



Workshop
"Currency Hierarchy, Macroeconomic Policies and Development Strategies"
Freie Universität - DesiguALdades

The IMS hierarchy: determinants and current configuration

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- Objectives:

- Main goal: Analyze current IMS hierarchy
- Associated goals:
 - analyze the possible determinants of the international usage of national currencies
 - analyze the effects of the global financial crisis over the IMS configuration

Outline

- 1) Introduction: money functions at the international level
- 2) Currencies' international usage
- 3) Currency internationalization determinants
- 4) Final remarks

I) Introduction: money functions at the international level

Function	Private usage	Public usage
Means of payment	Means of payment/vehicle currency	Intervention currency
Unit of account	Price setting/invoice currency	Reference currency (anchor)
Reserve of value	Investment and finance currency	Reserve currency

Source: Cohen (1971)

2) Currencies international usage

- Methodology:
 - Data from different sources
 - Three country groups:
 - Central: US, Euro area (or Germany), UK, Japan and Switzerland
 - Latin America: Argentina, Brazil, Chile and Mexico
 - Asia: China, India, South Korea and Malaysia

Means of payment function – private usage

Means of payment / Vehicle currency

Table 2: Currency distribution on global foreign exchange market turnover
Net-net basis, percentage shares of average daily turnover in April of each year.

Currency	1998	2001	2004	2007	2010	2013
US dollar	86.8	89.9	88	85.6	84.9	87
Euro	-	37.9	37.4	37	39.1	33.4
Yen	21.7	23.5	20.8	17.2	19	23
Sterling pound	11	13	16.5	14.9	12.9	11.8
Australian dollar	3	4.3	6	6.6	7.6	8.6
Swiss franc	7.1	6	6	6.8	6.3	5.2
Canadian dollar	3.5	4.5	4.2	4.3	5.3	4.6
Mexican peso	0.5	0.8	1.1	1.3	1.3	2.5
Chinese yuan	0	0	0.1	0.5	0.9	2.2
NZ dollar	0.2	0.6	1.1	1.9	1.6	2
Swedish krona	0.3	2.5	2.2	2.7	2.2	1.8
Russian rouble	0.3	0.3	0.6	0.7	0.9	1.6
HK dollar	1	2.2	1.8	2.7	2.4	1.4
Norwegian krone	0.2	1.5	1.4	2.1	1.3	1.4
Singapore dollar	1.1	1.1	0.9	1.2	1.4	1.4
Turkish lira		0	0.1	0.2	0.7	1.3
Korean won	0.2	0.8	1.1	1.2	1.5	1.2
South African rand	0.4	0.9	0.7	0.9	0.7	1.1
Brazilian real	0.2	0.5	0.3	0.4	0.7	1.1
Indian rupee	0.1	0.2	0.3	0.7	1	1
Danish krone	0.3	1.2	0.9	0.8	0.6	0.8
Polish zloty	0.1	0.5	0.4	0.8	0.8	0.7
new Taiwan dollar	0.1	0.3	0.4	0.4	0.5	0.5
Hungarian forint	0	0	0.2	0.3	0.4	0.4
Malaysian ringgit	0	0.1	0.1	0.1	0.3	0.4
Czech koruna	0.3	0.2	0.2	0.2	0.2	0.4
Thai baht	0.1	0.2	0.2	0.2	0.2	0.3
Chilean peso	0.1	0.2	0.1	0.1	0.2	0.3
other currencies	0.2	6.9	6.9	8.2	5.4	2.5
Total	200	200	200	200	200	200

Source: Authors' elaboration based in BIS Reports (Foreign exchange and derivatives market activity 2001, 2004, 2007, 2010 and 2013).

Means of payment function – private usage

Means of payment / Vehicle currency

Table 3: Foreign exchange turnover - Cross border
US\$ million - daily average (April)

Currency	2001	2004	2007	2010	2013
US dollar	599,943	959,424	1,552,539	2,106,951	2,785,454
Euro	270,559	433,506	727,770	973,224	1,087,351
Yen	145,722	201,689	316,909	460,102	723,387
Sterling pound	82,918	170,484	262,436	302,851	337,795
Australian dollar	26,259	55,591	121,524	186,486	286,581
Swiss franc	41,754	70,494	125,884	165,516	171,590
Canadian dollar	29,824	41,874	78,117	132,091	149,863
Mexican peso	5,783	13,120	23,677	32,519	82,695
NZ dollar	4,863	11,292	37,362	40,828	66,918
Chinese yuan	64	796	4,196	13,076	62,895
Swedish krona	6,058	8,158	16,376	61,218	59,933
Norwegian krone	12,000	19,078	49,286	36,299	48,449
HK dollar	12,414	19,172	56,382	61,668	48,335
Singapore dollar	586	2,784	5,237	34,839	46,791
Russian rouble	1,282	4,781	7,257	14,740	45,671
Turkish lira	705	2,684	10,746	15,038	44,359
Brazilian real	492	771	4,075	11,966	43,011
South African rand	4,229	10,333	22,458	17,647	37,500
Korean won	2,425	6,456	12,285	21,757	27,041
Danish krone	9,137	11,222	14,283	13,467	26,094
Indian rupee	160	692	5,119	12,672	22,876
Polish zloty	4,740	5,269	14,198	21,240	21,768
Hungarian forint	35	2,803	5,729	10,988	12,800
new Taiwan dollar	724	1,280	2,135	7,538	11,511

Source: Authors' elaboration based in BIS Reports (Foreign exchange and derivatives market activity 2001, 2004, 2007, 2010 and 2013).

Note 1: The total cross-border Forex exchange turnover refers to the sum of spot transactions, outright forwards and foreign exchange swaps.

Means of payment function – private usage

Means of payment / Vehicle currency

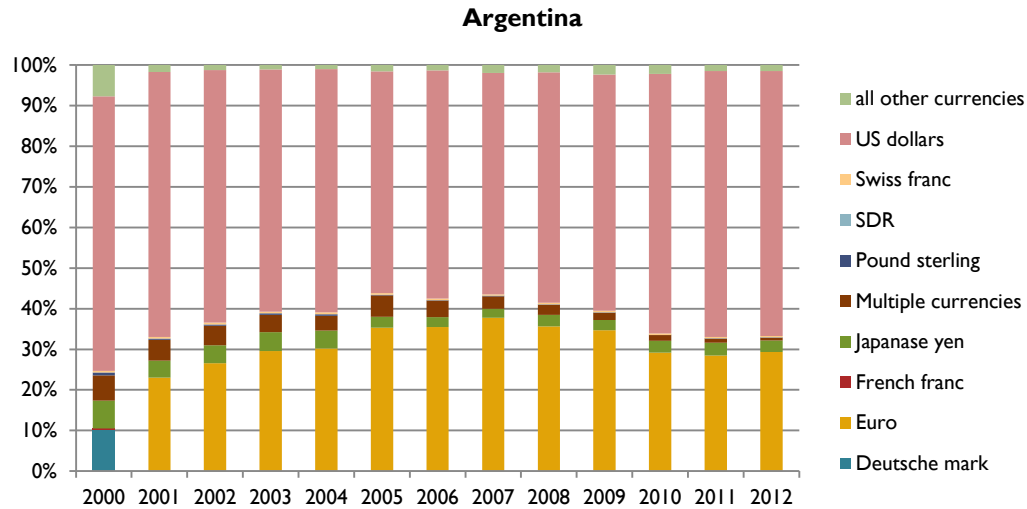
Table 4: Customer initiated and institutional payments
Percentage based on value, August 2014

Currency	%
US dollar	43.82
Euro	29.13
Sterling pound	8.4
Yen	2.47
Australian dollar	1.92
Canadian dollar	1.69
Chinese yuan	1.64
Swiss franc	1.21
HK dollar	1.16
Singapore dollar	0.93
Thai baht	0.91
Swedish krona	0.87
Polish zloty	0.85
Norwegian krone	0.74
NZ dollar	0.49
Danish krone	0.48
South African rand	0.44
Russian rouble	0.39
Mexican peso	0.37
Turkish lira	0.35

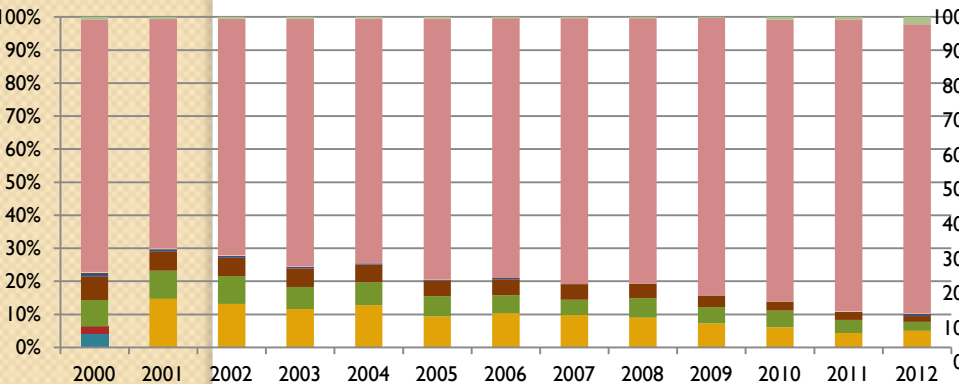
Unit of account function – private usage

Price setting / Invoice currency

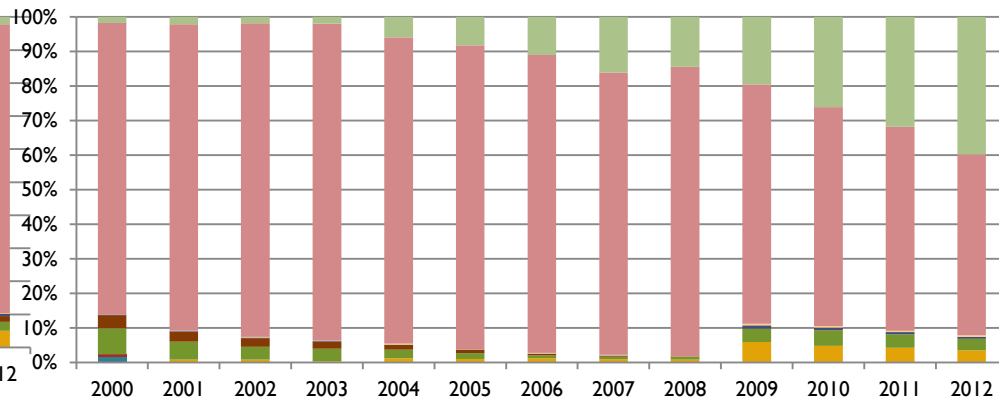
External debt composition (%)



Brazil



Mexico

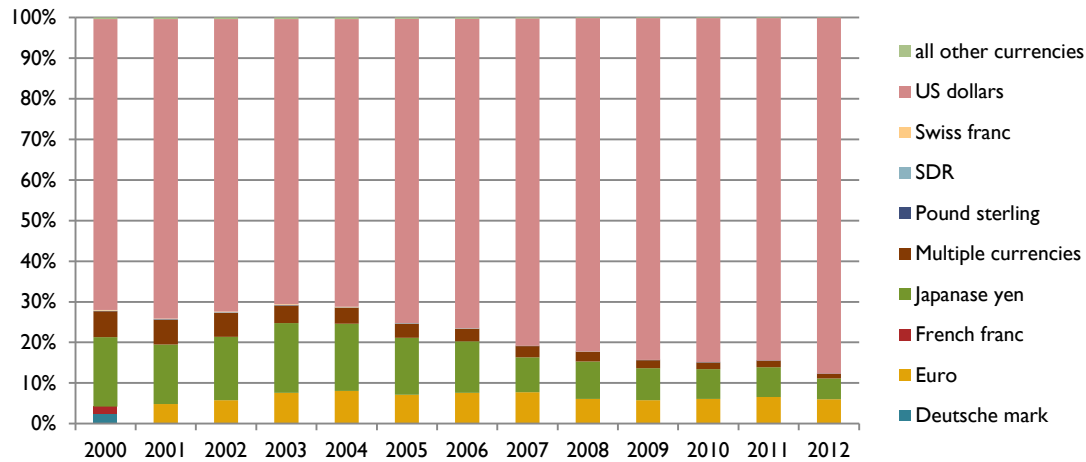


Unit of account function – private usage

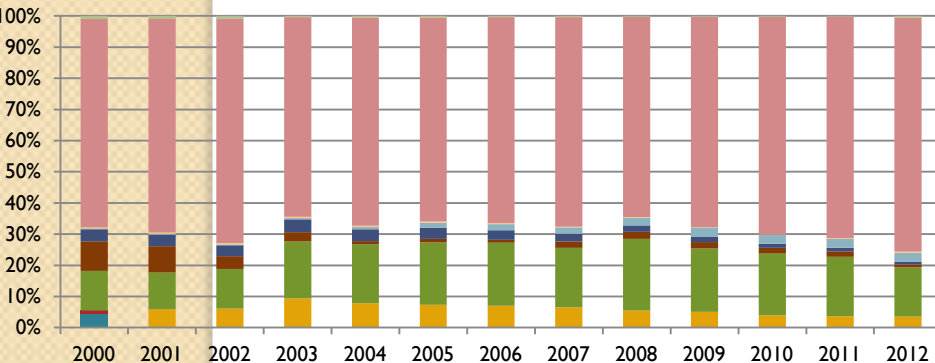
Price setting / Invoice currency

External debt composition (%)

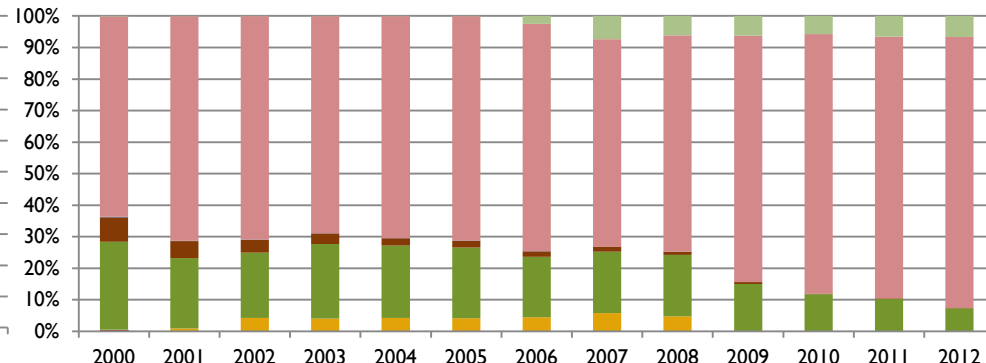
China



India



Malaysia





Unit of account function – private usage
Price setting / Invoice currency

- Guttman and Plihon (2011):
 - US dollar's share is between 40 and 45%
 - Euro's share is within the range of 15 and 20%

Means of payment and Unit of account – public usage Intervention currency and reference currency (anchor)

Exchange Rate Arrangements and Monetary Policy Frameworks, 2014 Number of countries

Exchange rate arrangement	US dollar	Euro	Composite	Other	Monetary aggregate target	Inflation targeting framework	Other
No separate legal tender	8	3	-	2	-	-	-
Currency board	8	3	-	1	-	-	-
Conventional peg	15	18	5	5	-	-	1
Stabilized arrangement	7	1	2	-	7	-	4
Crawling peg	1	-	1	-	-	-	-
Crawl-like arrangement	2	1	-	-	3	3	6
Pegged exchange rate within horizontal bands	-	-	1	-	-	-	-
Other managed arrangement	2	-	3	-	4	1	8
Floating	-	-	-	-	11	21	4
Free floating	-	-	-	-	-	9	20
Total	43	26	12	8	25	34	43

Means of payment and Unit of account – public usage Intervention currency and reference currency (anchor)

- Cartapanis (2009): among the countries with any kind of exchange rate administration:
 - about 2/3: US dollar
 - about 1/3: euro
- Goldberg (2010): US dollar as the reference currency for 104 over 207 analysed countries

Store of value function – private usage Investment and finance currency

Banks: Cross border assets and liabilities, in foreign currency (%)

Banks: Local assets and liabilities, in foreign currencies (%)

Currency	Assets		Liabilities	
	2010	2013	2010	2013
US dollar	57.8	58.7	63.5	60.7
Euro	20.7	19.5	18.6	18.4
Yen	5.1	3.1	3.3	4.9
Sterling pound	3.3	5.1	4.9	3.9
Swiss franc	2.3	2.4	1.7	2.3
Other currencies	10.7	11.2	8	9.7
Total	100	100	100	100

Currency	Assets		Liabilities	
	2010	2013	2010	2013
US dollar	49.2	56.4	52.8	58.5
Euro	27.4	24.8	23.4	21.5
Yen	4.8	3.3	3.6	2.2
Sterling pound	4.3	3.2	4.0	2.8
Swiss franc	7.0	4.7	3.2	2.2
Other currencies	7.5	7.6	13.1	12.8
Total	100	100	100	100

Source: Authors' elaboration based in BIS Reports (Foreign exchange and derivatives market activity 2010 and 2013).

Note: the reference to the definition of "foreign currency" is the country of location of the bank in question.

Store of value function – private usage

Investment and finance currency

International money market instruments

Currency	2010	2013
US dollar	37.2	37.6
Euro	41.3	36.1
Sterling pound	13.7	18.6
Yen	2.3	1.5
Australian dollar	1.0	1.0
Swiss franc	1.6	0.9
HK dollar	1.0	0.6
Swedish krona	0.3	0.6
NZ dollar	0.2	0.2
Singapoure dollar	0.2	0.2
Norwegian krone	0.1	0.2
Canadian dollar	0.2	0.1
Danish krone	0.1	0.1
South african rand	0.02	0.03
Russian rouble	0.1	0.0
Czech koruna	0.00	0.02
Polish zloty	0.3	0.02
Other currencies	0.3	2.2
Total	100	100

Currency	Commercial papers		Other instruments	
	2010	2013	2010	2013
US dollar	31.7	39.7	44.2	34.9
Euro	46.9	33.4	34.1	39.5
Sterling pound	14.9	21.6	12.3	14.8
Swiss franc	2.2	0.9	0.9	0.9
Yen	1.1	0.3	4	2.9
Canadian dollar	0.3	0.2	0.1	0
Other currencies	3	3.9	4.4	6.9
Total	100	100	100	100

Obs: mainly commercial papers

Source: Authors' elaboration based in BIS Reports (Foreign exchange and derivatives market activity 2001, 2004, 2007, 2010 and 2013).

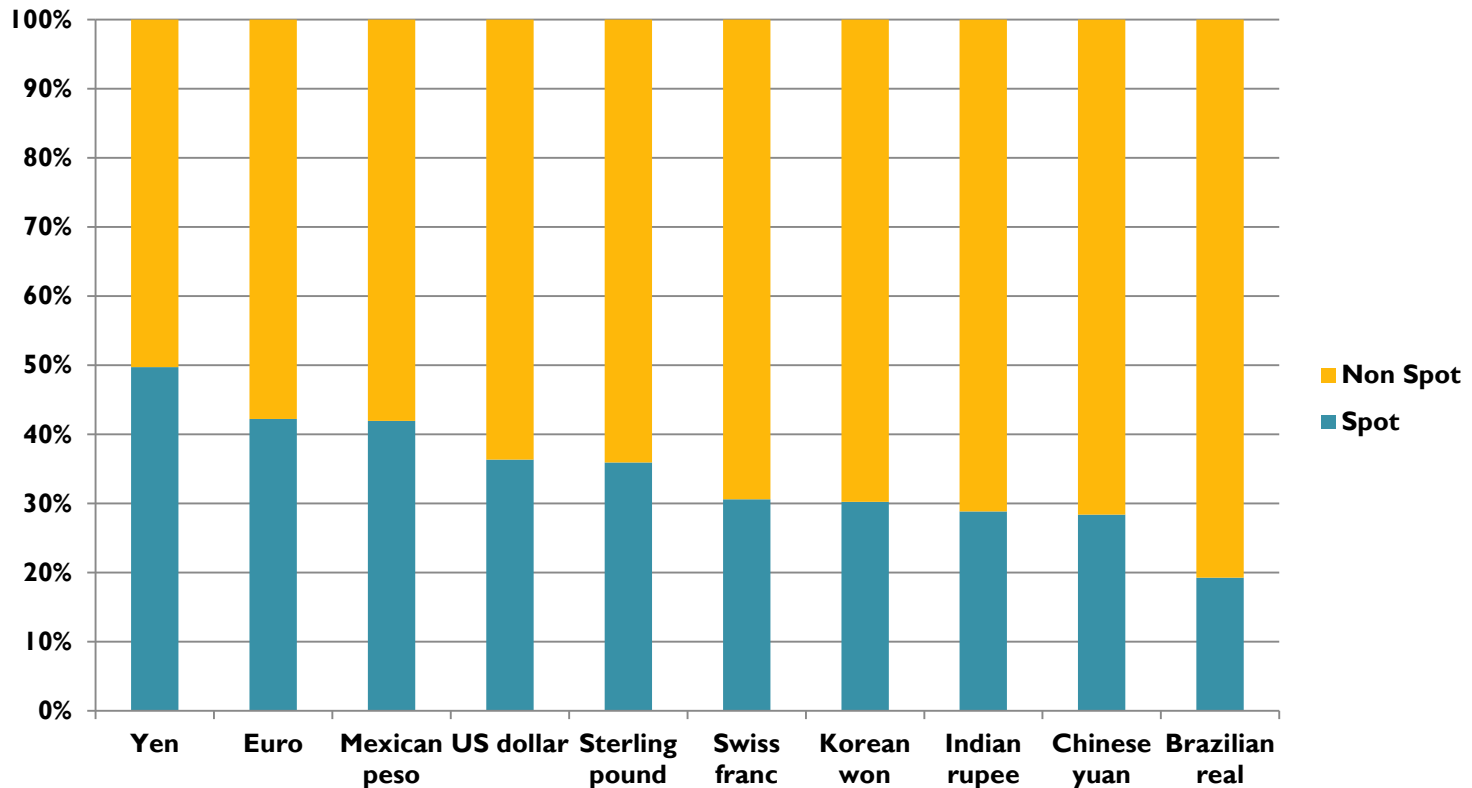
Store of value function – private usage Investment and finance currency

Derivatives: foreign exchange

Currency	2010	2013
US dollar	88.0	87.9
Euro	38.8	33.4
Yen	23.0	20.8
Sterling pound	12.8	11.5
Swiss franc	7.4	5.7
Canadian dollar	4.3	4.5
Swedish krona	2.7	1.9
Other currencies	22.9	34.2
Total	200	200

Store of value function – private usage Investment and finance currency

Figure 3: International forex markets: non spot vs. spot operations (average, April 2013)



Source: BIS, Foreign exchange and derivatives market activity 2013.

Authors' elaboration.

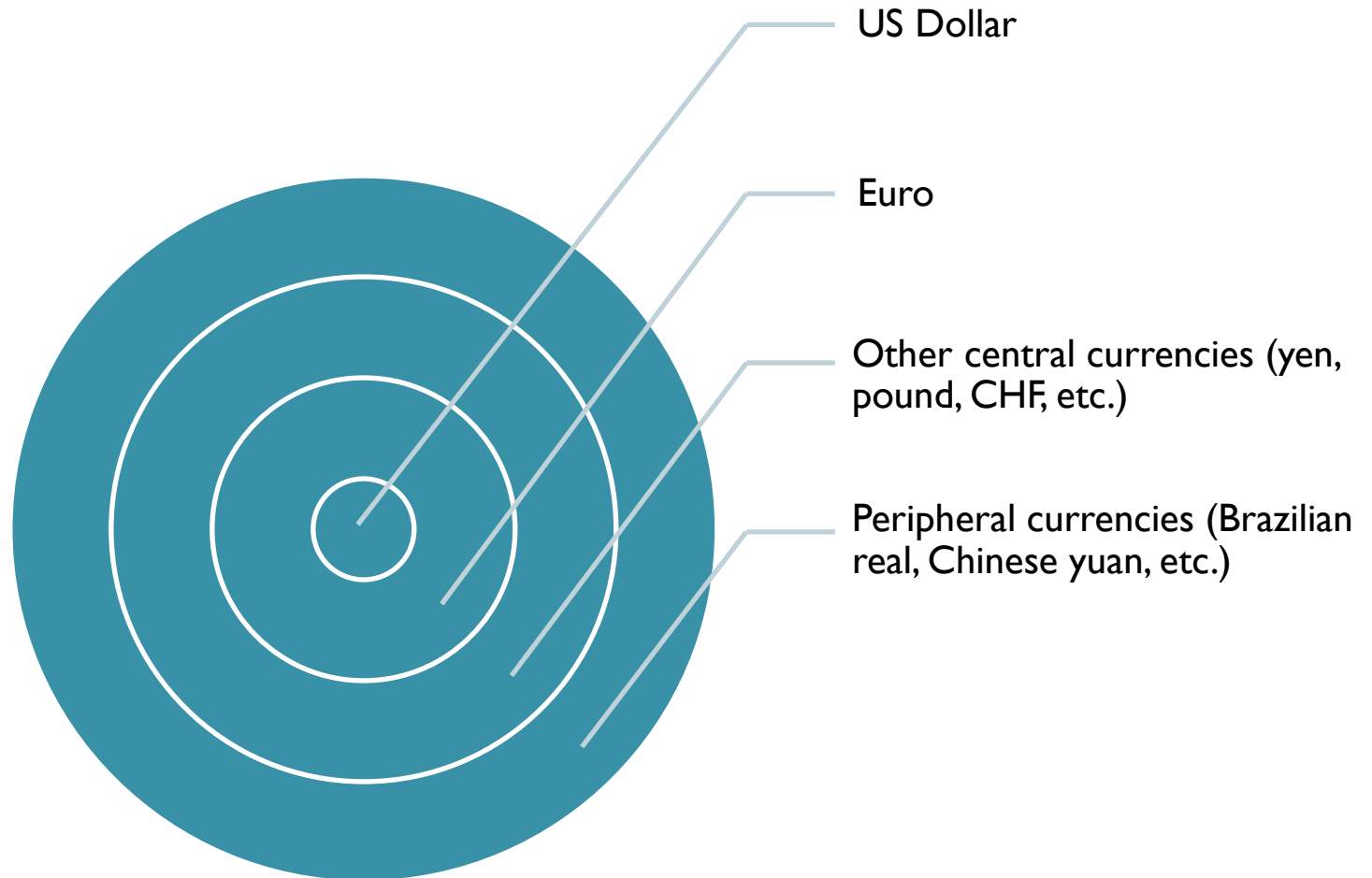
Store of value – public usage

Reserve currency

Official foreign exchange reserves

	1996	1998	2000	2002	2004	2006	2008	2010	2012	2013	2014.II
US dollar	62.0	69.3	71.1	66.5	65.5	65.1	63.8	61.8	61.2	60.9	60.7
Euro	-	-	18.3	23.7	24.7	25.0	26.2	26.0	24.2	24.5	24.2
Sterling pound	2.7	2.7	2.8	2.9	3.5	4.5	4.2	3.9	4.0	4.0	3.9
Yen	6.7	6.2	6.1	4.9	4.3	3.5	3.5	3.7	4.0	3.9	4.0
Swiss Franc	0.3	0.3	0.3	0.4	0.2	0.2	0.1	0.1	0.3	0.3	0.3
Deutsche mark	14.7	13.8	-	-	-	-	-	-	-	-	-
French Franc	1.8	1.6	-	-	-	-	-	-	-	-	-
Netherlands guilder	0.2	0.3	-	-	-	-	-	-	-	-	-
ECUs	7.1	1.3	-	-	-	-	-	-	-	-	-
Other currencies	4.5	4.5	1.5	1.6	1.9	1.8	2.2	4.4	6.3	6.5	7.0

IMS Hierarchy



Source: De Conti (2011), based in Prates (2002) and Carneiro (2002)

3) Currency internationalization determinants

- What determines currencies' usage?
 - National sphere: National State
 - International level: ???

a. Economy dimension and integration

Table 17: GDP - % of World's GDP

Country	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
United States	31.3	32.5	32.3	30.1	28.5	28.1	27.5	25.5	23.6	24.4	23.2	21.7	22.2	22.4
Eurozone	19.1	19.4	20.4	22.4	22.8	21.8	21.4	21.8	21.9	21.1	18.9	18.4	16.8	17.1
China	3.6	4.0	4.3	4.3	4.5	4.9	5.5	6.2	7.3	8.6	9.2	10.2	11.5	12.7
Japan	14.4	12.7	11.7	11.3	10.8	9.8	8.6	7.7	7.8	8.5	8.5	8.3	8.2	6.6
Un. Kingdom	4.5	4.5	4.8	4.9	5.2	5.0	4.9	5.0	4.3	3.8	3.6	3.5	3.4	3.4
Brazil	2.0	1.7	1.5	1.4	1.5	1.9	2.2	2.4	2.7	2.7	3.3	3.5	3.1	3.0
India	1.4	1.5	1.5	1.6	1.7	1.8	1.9	2.2	2.0	2.3	2.6	2.6	2.6	2.5
Korea	1.7	1.6	1.8	1.8	1.8	1.9	2.0	2.0	1.6	1.5	1.7	1.7	1.7	1.7
Mexico	2.1	2.2	2.2	1.9	1.8	1.9	1.9	1.8	1.8	1.5	1.6	1.6	1.6	1.7
Switzerland	0.8	0.8	0.8	0.9	0.9	0.8	0.8	0.8	0.8	0.9	0.9	0.9	0.9	0.9
Argentina	1.0	1.0	0.3	0.4	0.4	0.5	0.5	0.6	0.6	0.6	0.7	0.8	0.8	0.8
Malaysia	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.4	0.4	0.4	0.4
Chile	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4

Source: World Economic Outlook Database, IMF. Authors' elaboration.

a. Economy dimension and integration

Table 18 – Trade and services flows – US\$ billion

Country	2005	2006	2007	2008	2009	2010	2011	2012	2013
Euroarea	3947	4543	5382	6122	4918	5518	6513	6321	6524
USA	3286	3676	4008	4388	3545	4192	4786	4960	5020
China	1416	1738	2203	2638	2301	3072	3799	4145	4490
Japan	1276	1394	1521	1763	1315	1658	1898	1926	1786
UK	1264	1448	1555	1602	1247	1399	1594	1597	1602
Korea	649	761	889	1043	835	1060	1339	1370	1365
India	336	418	519	685	589	787	999	1024	1028
Switzerland	372	411	485	582	526	629	791	752	835
Mexico	475	546	597	645	505	642	747	789	815
Brazil	230	276	342	449	355	478	597	587	607
Malaysia	292	330	373	409	331	421	482	495	490
Argentina	82	95	119	150	116	150	188	179	185
Chile	87	111	131	147	115	151	181	181	180

Source: Balance of payments statistics, IMF – Authors' elaboration

Note: "Trade and services flows" were calculated as the sum of goods and services exports and imports.

a. Economy dimension and integration

Table 19 - Financial flows

Country	2005	2006	2007	2008	2009	2010	2011	2012	2013
Euroarea	3363	4356	5177	1463	3170	1675	1902	1898	2371
USA	1859	3456	3756	2277	2002	2349	1552	2351	2009
China	275	398	470	406	359	705	827	736	933
Japan	583	502	727	651	595	697	614	691	735
UK	2749	2261	4148	3404	1653	1036	695	838	672
Switzerland	270	285	727	682	309	176	191	188	209
Brazil	54	90	160	93	131	226	196	156	198
Mexico	69	34	107	75	100	140	89	147	146
Korea	64	118	183	105	83	103	103	126	128
India	39	71	128	103	72	142	120	139	111
Chile	19	28	50	46	43	58	61	80	62
Malaysia	18	38	55	56	38	56	54	59	44
Argentina	14	32	33	41	16	34	41	27	24

Source: International Financial Statistics, IMF. Authors' elaboration.

Note: "Financial flows" were calculated as the sums of assets and liabilities operations concerning the "direct investments", "portfolio investments" and "other investments".

a. Economy dimension and integration

Table 20: Financial depth - Debt and equities, as a percentage of GDP - 2012, 2nd quarter

Countries/Regions	% GDP
Advanced economies (average)	408
China	226
Other emerging Asia	151
India	148
Latin America	126

Fonte: McKinsey Global Institute (MGI, 2013)

b. Geopolitical power

G7	UN Security Council	NATO	OECD	G20
USA	USA	USA	USA	USA
UK	UK	UK	UK	UK
Germany	China	Germany	Germany	Germany
Japan			Japan	Japan
			Switzerland	Switzerland
			South Korea	South Korea
			Mexico	Mexico
			Chile	China
				India
				Brazil
				Argentina

b. Geopolitical power

Table 22: IMF Voting Power

	Country	Vote (% of total)
Central countries	USA	16.8
	Japan	6.2
	Germany	5.8
	France	4.3
	UK	4.3
	Switzerland	1.4
Latin american countries	Brazil	1.7
	Mexico	1.5
	Argentina	0.9
	Chile	0.4
Asian countries	China	3.8
	India	2.3
	South Korea	1.4
	Malaysia	0.7
	Total	100

Source: IMF

b. Geopolitical power

Table 23: Military Power, 2014

Ranking	Country
1st	USA
2nd	Russia
3rd	China
4th	India
5th	UK
6th	France
7th	Germany
9th	South Korea
10th	Japan
14th	Brazil
27th	Switzerland
33rd	Mexico
38th	Malaysia
55th	Argentina
58th	Chile

Source: Global Fire Power

c. Political will

- “Political will” is conditioned to political power
- Facing the possibility of internationalizing the usage of its national currency, countries may choose between a:
 - Positive position: USA and UK
 - Neutral position: EU and Japan
 - Negative position: China (so far, but changing)

Final remarks

- Dynamic context, but subject to inertia and hysteresis
- In the long term, IMS hierarchy may be changed.
However: it is the outcome of transformations in the geoeconomic and geopolitical context and not merely the outcome of national policies
- Hence: financial openness and forex market liberalization **are not** policies that may enable currency internationalization by themselves; on the contrary, they may weaken the domestic usage of this currency

Final remarks

- i) the US dollar has kept its role as the key-currency of the IMS, in spite of the crisis originated in the American subprime markets;
- ii) although the euro's role as the second most used currency in the world is still not threatened, its importance has diminished in the last year as a consequence of the eurozone crisis;
- iii) the Chinese yuan's importance in the IMS is increasing in a relatively sustained pace; although its role is still not comparable to the one played by the central currencies, the evolution of the indicators presented here suggest that the Chinese currency will change its status in a near future.



Thank you very much for your attention!

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