (which have subsequently been borne out) from the rapid appreciation of the exchange rate from an already very high value.



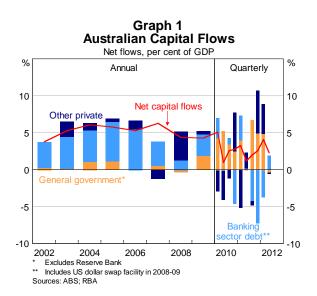
While the extreme circumstances facing Switzerland last year presented a clear and credible case for intervention, the circumstances in Australia cannot yet be considered comparable. There is not strong evidence that the Australian dollar is posing an imminent threat of deflation or is highly contractionary for the domestic economy. While those sectors of the Australian economy that are most exposed to external developments, such as manufacturing and tourism, have been adversely affected by the current high level of the Australian dollar, inflation is forecast to be within the target range over the next few years and the Australian economy is expected to grow at around 3 per cent over 2013 and 2014. This is partly related to the fact that the Australian economy (and financial sector) is less exposed to external developments (particularly in Europe) than the Swiss economy.

Financial Markets Group 30 August 2012

A Sectoral Breakdown of Capital Flows - June Quarter 2012

As in the BOP release there was a net outflow from general government debt of 0.7 per cent of GDP; however, the FA data reveal a somewhat offsetting net inflow of 0.4 per cent of GDP to state and local government debt (which are included with "private" flows in the BOP release) in the June quarter. This reallocation of state and local government capital flows saw the net outflow from the public sector revised down to 0.3 per cent of GDP and the net inflow to the private sector revised down to 1.7 per cent (from 2.1 per cent in the BOP release).

As reported in the BOP release, the net outflow from the general government sector may have been affected by a number of factors, namely a large government bond maturing and another coming due for maturity in a year's time (which is a trigger for some investors - including some prominent central banks - to roll out of these positions). The net inflow to state government debt largely reflected a net increase in foreign investment in long-term state and local government debt, which was partially offset by a net decrease in foreign investment in their short-term debt.



Graph 2 Foreign Ownership of Australian Debt

Share of outstandings Government Non-government Non-financial 80 80 Commonwealth Financial 60 60 40 40 Asset-backed Semi 20 20 ____₀ 2012 2004 2004 2008 2012 2008 Source: ABS

As a result of these flows, there was a slight decline in the share of Commonwealth government securities held by foreigners (to 76.7 per cent) and a small increase in the foreign ownership share of state and local government securities (to 37.4 per cent; Graph 2).

Market Analysis International Department 27 September 2012 From:

Sent: Friday, 14 December 2012 6:40 PM

To: Cc:

Subject: Australian Dollar Model Results [SEC=UNCLASSIFIED]

Dear

Our preferred model indicates that the Australian dollar is currently overvalued by about 7 per cent, which is around one standard deviation from the estimated long-run 'equilibrium' real exchange rate. This is somewhat larger than our estimate of an overvaluation of the exchange rate of around 4 per cent in September 2012 (which was reported in the September Board attachment). Alternative approaches largely confirm that there is a substantial degree of uncertainty in producing estimates of under or overvaluation. That is, if our preferred model is estimated over a substantially longer (starting in 1971) or shorter (starting in 2002) period, the current level of the exchange rate is estimated as being between 18 per cent *under*valued (1 standard deviation) and 14 per cent *over*valued (1½ standard deviations). Note that the estimates from the IMF models and Big Mac index are now somewhat dated.

Regards

Models of the Australian Dollar								
	Estimated exchange rate valuation							
Staff models	Under/over - valuation	Per cent deviations	Standard deviations					
From 1971*	Under	18	1.0					
From 1986	Over	7	0.9					
From 2002	Over	14	1.5					
External models								
IMF Models**	Over	5-15						
Big Mac Index (PPP based)***	Over	8						

^{*} Model excludes the real interest rate differential

Sources: The Economist; IMF; RBA

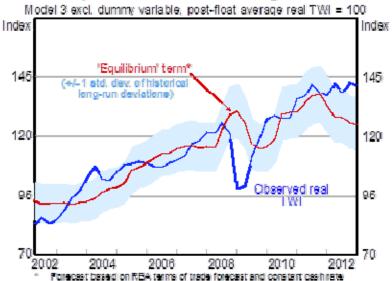
^{**} June 2012

^{***} July 2012

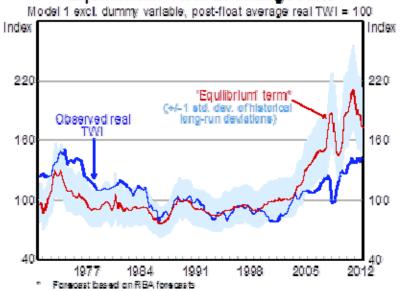
'Equilibrium' Real Exchange Rate

Post-float average real TWI = 100 Index Ind ex Equilibrium term (+/-1 std. dev. of historical long-run devlations) Iser beyresd@ Source: RBA

'Equilibrium' Real Exchange Rate



'Equilibrium' Real Exchange Rate



| Senior Analyst | International Department RESERVE BANK OF AUSTRALIA | 65 Martin Place, Sydney NSW 2000 | w: www.rba.gov.au

Composition of Foreign Exchange holdings of International Countries - AUD Focus



Country	Central bank	Series description	Base Currency	Hold AUD?	Assumed AUD holdings	Other info	Link	Article	Documentation	Year of latest AR
Argentina	Banco Central de la Republica Argentina	None	Peso	?		No annual report	s <u>Primary</u>			1989
Australia	Reserve Bank of Australia	Currency and residu	Australian dollar	#N/A	Table 32		Primary			2012
Armenia	Central Bank of the Republic of Armenia	Currency composition	Armenian drams	No		Currency held ap	Primary		Armenia	2011
Austria	Oesterreichische Nationalbank		Euro				Primary			
Belarus, Republic of	National Bank of the Republic of Belarus		Belarusian ruble	Yes		Page 137 of Annu	Primary			
Brazil	Banco Central do Brasil		Brazilian Real	Yes	3.10%		Primary	Secondary		2010
Belgium	Nationale Bank van België		Euro				Primary			
Bulgaria	Bulgarian National Bank		Euro				Primary			
Canada	Department of Finance Canada	Currency composition	CAD	No		Reserves only cor	Primary		Canada	2011
Colombia	Banco de la Republica Colombia	Currency composition	Peso	No		Composition is 85	<u>Primary</u>			2009
Croatia	Croatian National Bank		Kuns				Primary			
Czech Republic	Czech National Bank	Annual Report 2011	Koruna	Yes	5.30%		Primary			
Chile	Banco Centrale de Chile		Peso	Yes	<10%	Benchmark for po	Primary			2011
China	People's Bank of China	None	Renminbi	???	?		Primary			
Costa Rica	Banco Central de Costa Rica (BCCR)		Colon				Primary			
Cyprus	Central Bank of Cyprus		Euro				Primary			
Denmark	Danmarks NationalBank	Currency composition	Kroner	No	0	Hold reserves in I	Primary			
Ecuador	Banco Central del Ecuador		US\$?		Site not in English	Primary			
El Salvador	Banco Central de Reserva de El Salvador		Colon			Site not in English	Primary			
Egypt	Central Bank of Egypt	None	Pound	?		Mention of reser	v <u>Primary</u>			
Estonia	Bank of Estonia		Euro				Primary			
Euro area	European Central Bank	Currency allocation	Euro	No		US\$ and yen port	1 Primary			
Finland	Bank of Finland		Euro	Yes	0.40%	Possibly, publishe	<u>Primary</u>		Finland	
France	Banque de France		Euro				Primary			
Georgia	National Bank of Georgia	Currency composition	Georgian Lari	Yes	Total in Georgian Laris - c	See table in Docu	ı <u>Primary</u>		Georgia	2011
Greece	Bank of Greece		Euro				Primary			
Germany	Bundesbank	Announced but not	f Euro	Yes		Media reports sta	Primary	Secondary		
Hong Kong, SAR, PRC	НКМА		HKD	Yes	<14.3%	78.2% allocated t	c <u>Primary</u>		Hong Kong	2011
Hungary	Magyar Nemzeti Bank		Euro	No		Seems to be just	l <u>Primary</u>			2011
Iceland	Central Bank of Iceland		Krona	Possibly		Foreign bonds by	Primary			2011
Indonesia	Bank of Indonesia	Statistics	Rupiah	Possibly		Absolute number	: Primary			
Israel	Bank of Israel		Israeli Shekel	Apparently so	<\$8 billion US\$	Couldn't find on	N Primary	Secondary		2012 (article)
India	Reserve Bank of India		Rupee	Not likely		Foreign currency	¿ Primary	Secondary		
Ireland	Central Bank of Ireland		Euro	No		Basically holding	r <u>Primary</u>			
Italy	Banca D'italia		Euro	No		See table 22.2	Primary		Italy	
Japan	Bank of Japan/Ministry of Finance		Yen	No		Foreign currency	¿ Primary	Secondary	Press release	
Jordan	Central Bank of Jordan	Annual Report 2010	Dinar	Possibly		Under "other" in	f <u>Primary</u>			
Kazakhstan	National Bank of Kazakhstan	IIP	Tenge	Yes		I believe it's in th	e <u>Primary</u>	Secondary		
Kyrgyz Republic	Not giving me much here		Som				Primary			
Korea	The Bank of Korea	Currency allocation	Won	Yes	?	Couldn't find on	N Primary	Secondary		2011
Latvia	Latvijas Banka	None	Lats	No		"The foreign curr	e <u>Primary</u>			

Luxembourg	Banque Centrale du Luxembourg	Balance sheet - ass	<mark>et</mark> Euro	No		Breakdown in BS Primary			
Lithuania	Lietuvos Bankas	Countries not in SD	R Euro	Yes	If assumption that all non	-! Other open positi Primary			
Macedonia, FYR	National Bank of the Republic of Macedonia		Denar	Yes	Included in an "other" cat	e Talks about divers <u>Primary</u>		Macedonia, FYR	
Malta	Bank Centrali ta' Malta	Balance sheet - ass	<mark>et</mark> Euro	No		<u>Primary</u>			
Moldova, Republic of	National Bank of Moldova	Currency composite	or Leu	Possibly	<0.03%	Other currencies i Primary		Moldova, Republi	2011
Malaysia	Bank Negara Malaysia	Currency composit	io Ringgit	Possibly	<23.4%	In 2011 68.4% US; Primary			
Mexico	Banco de Mexico	None	Peso	No		<u>Primary</u>			
Morocco	Bank Al-Maghrib	Balance sheet - ass	<mark>et</mark> Dirham	No		<u>Primary</u>			
Netherlands	De Nederlandsche Bank	Currency Composit	ion	No		Breakdown of con Primary		Netherlands	
Norway	Norges Bank	Currency composit	io Kroner	No		75% USD, 25% EU Primary			
Peru	Banco Central de Reserva Del Peru	Currency composit	io Sole	Possibly		Holdings in US\$ of Primary			
Poland	Narodowy Bank Polski	Currency composit	io Zloty	Yes	7.48 US\$ bill.	In 2010 their benc Primary		Poland	
Philippines	Bangko Sentral Ng Pilipinas	None	Peso	"Other" quoted,	, no mention of AUD	Other foreign cou Primary	Secondary		
Portugal	Banco de Portugal	None	Euro			<u>Primary</u>			
Romania	Banca Nationala a Romaniei	Currency composit	io Leu	No		66% Euro, 24% US Primary		Romania	
Russian Federation	Bahk Pocchh	AR doesn't open	Rouble	Yes	Up to 1% of their total res	e Article suggest the Primary	Secondary		
Singapore	Monetary Authority of Singapore	None	Dollar	Possibly		Pretty secretive al Primary			
Slovenia	Bank of Slovenia	None	Euro			<u>Primary</u>			
Spain	Banco de Espana	None	Euro			Quite a lot of info Primary			
Switzerland	Swiss National Bank	Currency Composit	io Franc	Yes		See reserves sprea Primary			
Slovak Republic	Narodna Banka Slovenska	None	Euro			<u>Primary</u>			
South Africa	South African Reserve Bank		Rand	Doesn't seem to	be	Apparently there': Primary	Secondary	Annual Report 11/12	
Sweden	Sveriges Riksbank		Krona	Yes	10.1 SEK billion	Also hold USD, Eu Primary			
Thailand	Bank of Thailand	None	Baht	No		Only interested in Primary		Sweden	
Turkey	The Central Bank of the Republic of Turkey	Market value of for	e Lira	No		Only Euro and US! Primary			
Tunisia	Central Bank of Tunisia	None	Dinar	?		<u>Primary</u>			
Ukraine	National Bank of Ukraine	None?	Hyrvnia	?		Look closer - there Primary			
United States	Federal Reserve	Treasury and Fed R	e: Dollar	Apparently not		Predominately Ye Primary	Secondary		
United Kingdom	Bank of England	Currency composit	io Pound	No		BOE holds only US Primary	Secondary		
Uruguay	Banco Central Del Uruguay		Peso			Not available in Er Primary			

Link

Breakdown of debt securities in the Bank of Finland's financial assets by home state of the issuer (according to market value of debt security)

Country or region	31 Dec 2011 %	31 Dec 2010
	,	%
Euro area	66.7	71.5
Germany	23.2	21.7
France	19.3	22.1
The Netherlands	6.8	6.0
Finland	6.5	6.8
Austria	3.4	3.4
Spain	3.3	4.7
Italy	2.1	3.6
Belgium	0.9	1.4
Ireland	0.5	0.6
Portugal	0.4	0.7
Greece	0.2	0.6
Luxembourg ¹	0.0	0.0
Europe excl. euro area	8.6	7.4
United Kingdom	3.8	4.0
Sweden	2.5	2.2
Norway	1.3	0.5
Denmark	1.0	0.8
America	14.1	10.2
United States	13.0	9.1
Canada	1.1	1.1
Asia and Pacific Ocean		
region	3.8	4.8
Japan	3.2	4.2
Australia	0.4	0.6
Singapore	0.1	0.1
New Zealand ¹	0.0	_
International institutions	6.8	6.1

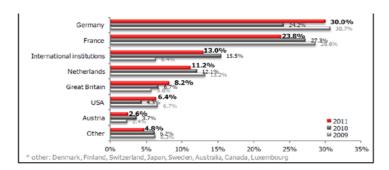
⁻ means zero.

Italy Link Table 22.2

Gold and net foreign currency assets (1) (millions of euros)						
	31.12.2011	31.12.2010				
Gold	95,924	83,197				
US dollars	18,970 (2)	18,175				
Pounds sterling	3,506	3,682				
Japanese yen	5,380	5,571				
Swiss francs	275	268				
Other currencies	4	4				
SDRs relating to net assets vis-à-vis the IMF	4,421	1,853				
Total	128,480	112,750				

(1) Valued at market exchange rates and prices. The reserves do not include financial assets (ETFs and shares/units of UCITS) denominated in foreign currency representing the investment of ordinary and extraordinary reserves, provisions and other capital funds, as they constitute a separate foreign currency item. – (2) Includes €1,546 million of temporary operations in dollars as part of an agreement between the ECB and the Federal Reserve to offer short-term liquidity in dollars to the banking system.

Source: Bank of Finland.



Moldova, Rej

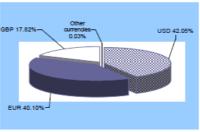
The Chart 2.44 shows the share of currencies in which the foreign exchange reserves were denominated at the end of 2011. The U.S. dollar holds the most significant share - 42.05 percent, followed by the euro - 40.1 percent.

It should be mentioned that, de facto, the foreign currency composition of foreign exchange reserves might deviate in the range of +/- 10.0 percent from the normative foreign currency composition (Chart 2.43).

Despite the unfavorable conjuncture of global economic environment and the negative development of profitability rates of investment instruments, the decisions taken within the management foreign exchange reserves process have led to a rate of profitability of 1.29 percent for 2011 or USD 24.66 million, as compared to 1.12 percent, or USD 17.18 million in 2010.

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Chart 2.44: Foreign exchange reserves as of 12/31/2011



Source: NBM

Netherlands

EUR million

	31 Dece	mber 2011					31 Decen	nber 2010)			
	Total	EUR	USD	JPY	GBP	SDR	Total	EUR	USD	JPY	GBP	SDR
Foreign curr	ency swaps											
Claims	10,247	9,743	504	0	0	0	9,157	8,911	246	0	0	0
Liabilities	-10,761	-5	-7,445	-509	-13	-2,789	-9,114	-17	-6,918	-235	0	-1,944
	-514	9,738	-6,941	-509	-13	-2,789	43	8,894	-6,672	-235	0	-1,944
Forward con	tracts											
Claims	1,025	647	378	0	0	0	926	464	462	0	0	0
Liabilities	-1,027	-348	-382	0	0	-297	-924	-447	-477	0	0	0
	-2	299	-4	0	0	-297	2	17	-15	0	0	0
Total	-516	10,037	-6,945	-509	-13	-3,086	45	8,911	-6,687	-235	0	-1,944

Poland

Link

Link

Table 4
Benchmark currency composition in years 2006–2010 (in %)

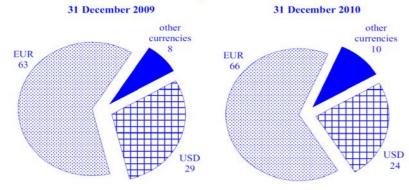
	Benchmark currency composition							
Γ	USD	EUR	GBP	AUD	NOK			
2006	45	40	15	0	0			
2007	40	40	15	5	0			
2008	40	35	15	5	5			
2009	40	35	15	5	5			
2010	38	35	13	8	6			

Source: NBP data.

Romania <u>Link</u>

Romania's Foreign Exchange Reserve Composition

percent



Canada

Table 3 **Currency Composition of EFA Liquid Reserves**

	March 31, 2011	March 31, 2010	Change					
	(market val	(market value in millions of dollars, settled basis)						
US dollars	28,622	24,800	3,822					
Euro	18,609	20,095	-1,485					
Yen	128	305	-179					

Notes: Liquid reserves exclude gold and SDR holdings. Numbers may not add due to rounding.

Armenia

Currency	Decrease in currency rate in % 2011	Effect on profit 2011	Decrease in currency rate in % 2010	Effect on profit 2010
EUR	-17.23%	(32,384,098)	-25.00%	(40,947,634)

GBP	-14.18%	(6,484,220)	-17.58%	(4,361,370)
JPY	-16.46%	(11,276,229)	-25.00%	(19,156,602)
USD	-11.13%	(30,866,071)	-10.15%	(27,399,128)
SDR	-14.18%	32,611,118	-17.58%	37,685,905

Georgia 31 December 2011

		31 December 2011						
	GEL	USD	EUR	SDR	AUD	Other	Total	
Financial assets:								
Cash and cash equivalents	-	1,329,186	348,363	-	8,576	4,176	1,690,301	
Due from financial								
institutions	13,505	990	189	-	-	35	14,719	
Special Drawing Rights								
holdings with the								
International Monetary Fund	-	-	-	373,034	-	-	373,034	
Trading securities	-	151,269	-	-	-	-	151,269	
Investments available-for-								
sale	124,997	1,486,537	784,407	-	210,275	-	2,606,216	
Investments held to maturity	562,361	-	11,493	-	-	-	573,854	
Other financial assets	2,313		106				2,419	
Total financial assets	703,176	2,967,982	1,144,558	373,034	218,851	4,211	5,411,812	
Financial liabilities:								
Due to resident financial								
institutions	385,852	636,288	125,314	_	_	34	1,147,488	
Due to the Ministry of								
Finance	573,818	82,509	101,910	-	-	514	758,751	
Due to the International								
Monetary Fund	-	-	-	1,350,738	-	-	1,350,738	
Due to customers	621	-	-		-	-	621	
Debt securities issued	442,128	-	-	-	-	-	442,128	
Other financial liabilities	3,615	298	1,202				5,115	
Total financial liabilities	1,406,034	719,095	228,426	1,350,738		548	3,704,841	
NET FINANCIAL								
POSITION	(702,858)	2,248,887	916,132	(977,704)	218,851	3,663	1,706,971	

Hong Kong

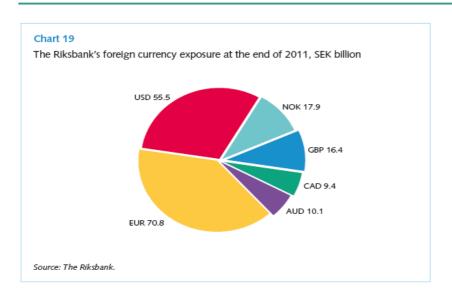
Table 3	Currency mix of the Exchange Fund's assets on 31 December 2011 (including forward transactions)
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	HK\$ billion	%
US dollar	1,945.6	78.2
Hong Kong dollar	186.4	7.5

Total	2,488.0	100.0
Others ¹	356.0	14.3

¹ Other currencies included mainly Australian dollar, Canadian dollar, euro, renminbi, sterling and yen.

Sweden



Country Hold reserves in A Total reserves AUD Reserves % of Total reserves/ capital inflows???

Original

Reuters

AFR http://afr.com/p/markets/russia_joins_growing_club_OzQablsLkKBEKzbwtTYh6L

Regions speculated to have bought Aussie:

Asia Also large fund managers?

South America Western Europe

Speculation that COFER data on the "other" reserves category is largely AUD is backed up by turnover data suggesting the Aussie is the 5th most heavily trade currency in 2010, with traders consensus agreeing that volumes have picked up since then.