

Offshore RMB development in Hong Kong: A look into the Eurocurrency experience

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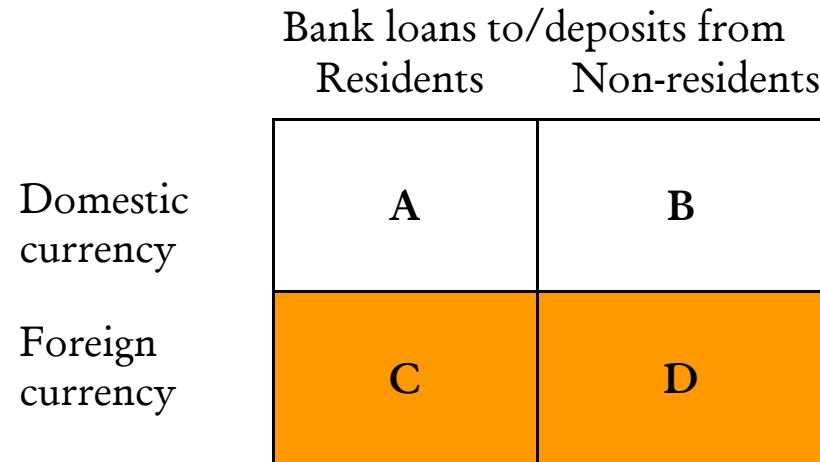
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Outline

- Eurocurrency market development
- Eurodollar's 'success' and USD's strong international status
- Other factors driving Eurodollar and Euroyen market development
- RMB's potential as an international currency and the associated costs and benefits
- RMB business in Hong Kong and Hong Kong's role in RMB internationalisation

Eurocurrency (Eurodollar and Euroyen) market development

Defining the Eurocurrency market



A: *Domestic banking*: Residents in domestic currency

B: *Traditional foreign banking*: Non-residents in domestic currency

C+D: *Eurocurrency banking*: Both residents and non-residents in foreign currency

B+D: *International banking*: Non-residents in both domestic and foreign currencies, but do not include all Eurocurrency transactions

Estimating Eurocurrency market size: Using BIS data

	Residents	Non-residents
Domestic currency	A	B
Foreign currency	C	D

In early years, BIS estimated the net size of Eurocurrency market (EC) which had been adjusted for interbank activities (e.g. redposit by banks) to prevent overestimation

However, it is no longer available after 1980. The external and local positions in foreign currency are used to estimate the Eurocurrency market size

1964-66, 1968:

$$Est._EC = \left(Ext_{(FC)} + Ext_{(FC)} \times \left(\frac{Local_{(FC)}}{Ext_{(FC)}} \right)_{1977-2010} \right) \times \left(\frac{EC}{Ext_{(FC)} + Ext_{(FC)} \times \left(\frac{Local_{(FC)}}{Ext_{(FC)}} \right)_{1977-2010}} \right)_{1967}$$

1967, 1969-80:

EC

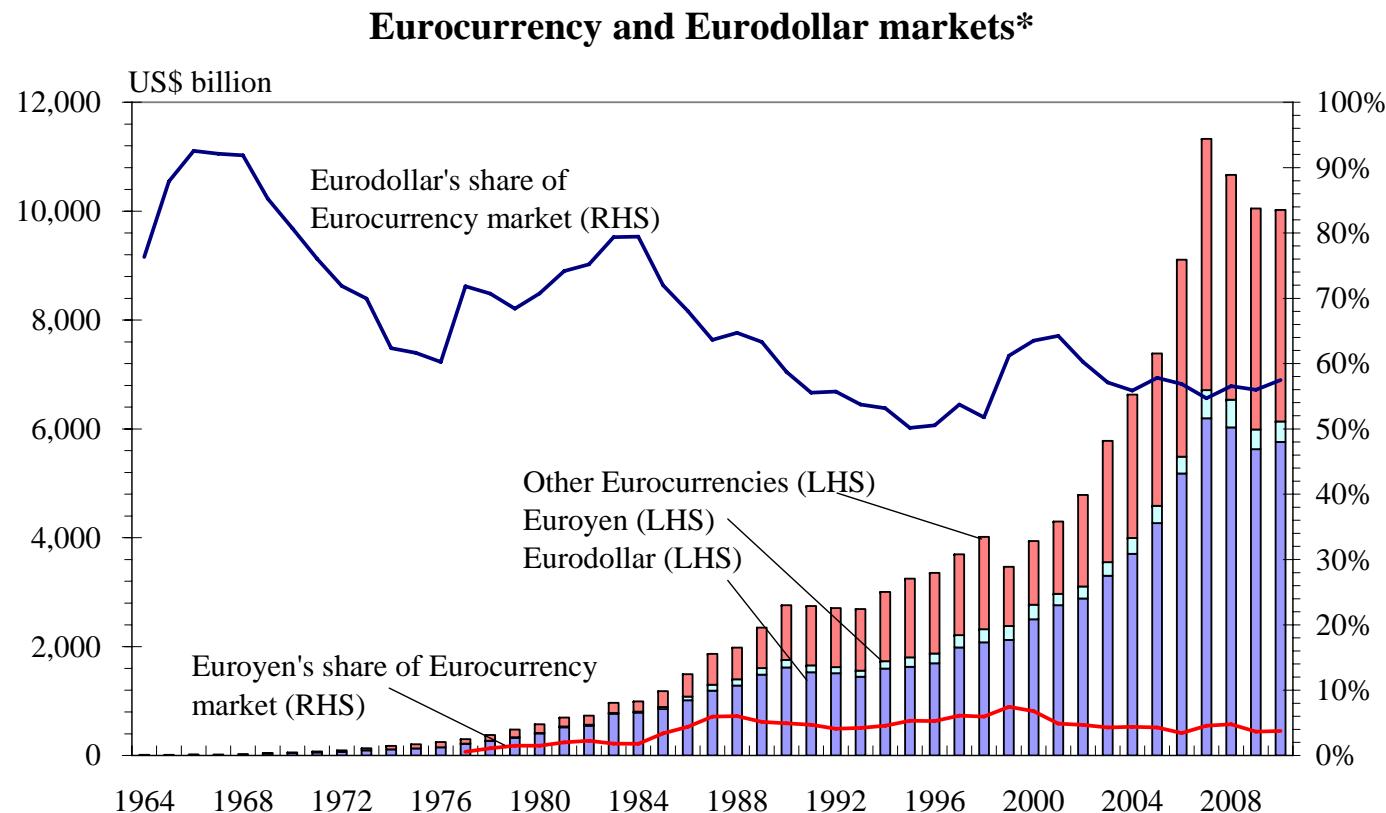
Starting from 1981:

$$Est._EC = (Ext_{(FC)} + Local_{(FC)}) \times \left(\frac{EC}{Ext_{(FC)} + Local_{(FC)}} \right)_{1977-1980}$$

EC: Net size of Eurocurrency market (C+D), Local_(FC): Local positions in foreign currency (C), Ext_(FC): External positions in foreign currency (D)

Similarly, the Eurodollar and Euroyen market size are also estimated based on the above method

Eurocurrency, Eurodollar and Euroyen market size

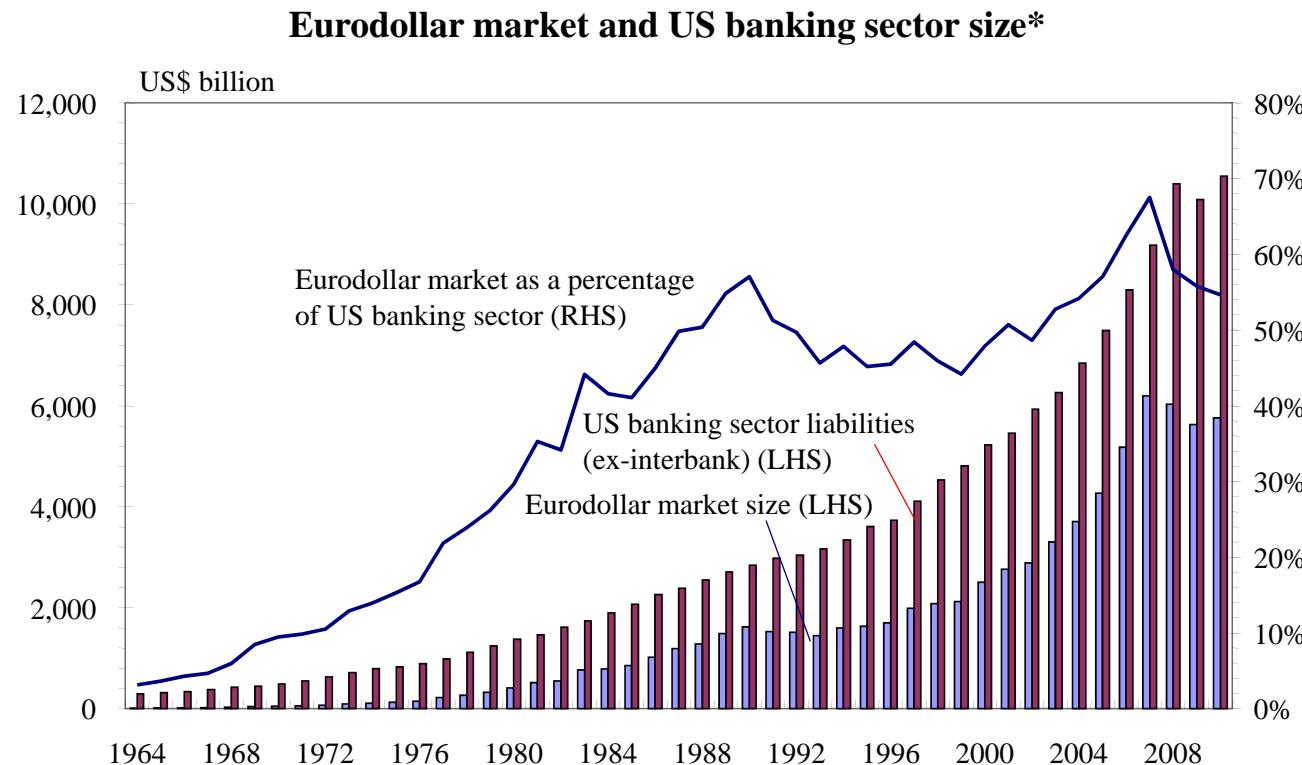


Source: Bank for International Settlements (BIS)

- Eurodollar accounted for over 80% of the Eurocurrency market in the early days
- Declined to around 60% after mid 1990s
- Euroyen accounted for just 7.5% at its peak in 1999

*The data coverage of Eurocurrency/Eurodollar markets expanded significantly in 1983 to include a number of financial centres, such as Hong Kong, Singapore, and Cayman Islands etc

Eurodollar market reached around 50% of domestic market size

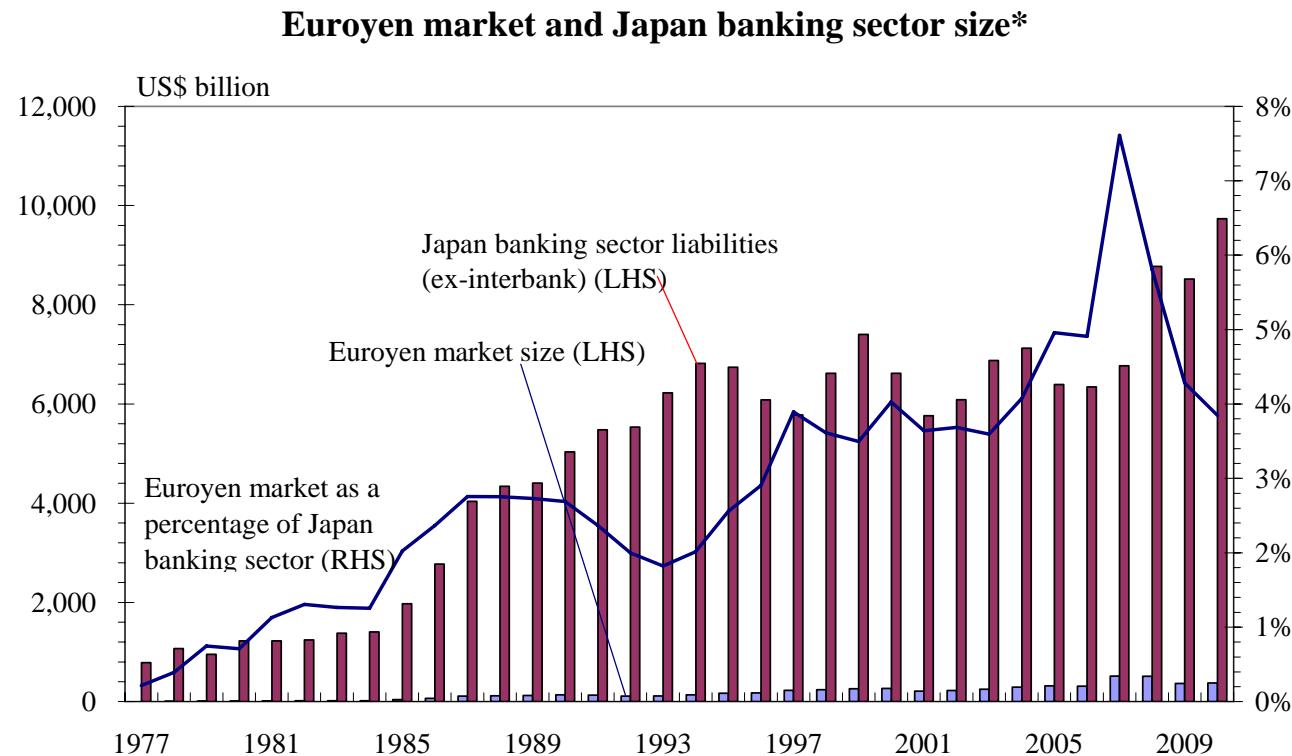


Source: BIS

- Eurodollar was only 1/10 of US domestic market in the early 1970s
- Expanded rapidly to around 50% over the past decades

*Interbank activities were included in US banking sector liabilities before 1973. The data coverage of Eurodollar market expanded significantly in 1983 to include a number of financial centres, such as Hong Kong, Singapore, and Cayman Islands etc

Euroyen market reached nearly 8% of domestic market size at its peak



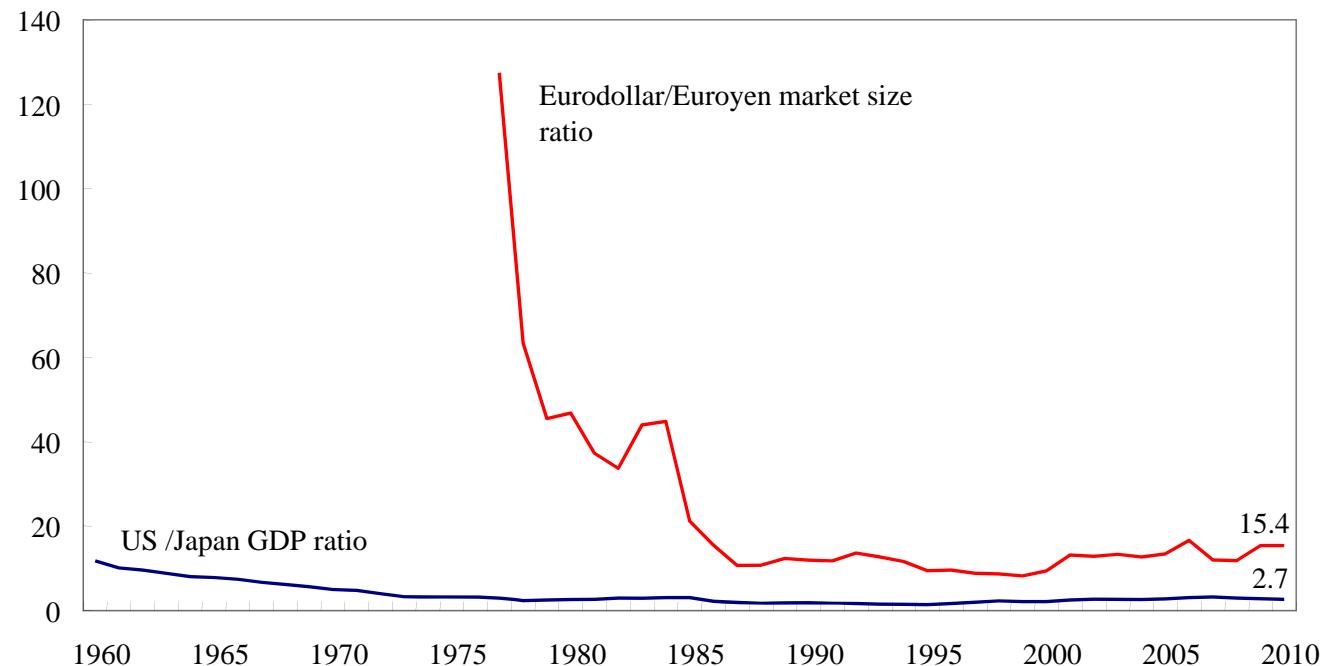
Source: BIS

*The data coverage of Euroyen market expanded significantly in 1983 to include a number of financial centres, such as Hong Kong, Singapore, and Cayman Islands etc

- Euroyen was small when compared with Japan domestic banking sector
- Peaked at 7.6% in 2007

Eurodollar market is disproportionately large when compare to US economic size

Eurodollar/Euroyen market size ratio and US/Japan GDP ratio*



Source: BIS, World Bank

- In addition to GDP, results were similar for other economic parameters, such as trade and ODI stock etc

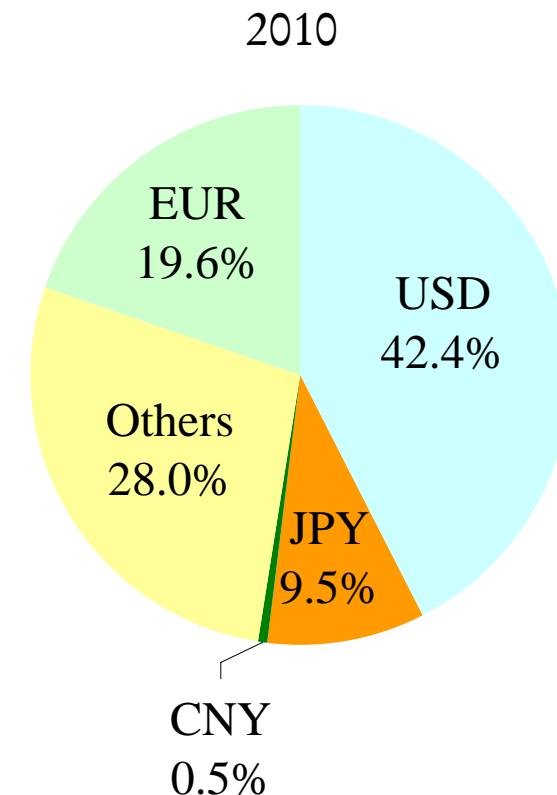
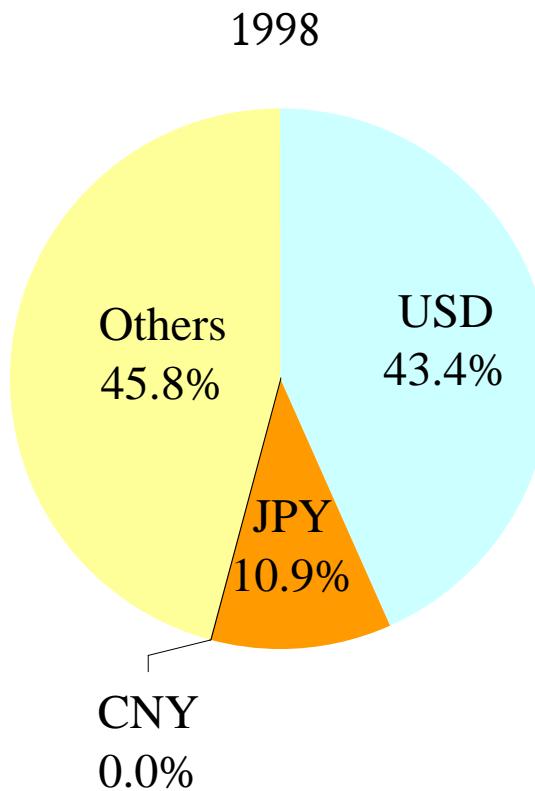
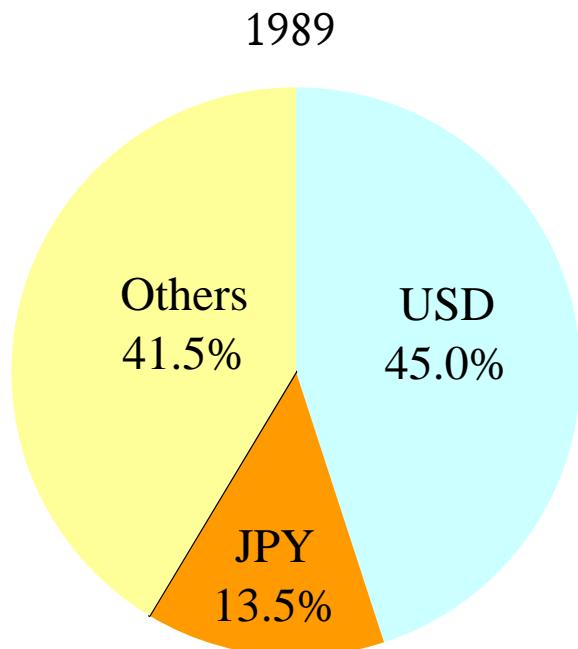
*The data coverage of Eurodollar/Euroyen markets expanded significantly in 1983 to include a number of financial centres, such as Hong Kong, Singapore, and Cayman Islands etc

Eurodollar's 'success' and USD's strong international status

What is an international currency?

- An international currency should serve several functions
 - Medium of exchange
 - By private sector: used directly or as a vehicle currency in foreign currency exchanges between two other currencies
 - By official sector: as a vehicle for currency market intervention
 - Unit of account
 - By private sector: invoice merchandise trade and denominate financial transactions
 - By official sector: define exchange rate parities
 - Store of value
 - By both private and official sectors: hold the international currency and invest in financial assets denominated by the international currency (reserve assets)

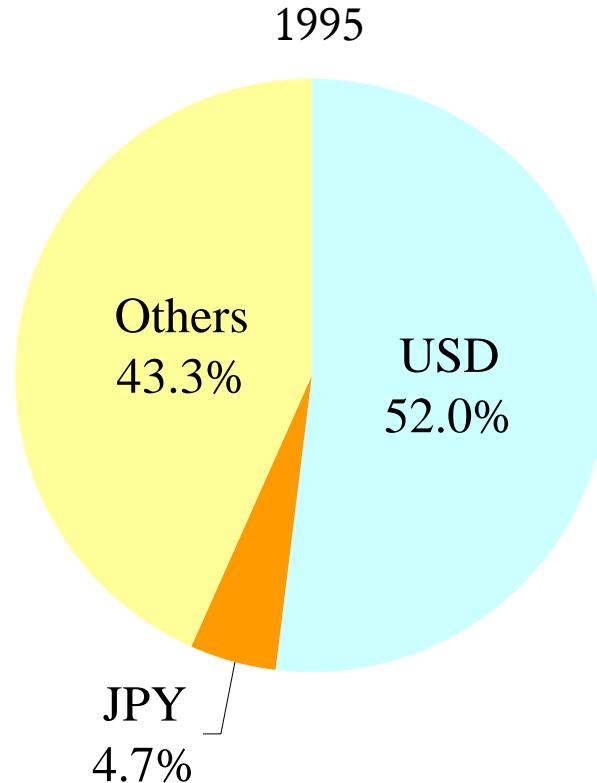
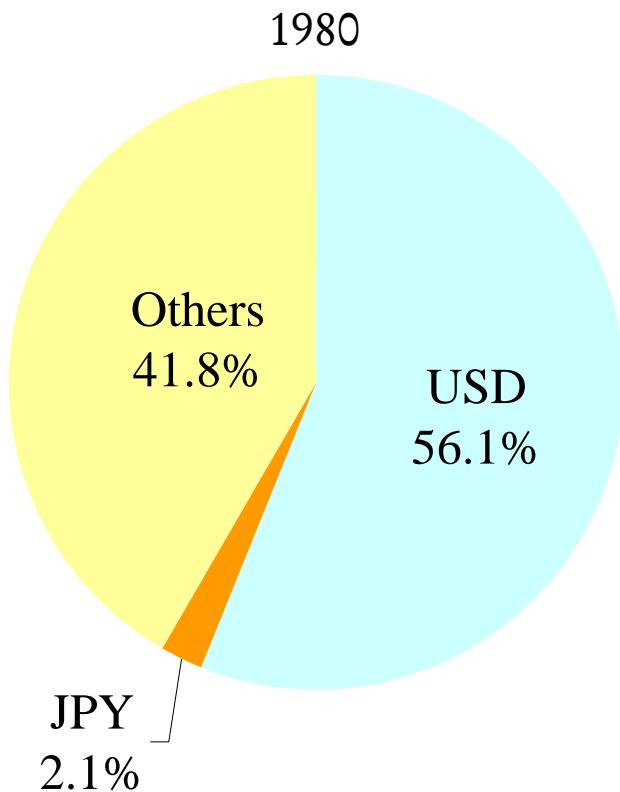
USD and JPY's share in world foreign exchange turnover



Source: BIS

USD is the most actively traded currency in the world. JPY is also an actively traded currency

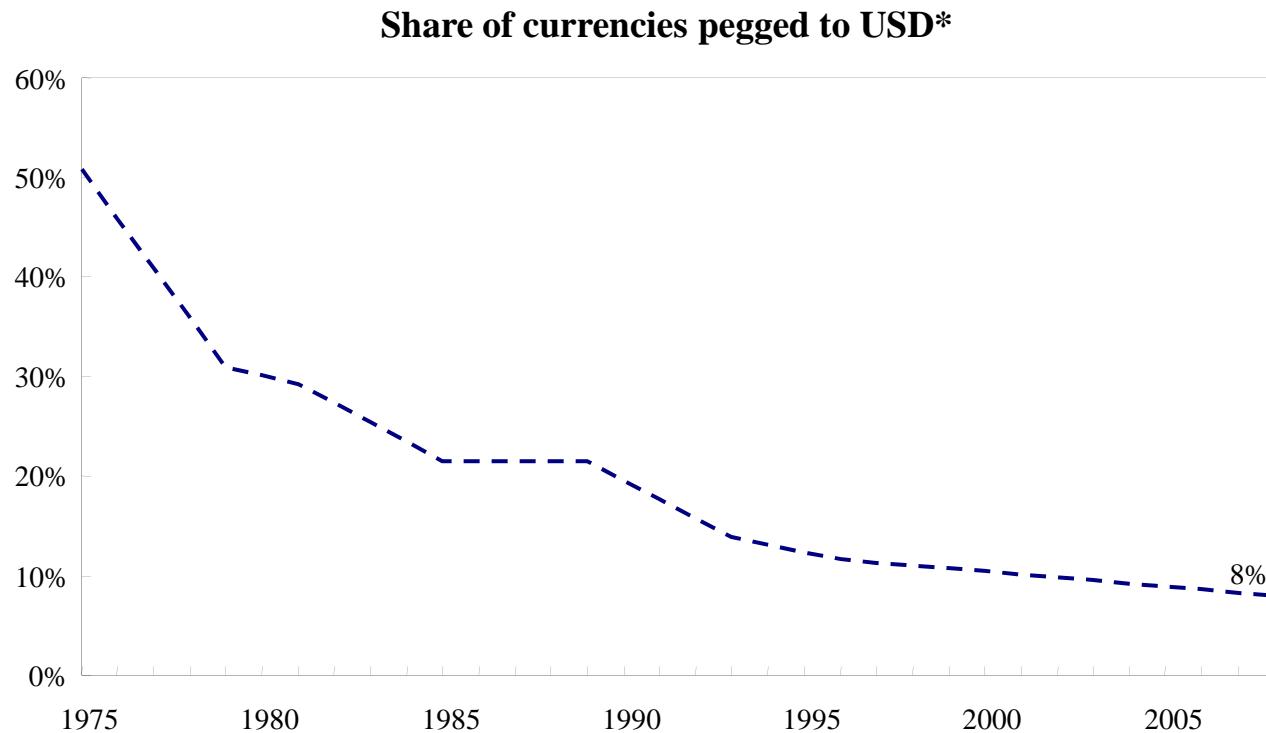
USD and JPY as a unit of account: % of world trade



Source: Currency competition and foreign exchange markets: the dollar, the yen and the euro by Philipp Hartman (1998) and The implications of the introduction of the Euro for non-EU countries by Peter Bekx (1998)

USD is the dominant trade denomination currency in the world

USD has long been a unit of account to define exchange rate parity

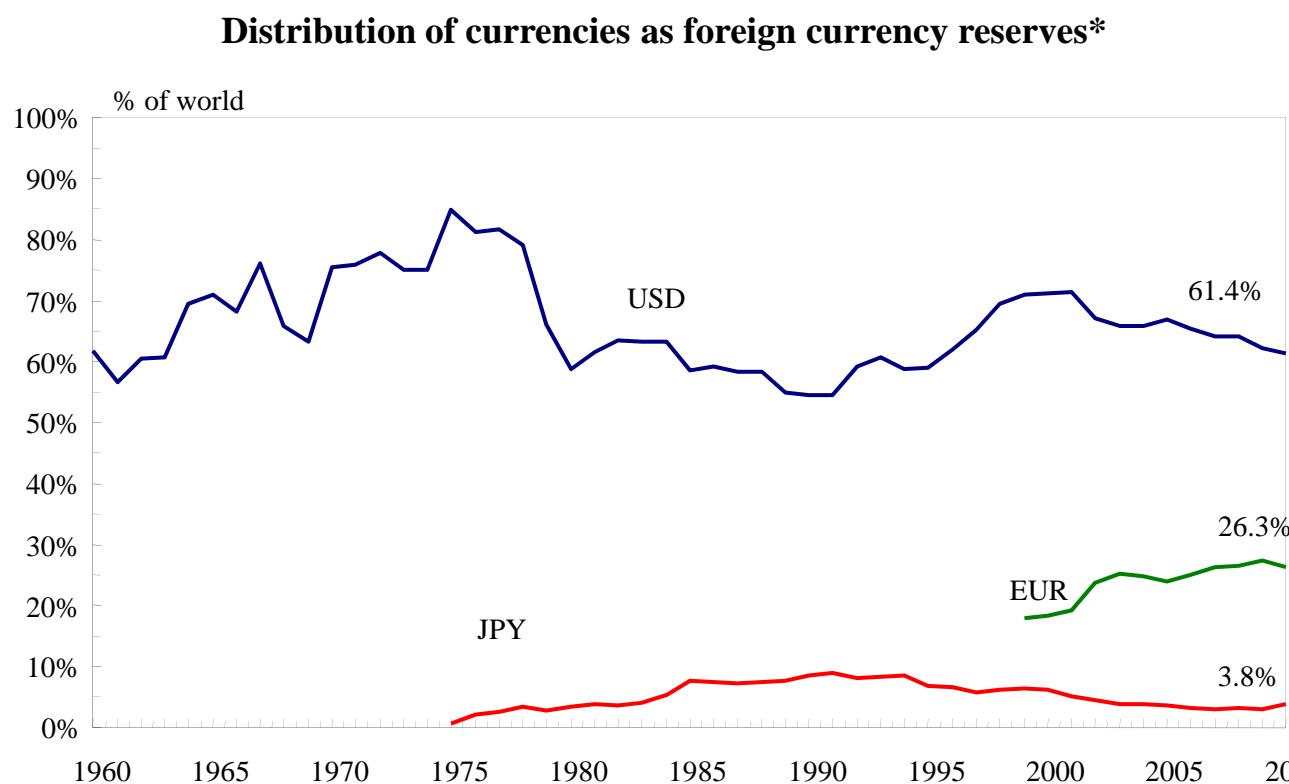


*Only includes economies without a separate legal tender or adopt a currency board arrangement due to lack of data. Data on anchor currencies of various pegs (including the above two) became available in 2008, out of which the proportion of currencies using USD as anchor was at 30%

Projected based on data from IMF (1979, 1981, 1989, 1999, 2002 and 2008) and European Commission's paper no. 26: The implications of the Introduction of the Euro for non-EU countries (1975 and 1993)

- Under the Bretton Woods system, all currencies were fixed to USD
- USD still defined the exchange rate parity for 50% of all currencies after Bretton Woods
- This ratio has gradually declined to 8% recently
- However, JPY has never been a unit of account to define exchange rate parity

USD and JPY as a store of value: % of world official foreign reserves



Source: International Monetary Fund (IMF)

*Excluding foreign currency reserve without a specific currency

- Given US economic power and its large and deep financial market, USD assets have always been a major component of official foreign reserves
- USD accounted for over 60% of foreign exchange reserves in the world over the years and peaked at 85% in 1970s

US specific non-economic factors drive USD to be an international currency

- Bearing in mind the disproportionate size of the Eurodollar market to the US's economic status, indicators for an international currency (currency's share of foreign exchange turnover, foreign exchange reserves and invoicing in world trade) were tested against a dummy variable for the US and combinations of economic variables of countries including China, Japan, the UK, Germany and the US :

$$Y_t = c + \beta_{1t} D_t + \beta_{2t} X_t + \varepsilon_t$$

where Y is an international currency indicator, D is the defined dummy variable and X is a matrix of economic variables including GDP, GDP per capita, export, import, trade, ODI stock, IDI stock and these variables expressed as share of the world

- The dummy would reflect the effect of simply being the US while holding the economic condition constant
- Results indicate that the US dummy variable was significant for all combinations, suggesting that there are US specific non-economic factors that drive USD to be an international currency

What drove the USD to be an international currency?

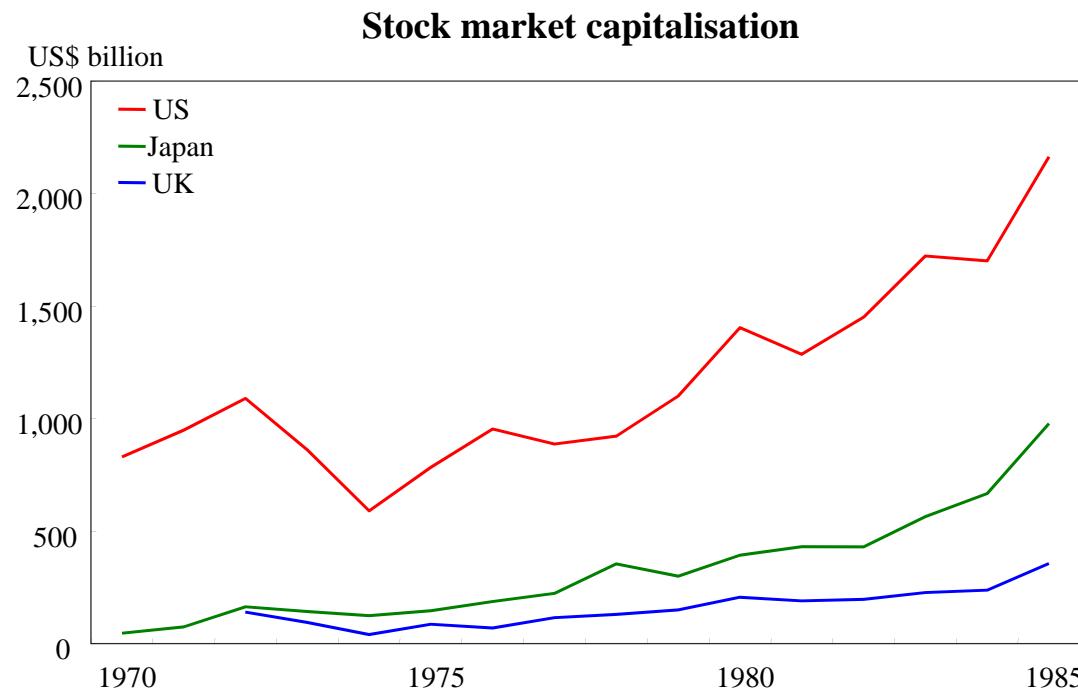
Bretton Woods system favoured the use of USD as a unit of account

- The international monetary system used after WWII until 1971
- A gold dollar system
 - USD pegged to gold
 - All other currencies fixed to USD with 1% fluctuation margins
 - USD became the unit of account to define the parities
- USD position relatively unchanged after Bretton Woods
 - High switching cost
 - No other alternative to fully replace USD

US has relatively lax exchange controls

- Absence of restrictions on international financial transactions using the currency
 - The US had no exchange controls for most of the past few decades except for some partial controls in mid 1960s-early 1970s
 - Other major economies, such as the UK and Japan, still maintained control over cross-border investment and capital transfer

US has the world's largest and deepest financial markets



Source: Wilshire Associates (Wilshire 5000 is used for US in 1970-85), CEIC (Japan figures in 1970-85, UK figures in 1972-85)

- The US has the world's largest and deepest financial markets in the world
 - ▣ Broad (with wide variety of financial instruments) and deep (having well-developed secondary markets)
 - ▣ Can satisfy the investment preference of different global investors' (official and private)

Given USD and JPY's international position, what other factors drive the Eurodollar and Euroyen development?

Some political factors favoured offshore market development

Factor favourable to the Eurodollar market only

- Communist and Arab countries (1950s-1960s) were reluctant to place their assets in the US after WWII and Suez War respectively

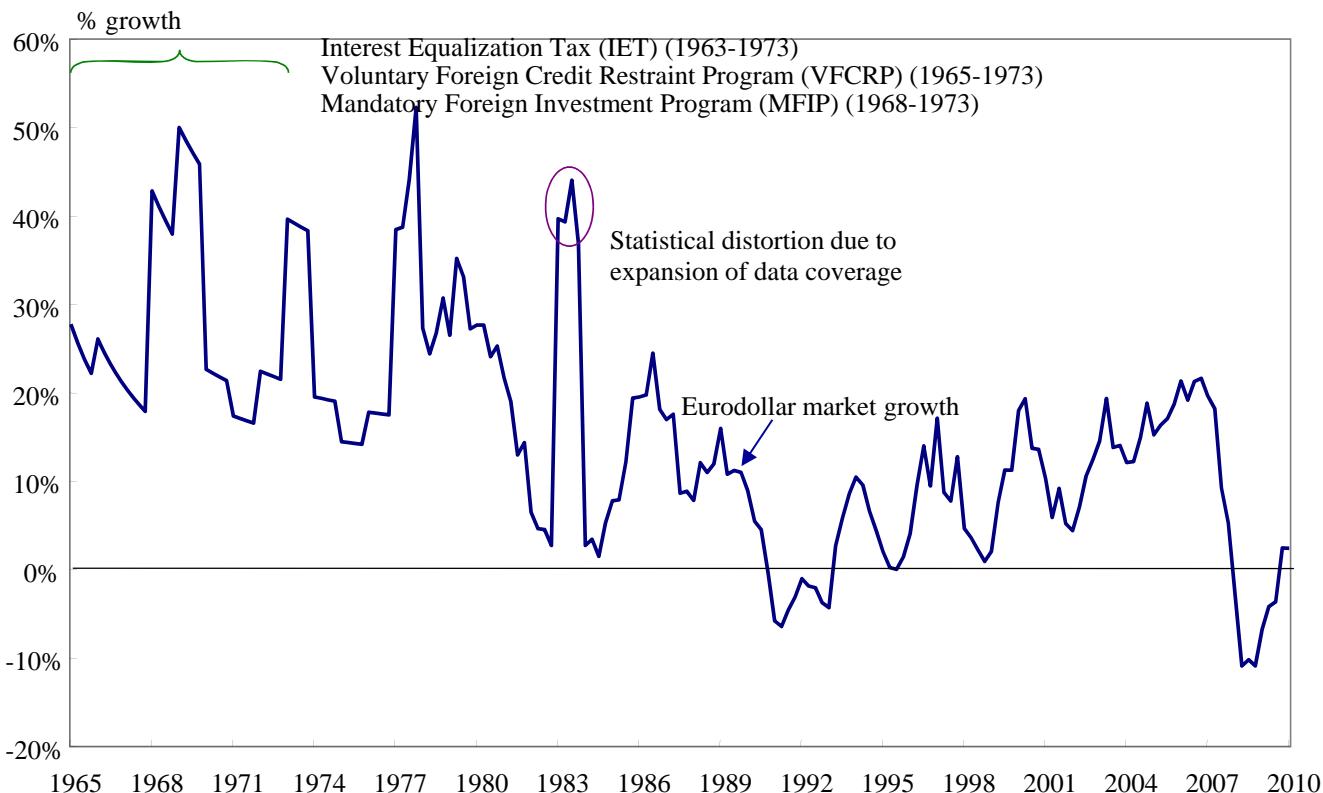
Factor favourable to both the Eurodollar and the Euroyen markets

- The two oil shocks (1973 and 1979) led to the massive accumulation of oil dollars which fostered international fund flows and Eurocurrency market development

Regulatory factors: Liberalisation of exchange control may foster offshore market development

- Generally, exchange controls impede the development of offshore financial activities
- But given the international currency status of USD, partial exchange control measures did not fully restrict offshore market development
- Empirical evidence suggest that certain US onshore regulatory controls in the domestic financial market has a positive effect on the growth of the offshore market
- The liberalisation of exchange controls and the financial system in Japan had once fostered the development of Euroyen market

Partial exchange controls did not restrict offshore market development given USD's position

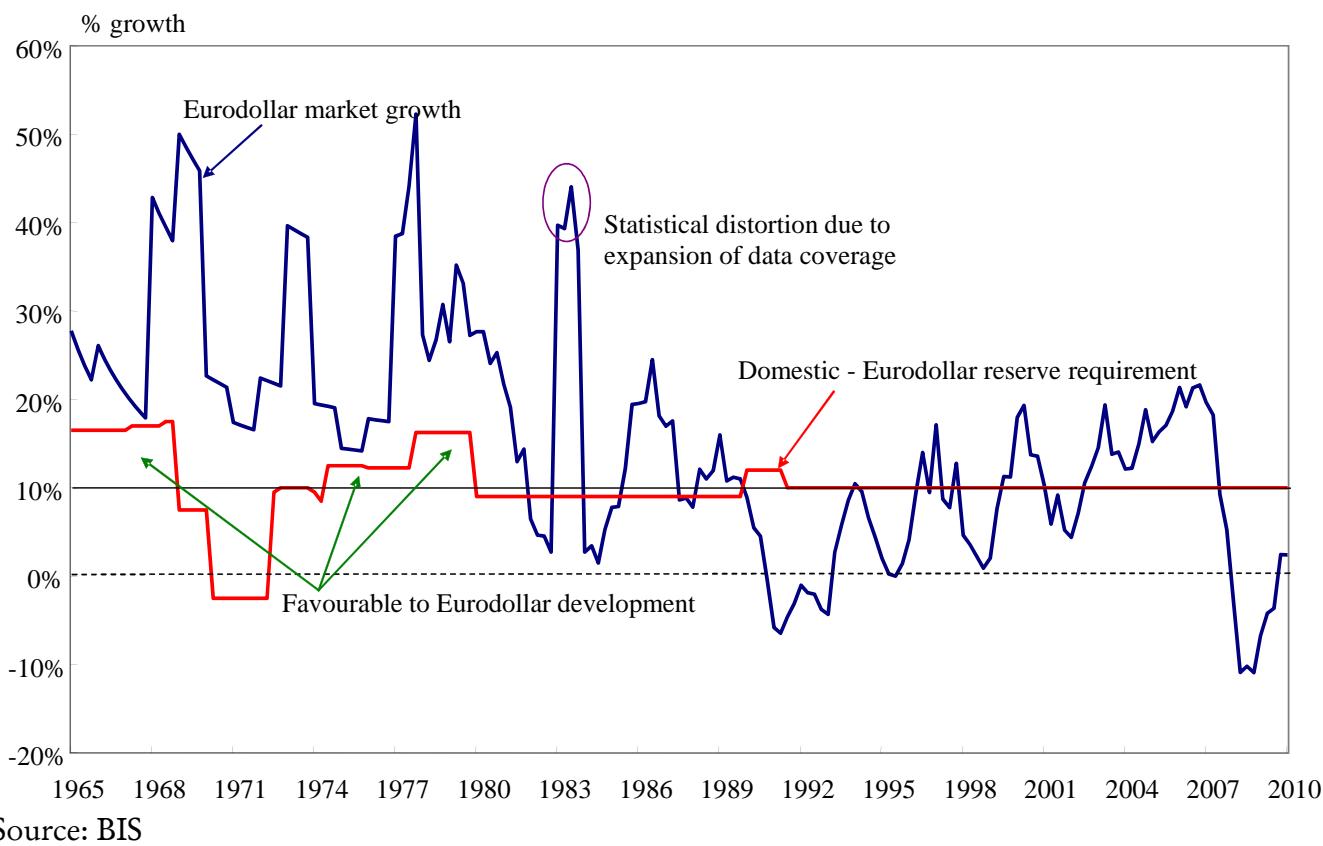


Source: BIS

- Notes:
- Interest Equalization Tax was a tax specifically targeted on foreign stocks and bonds so as to equalize the US and European yields on stocks and bonds at that time
 - Voluntary Foreign Credit Restraint Program was a virtually mandatory measure which prevented American banks from increasing their loans to European and Japanese companies
 - Mandatory Foreign Investment Program forbade domestic financing of foreign investment by the US multinationals

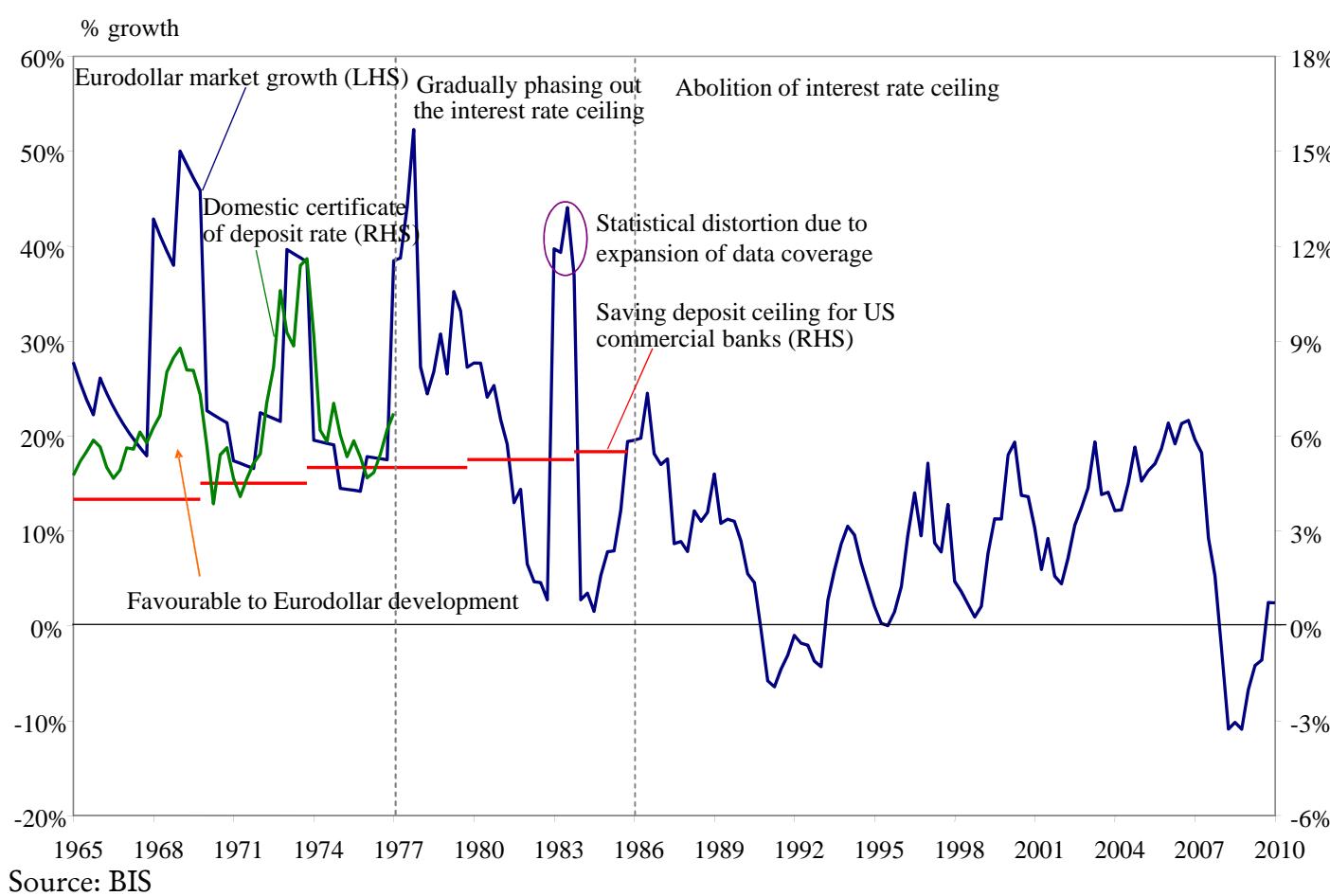
- US had no exchange controls except IET, VFCRP and MFIP in 1960s
- The Eurodollar market still developed rapidly amid partial exchange control

Reserve requirements and deposit insurance reduced the efficiency of financial intermediation in the US



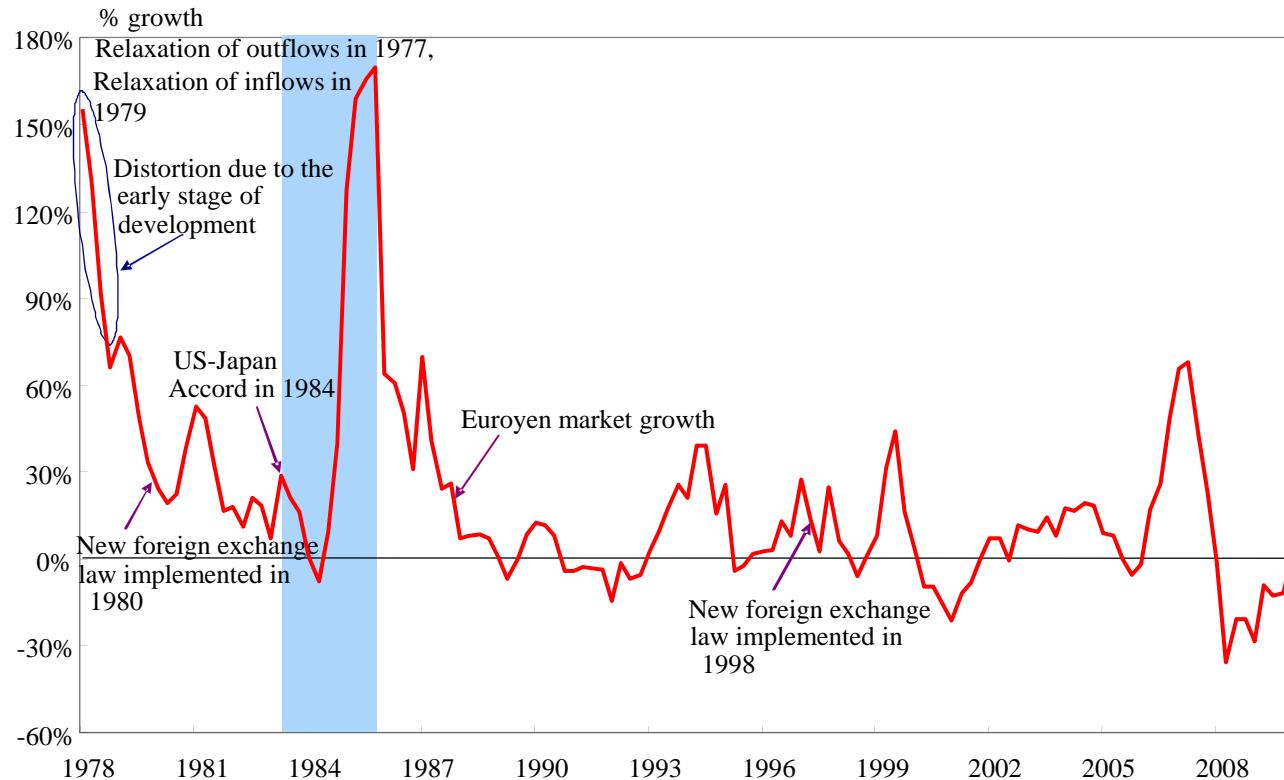
- Reserve requirement and FDIC insurance added to domestic funding costs
- This would widen the bid/ask spread of domestic funding
- The wider the spread the more favourable it is for Eurodollar market development

Interest rate control in the US made it profitable to go offshore



- US market interest rates were above controlled interest rates before 1978
- The interest rate differential encouraged Eurodollar activities; empirically relaxation of such controls impeded offshore activities
- No precise data on the interest rate ceiling in Japan was available for comparison

Liberalisation after 1984[^] led to rapid development of the Euroyen market in the following years



Source: BIS

[^]Liberalisation measures include but not limited to

1984 June:-Short-term Euroyen loans to residents and non-residents liberalized

- Issuing of Euroyen bonds by foreign private corporations, state and local governments, and government agencies authorized

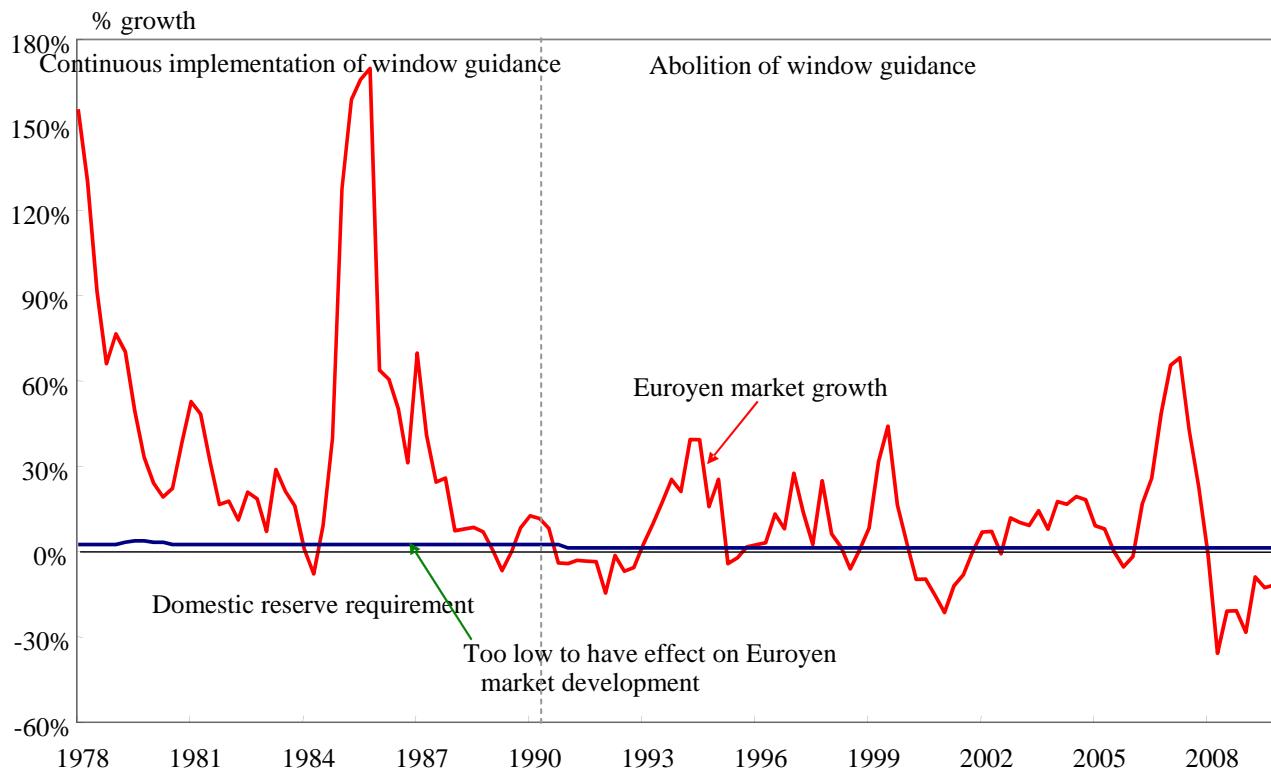
1985 Apr: -Medium-term and long-term Euroyen lending to non-residents liberalized

- 20% withholding tax payable by non-residents on Japanese Euroyen bonds abolished

1986 June:-Foreign banks allowed to issue Euroyen bonds

- US continuously pressured Japan to relax its exchange control in the early 1980s
- This led to the liberalisation of Japan's financial system and encouraged Euroyen market development

Reserve requirements and deposit insurance in Japan affected the efficiency of financial intermediation by less



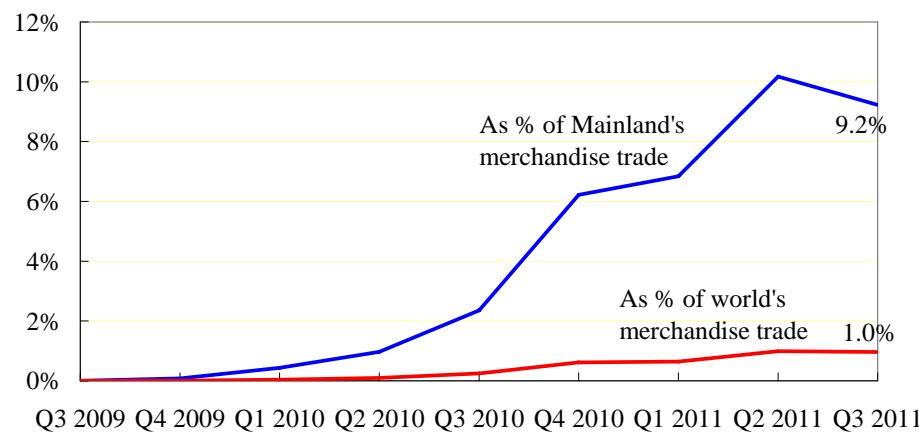
- Low reserve requirements and deposit insurance premiums in Japan had little discernable impact on the bid/ask spread of domestic funding
- The benefits of going offshore were limited
- However, the Bank of Japan implemented quantitative restraints before 1991 which empirically encouraged Euroyen growth

RMB's potential as an international currency and the associated costs and benefits

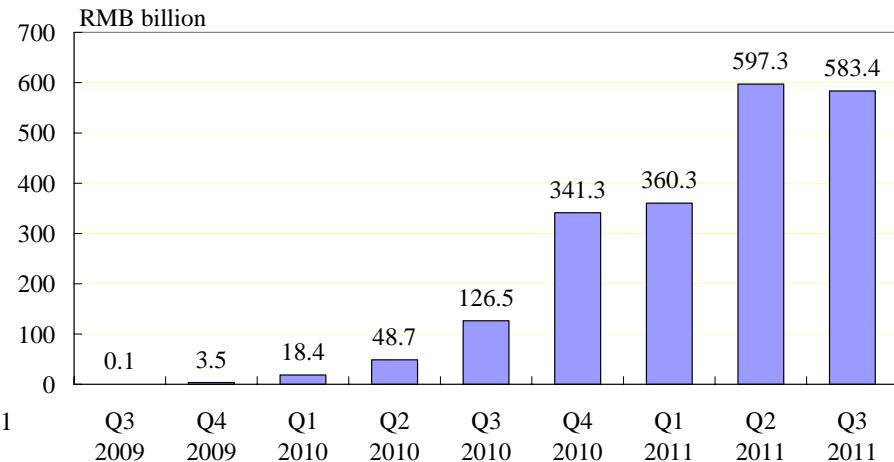
No Chinese equivalent of “Bretton Woods” and RMB is not yet a commonly used unit of account

- Unlike USD, RMB was never a major denominating currency and the unit of account to define exchange parities
- RMB became a trade denominating currency in July 2009 and developed rapidly from negligible to representing around 1.0% of world's total merchandise trade in Q3 2011

Share of RMB cross-border trade settlement in China
and total world trade



China's RMB cross-border trade settlement amount*



Source: People's Bank of China (PBoC), China Customs, World Trade Organization

*Cross-border trade settlement in RMB includes both merchandise and service trade

But there is a rising demand for another international currency after the financial crisis

- The global financial crisis in 2007 exposed the weakness of advanced economies and eroded international confidence in USD and EUR
- As reserve-rich countries, such as China and other Asian countries, suffer from the continuous depreciation of USD, there is rising demand for another international currency

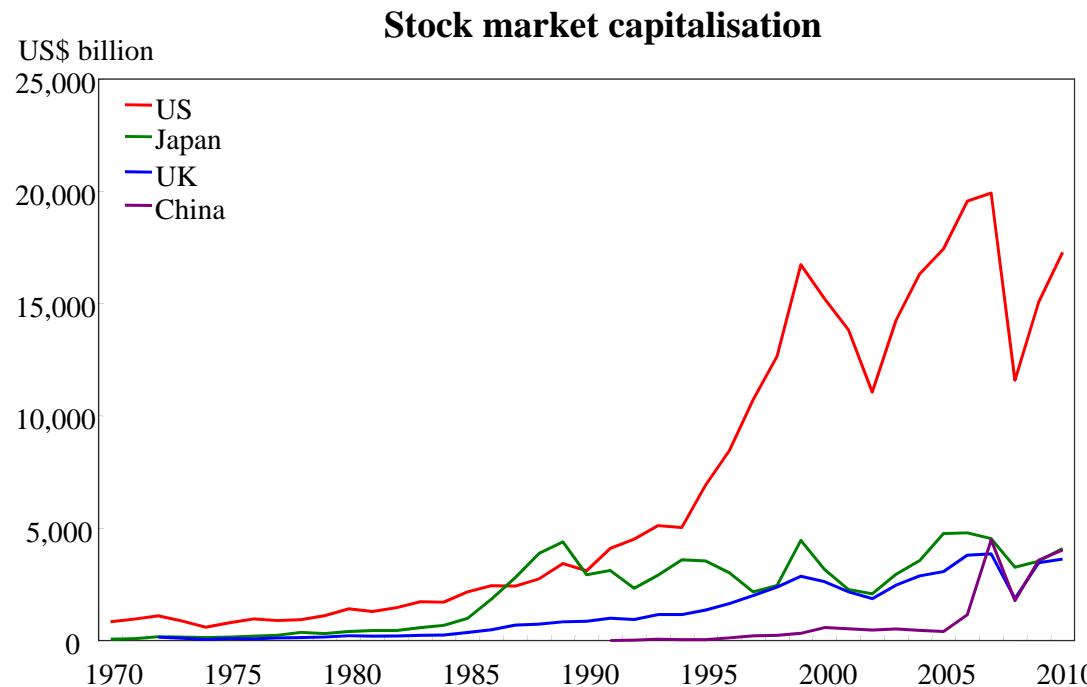
However, China is still far from relaxing all exchange controls

- The US had lax exchange controls in 1960s while Japan also relaxed its exchange controls since early 1980s
- China still adopts a foreign exchange management system similar to the one in Japan before 1980; cross-border fund flows are prohibited unless allowed rather than allowed unless prohibited
- China also requires pre-event regulation, examination and approval for capital account transactions. Since RMB is not yet freely convertible, residents and non-residents are not free to own their desired amount of foreign currencies and RMB
- Cross-border fund flows are still restricted, albeit being gradually relaxed

RMB financial assets are not widely available to foreign investors

- Thus, foreign investors are not able to invest widely in RMB assets except:
 - ▣ QFIIs and RQFIIs are allowed to participate in the securities markets in the Mainland in foreign currency and RMB respectively
 - ▣ Eligible institutions (including several foreign central banks) are permitted to participate in the domestic interbank bond market
 - ▣ PBoC established bilateral currency swap agreements with 12 economies amounted to over RMB 1.2 trillion
- Hong Kong has developed the first RMB bond, equity and commodity (gold) market outside China

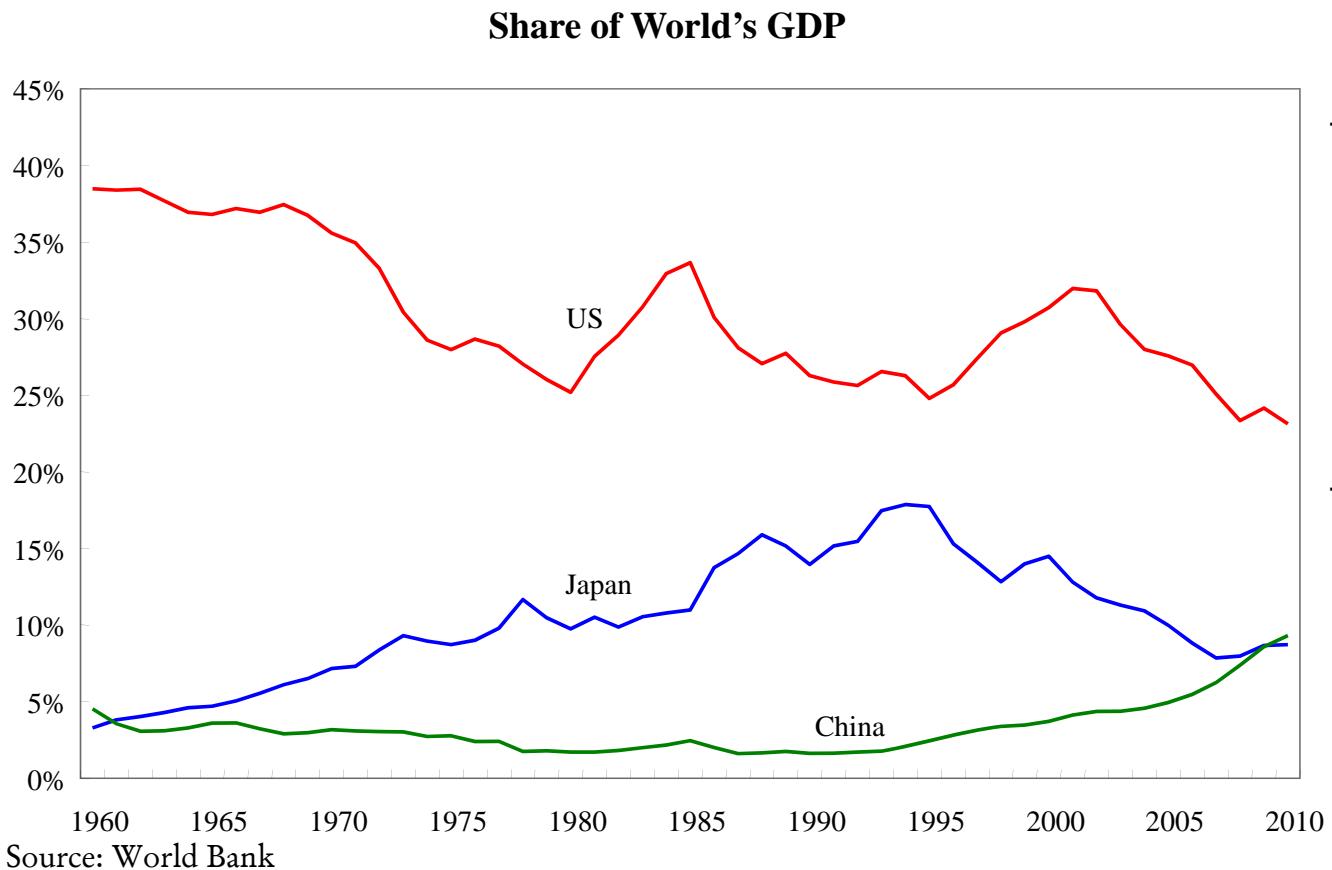
China's financial markets are still developing



Source: Wilshire Associates (Wilshire 5000 is used for US in 1970-89), World Federation of Exchanges (US, Japan and UK figures since 1990 and China figures since 2002), CEIC (Japan figures in 1970-89, UK figures in 1972-89), Shanghai and Shenzhen Stock Exchanges (China figures in 1991-2001)

- Financial market development in China still lags other economies
- Without a well developed financial market, relaxing exchange controls can be risky
- Development of RMB to the status of an international currency will be a lengthy process due to high switching cost

China has the potential, given its rising international status



- The economic power of China has been increasing rapidly over the past few years
- Continuous rapid growth will further strengthen its economic power in the world

China's strengthening ties with other major economies

Ranking of import trade

Origin from:	US		Japan		France			Germany			UK		
	China	Japan	China	US	China	US	Japan	China	US	Japan	China	US	Japan
1980	36	2	8	1	36	4	13	35	4	8	36	1	10
1990	8	2	4	1	16	4	8	14	6	7	28	2	5
2000	4	2	2	1	9	3	8	10	2	6	13	1	5
2010	1	4	1	2	2	6	11	1	4	14	3	2	13

Ranking of export trade

Destination to:	US		Japan		France			Germany			UK		
	China	Japan	China	US	China	US	Japan	China	US	Japan	China	US	Japan
1980	17	2	5	1	52	7	19	33	6	17	42	2	18
1990	18	2	13	1	20	6	9	27	6	11	32	2	10
2000	11	3	4	1	14	5	9	16	2	12	24	1	10
2010	3	4	1	2	9	6	13	7	2	18	9	1	14

Source: Organisation for Economic Co-operation and Development (OECD), China Customs

- In 2010, China already ranked top three by import origin in major economies (even higher than the US), while its position as the top export destination also rose rapidly

China's strengthening ties with other major economies (Cont.)

Ranking of outward direct investment (ODI) flows (from major economies to

China)	US		Japan		France			Germany			UK			
	To:	China	Japan	China	US	China	US	Japan	China	US	Japan	China	US	Japan
1990		34	9	19	1	N.A.	1	30	41*	1	14	31*	16	8
2000		18	9	5	2	21	2	9	17	1	7	15	2	8
2009		8^	12	4	2	17	10	35	7	12	12^	26	2	14

Ranking of inward direct investment (IDI) flows (to major economies from China)

From:	US		Japan		France			Germany			UK		
	China	Japan	China	US	China	US	Japan	China	US	Japan	China	US	Japan
1990	24	1	N.A.	2	46	2	3	19*	11	3	21*	1	2
2000	N.A.	8	24	2	31	3	22	25	7	14	28	2	4
2009	28^	11	23^	3	31	3^	9	21	6	7^	18	2	10^

Source: OECD, Ministry of Commerce, People's Republic of China

*Data for 1989, ^Data for 2008

- China is already ranked as a major ODI destinations (in terms of flows) in the world, though it is not yet an important source of IDI flows to the rest of the world amid exchange control

Costs of currency internationalisation

- Broadening the scope for residents and non-residents to buy and sell RMB instruments might limit the ability to influence domestic interest rates and money supply (unless foreign holdings are relatively small)
- Currency internationalisation requires capital account liberalisation which may entail certain risks:
 - RMB may face sharp depreciation pressure if foreign holders sell their domestic currency instruments in large amounts. It might become a risk if China has a large foreign currency debt
 - Increased issuance of foreign debt in China or Chinese corporate debt in foreign markets, may make China more vulnerable to external financial shocks
- The associated risks of capital account liberalisation will require prudent management as well as the facilitation of a productive real sector and an efficient financial sector

Granger causality of onshore and offshore interest rate and liquidity measures

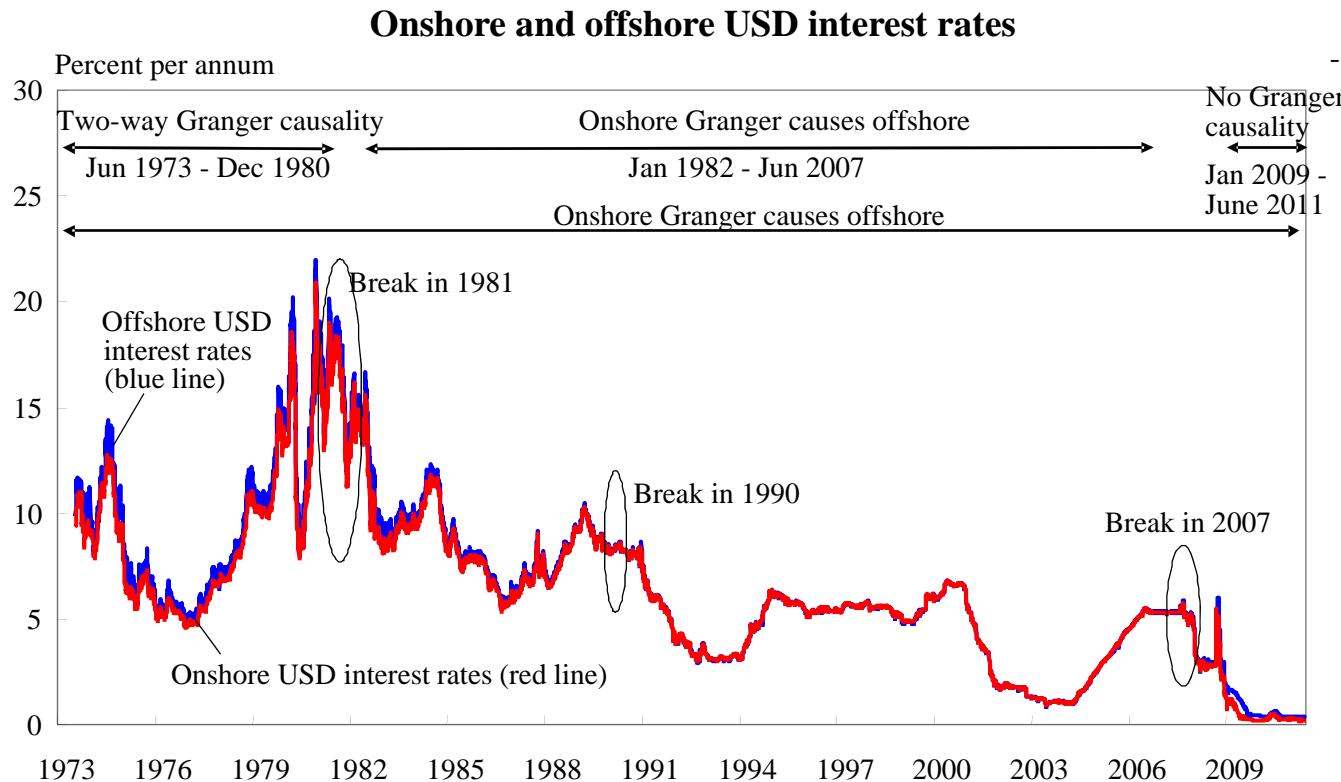
- In order to test the interaction between onshore and offshore activities, Granger causality tests under a vector error correction model have been carried out between onshore and offshore interest rates and liquidity measures for the US and Japan, while exchange rates could not be tested since there is only one available rate:

$$\begin{cases} y_t = c + \beta_1 x_{t-1} + ECT_{1t-1} + \varepsilon_{1t} \\ x_t = c + \beta_2 y_{t-1} + ECT_{2t-1} + \varepsilon_{2t} \end{cases}$$

y refers to the first difference of offshore interest rates or liquidity measures, x refers to the first difference of onshore interest rates or liquidity measures and ECT is the error correction term

This is also referred to as the VEC Granger causality/block exogeneity Wald test

Granger causality of onshore and offshore interest rate and liquidity measures



- Empirical evidence suggest that US onshore interest rates Granger caused US offshore interest rates between January 1982 and June 2007 inclusive, while no Granger causality was found between onshore and offshore USD liquidity measures

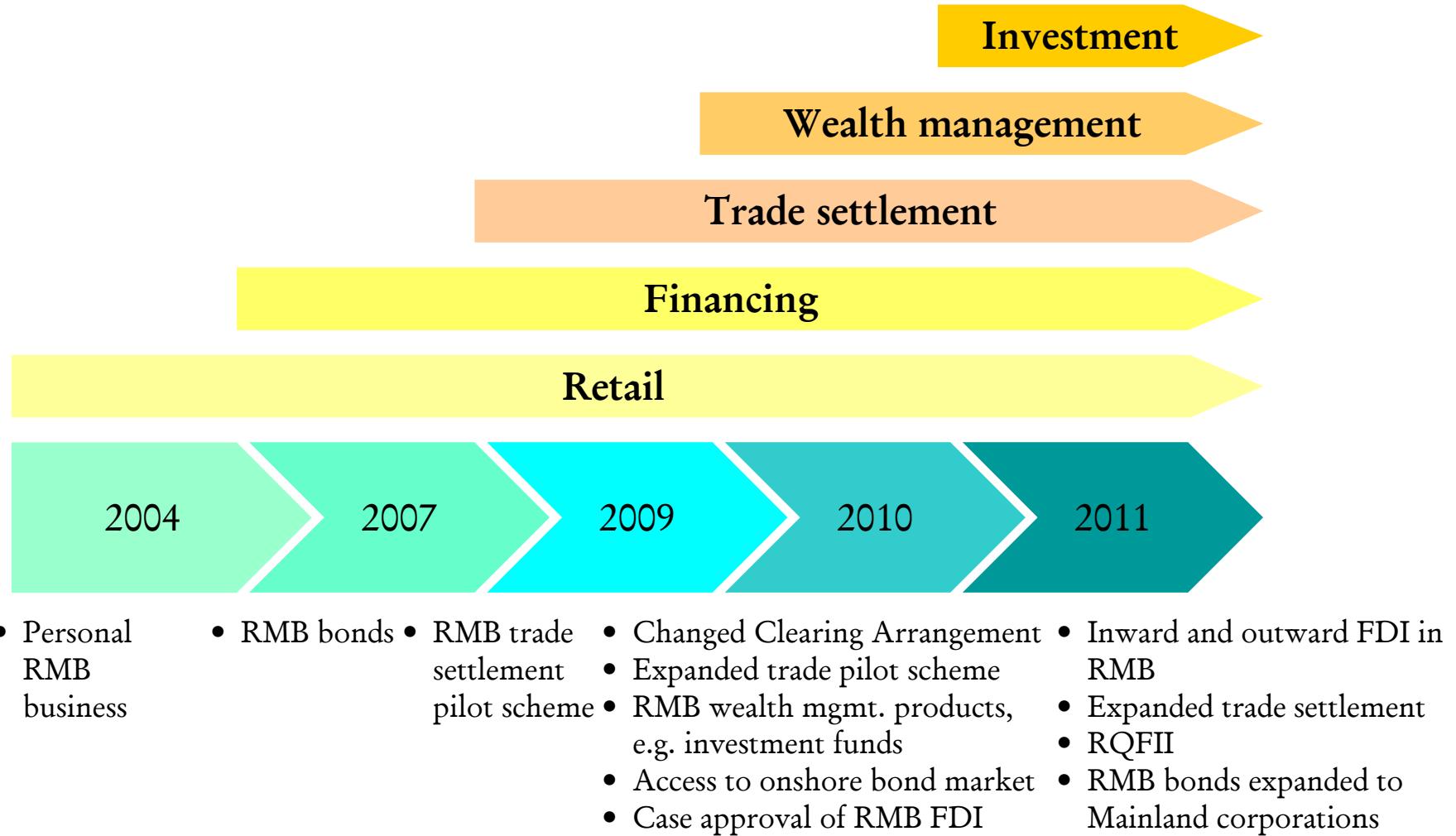
- No Granger causality between onshore and offshore liquidity measures were found for JPY; In addition, only weekly JPY interest rates were available with which meaningful results were unobtainable

Benefits of currency internationalisation

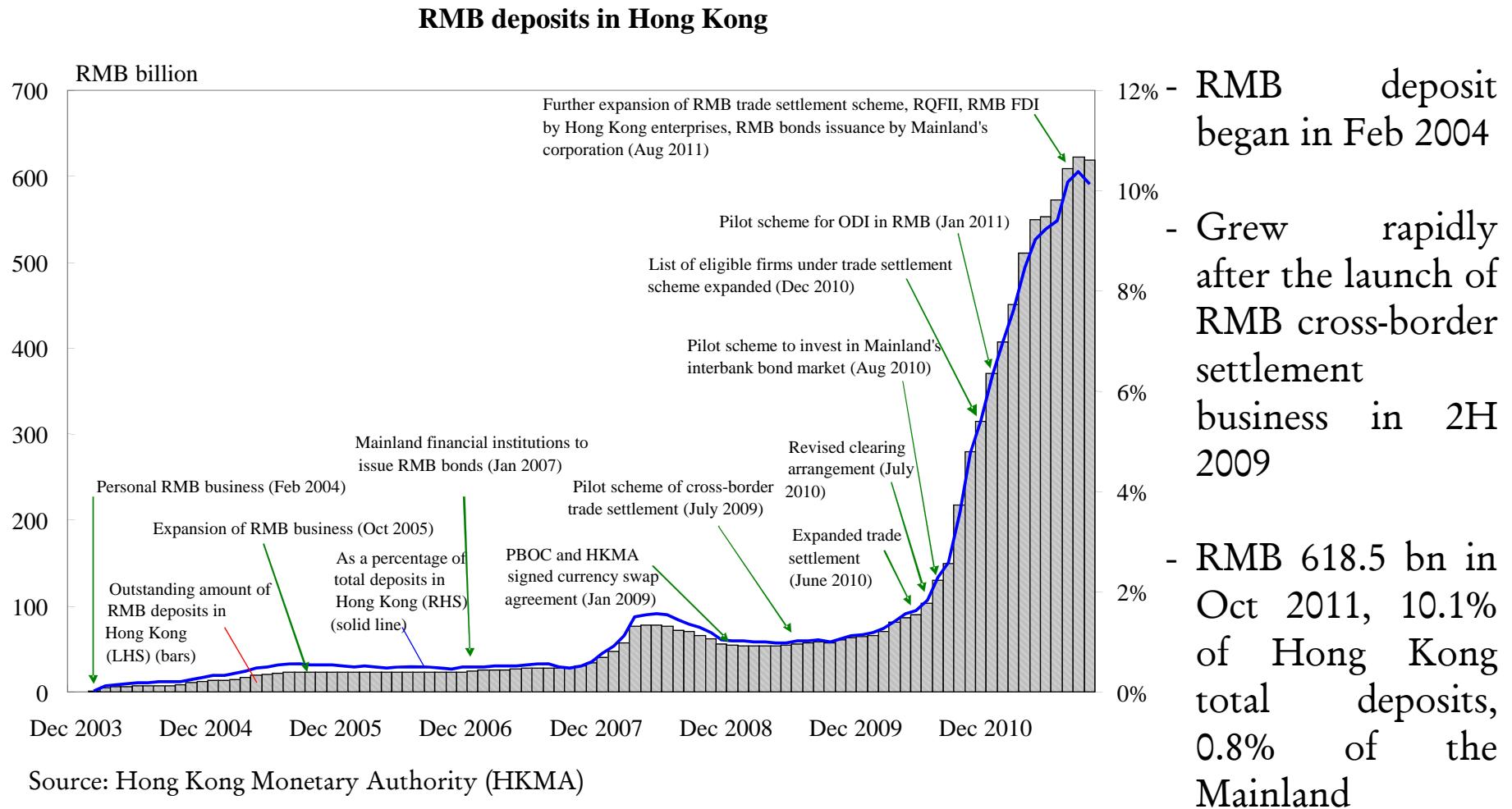
- Seigniorage, deriving from the issuing of non-interest bearing claims
- Internationalisation of a currency will expose the onshore financial sector to competition from the offshore financial sector which will enhance the onshore market's efficiency
- Lower exchange rate risk in conducting international trade or lower the risk of currency mismatch in financing activities
- Availability of a wider funding source in RMB from overseas investors

RMB business in Hong Kong

Scope of business in Hong Kong

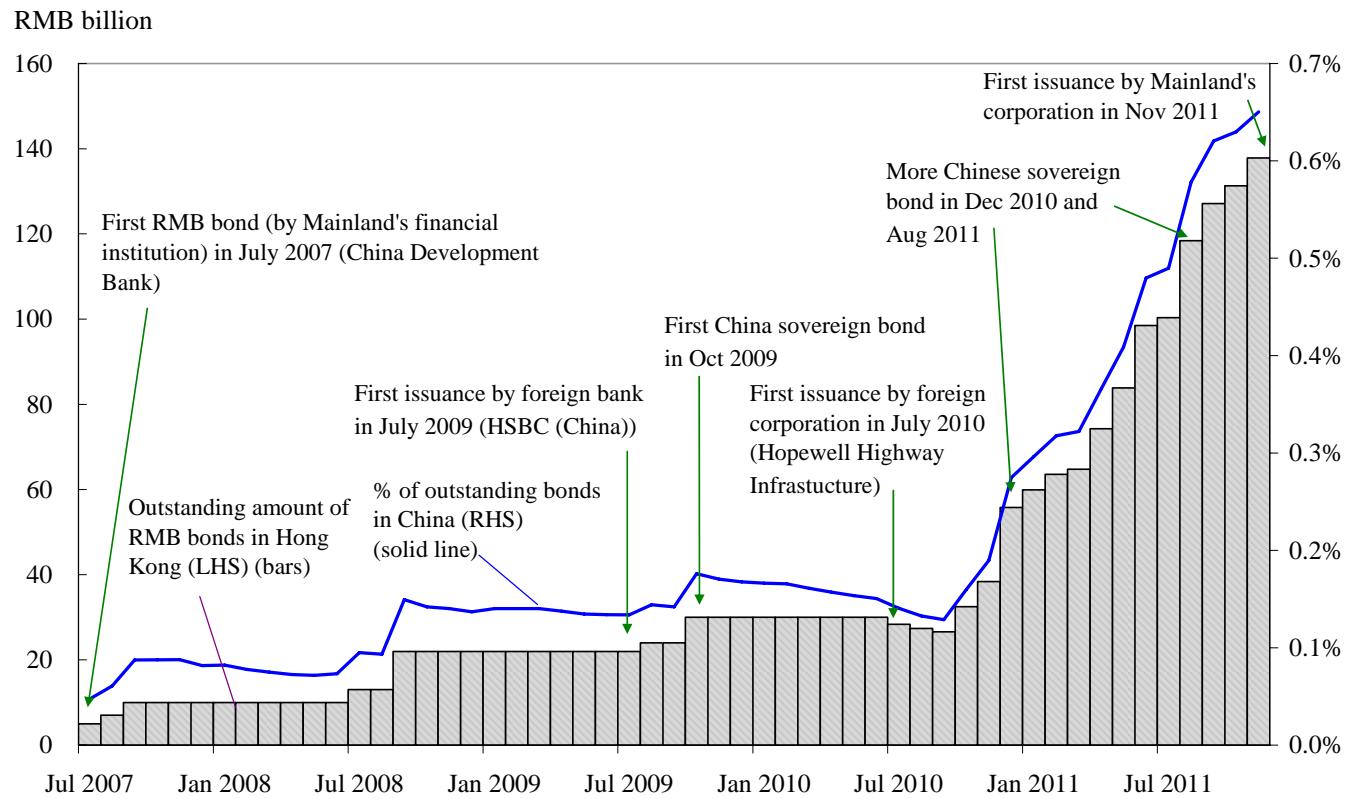


Rapid growth in deposit size



Bond market still at early stage of development

Outstanding amount of RMB bonds in Hong Kong

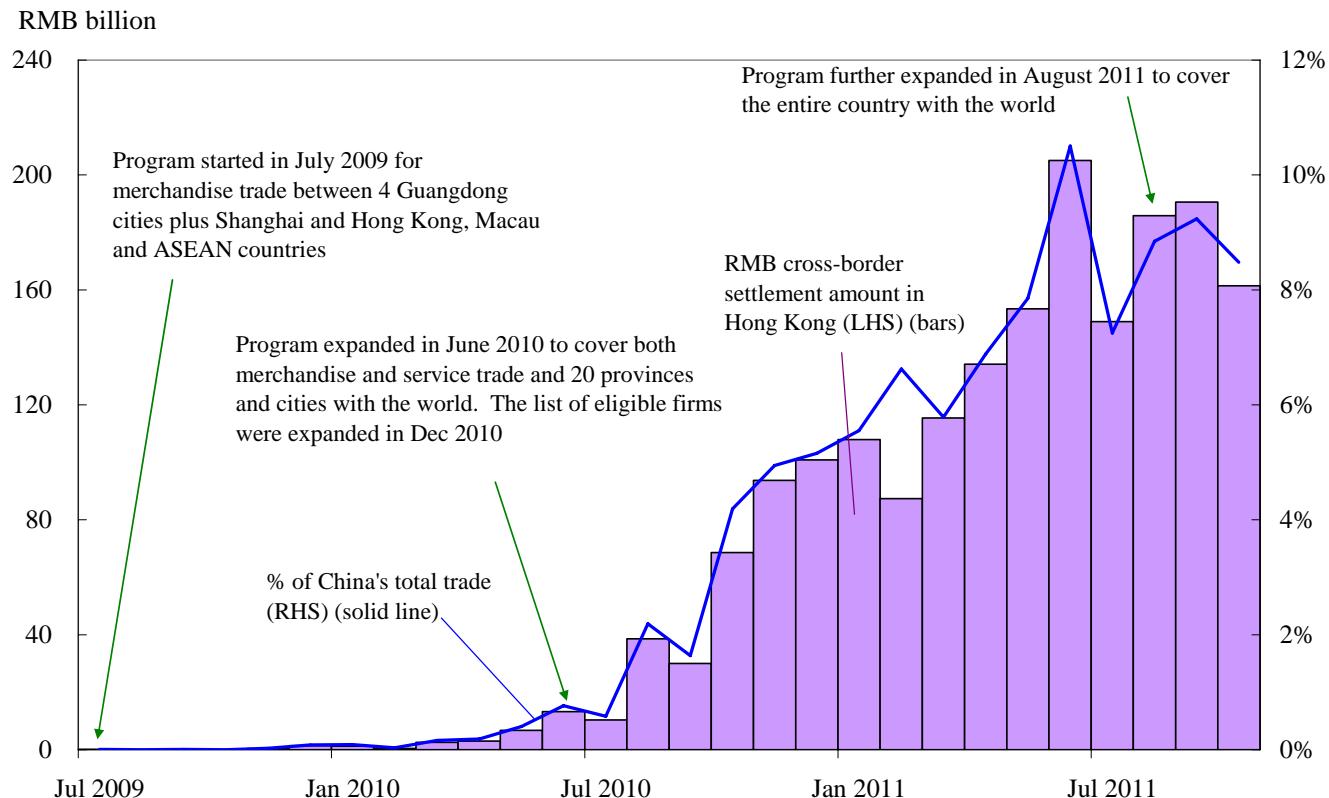


Source: HKMA

- First RMB bond issued in July 2007 and grew significantly
- RMB 137.8 bn in Nov 2011, equivalent to 0.7% of China's bond market
- Equivalent to 9.4% of HKD bond market at end June 2011

Cross-border settlement drives market growth

RMB cross-border settlement in Hong Kong



- Growth driver for RMB deposits in Hong Kong
- 8.6% of China's total trade in Oct 2011
- Hong Kong's share amounted to 90% in Q3 2011

Source: HKMA

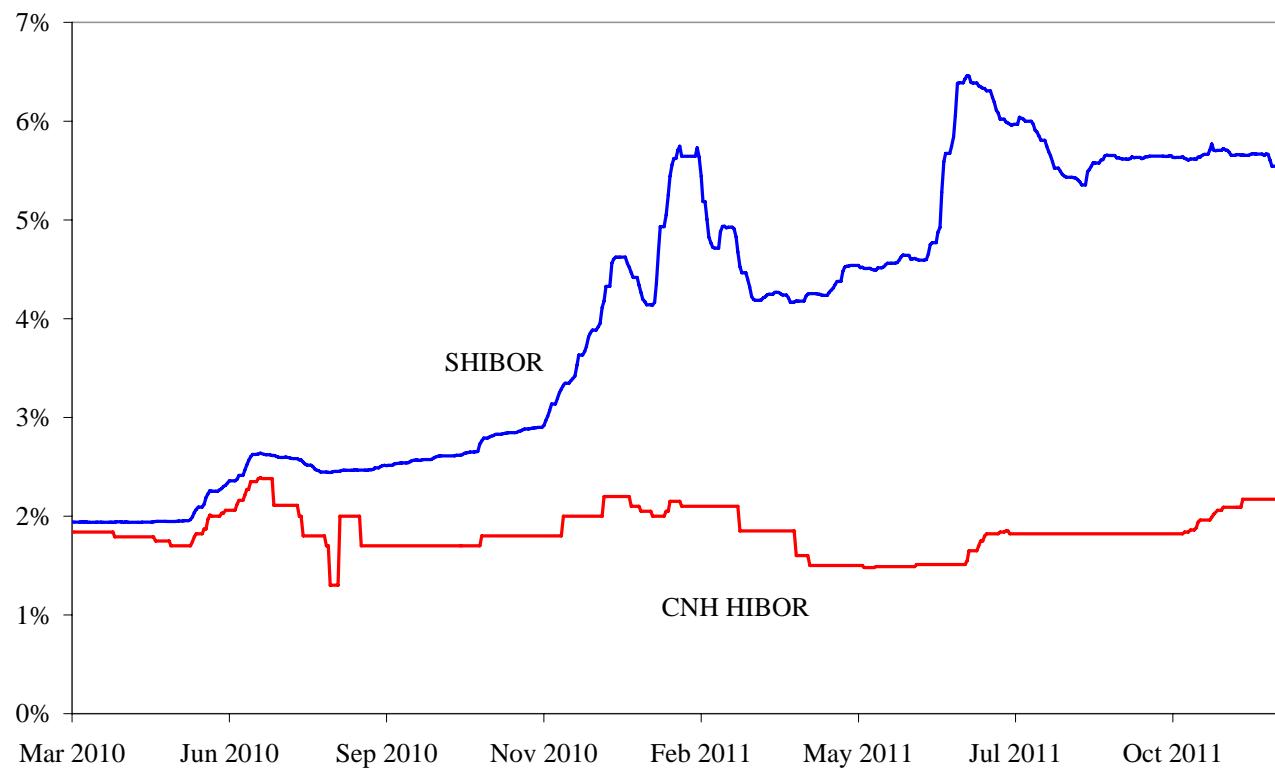
CNH and CNY exist in two separate spot markets



- Two separate spot markets without free fund flows
- CNH normally trades at a premium to CNY, but obvious deviations also occur during times of financial volatility
- Empirical evidence suggest that the two rates do not have a Granger causality relationship

No correlation between interest rates

3-month SHIBOR and CNH HIBOR

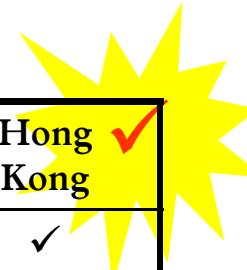


- Similarly, SHIBOR and CNH HIBOR are two separate markets
- Divergent relationship after monetary tightening since mid 2010
- CNH HIBOR trading remains thin but is reportedly on the rise

Source: Bloomberg, National Interbank Funding Center Shanghai

Given RMB's international position, what other factors drive Hong Kong to be an offshore RMB centre?

Why Hong Kong?



	Tokyo	London	New York	Singapore	Hong Kong
Efficient and reliable financial infrastructure	✓	✓	✓	✓	✓
Sound legal system	✗	✓	✓	✓	✓
Free flow of capital and information	✗	✓	✓	✓	✓
Strong pool of talent	✗	✓	✓	✓	✓
International business customs and practices	✗	✓	✓	✓	✓
Simple tax regime and low tax base	✗	✗	✗	✓	✓
Long history of Mainland enterprises presence	✗	✗	✗	✗	✓
Largest IDI and ODI investor of China	✗	✗	✗	✗	✓
First mover advantage with RMB financial infrastructure	✗	✗	✗	✗	✓
One country-two system with strong collaboration between our financial regulators, ensuring stronger financial security in China	✗	✗	✗	✗	✓

- Hong Kong is the most ready and experienced financial centre serving China
- Hong Kong is able to develop as an offshore RMB centre with the support of Mainland authorities

Since China still has exchange controls, Hong Kong needs Mainland's support to develop RMB business

- Only Hong Kong and Macau have RMB clearing banks linked to PBoC
 - RMB clearing bank and participating banks are allowed to participate in China's interbank bond market (subject to approval)
 - China has committed to issue government bonds in Hong Kong on a regular basis and allow its financial institutions and corporations (subject to quota) to issue RMB bonds in Hong Kong
- RMB in Hong Kong, to a certain extent, is not subject to exchange control or domestic regulations (such as interest rate set by PBoC)
- China's regulatory rules, business practices, financial infrastructure and information dissemination systems are different from international norms. Foreign investors are more inclined to carry out business offshore

Hong Kong can bring a unique combination of potential benefits to the Mainland

- Mainland financial institutions are poised to benefit from the development of Hong Kong's RMB business with their strong Hong Kong presence and Mainland networks
- The liberalisation of China's exchange controls can proceed at its own pace while any demand for sophisticated financial products of Mainland enterprises can be satisfied in Hong Kong
- RMB financial markets operating under international business practices could be developed in Hong Kong ahead of Mainland's liberalisation. China could manage its pace of development and reforms (through RMB re-circulation)
- Foreign companies can issue RMB bonds in Hong Kong and insulate the domestic market from the default risk of those companies

Conclusion

- The status of USD benefited from Bretton Woods, US's lax exchange control system and US's large and deep financial markets, in turn allowing the Eurodollar market to develop disproportionately larger than US's economic size
- Political and regulatory factors (liberalisation of exchange control and domestic credit controls) may have encouraged fund flow to the offshore market and encouraged its development
- RMB is not yet an international currency, but has the potential, given China's economic size and strengthening ties with the world
- However, the lack of a Bretton Woods equivalent and deep financial markets while having exchange controls will hinder the RMB's rise
- Internationalisation of RMB has benefits as well as costs which needs to be managed prudently by the Mainland authorities

Conclusion (Cont.)

- Over the past few years, Hong Kong has already developed a sizeable RMB market, efficient financial infrastructure and accumulated valuable experience
- RMB re-circulation has been strictly controlled by China out of financial security concerns, but has been gradually relaxed
- Hong Kong may not be the only financial centre capable of developing into an offshore RMB centre, but it is the most ready and experienced financial centre serving China
- Last but not the least, Hong Kong is a Special Administrative Region of China. Regulators can collaborate effectively at different stages of RMB internationalisation and exchange control liberalisation, better ensuring the financial security of China

Thank you