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Use of currencies in international trade: Any changes in the picture?

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World Trade Organization
Economic Research and Statistics Division

**USE OF CURRENCIES IN INTERNATIONAL TRADE: ANY CHANGES IN THE
PICTURE?**

Marc Auboin: WTO
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USE OF CURRENCIES IN INTERNATIONAL TRADE: ANY CHANGES IN THE PICTURE?

Marc Auboin¹

Abstract

The paper reviews a number of issues related to the use of currencies in international trade, more than one decade after the introduction of the euro and shortly after steps taken by the Chinese authorities to liberalize the use of the RMB in off-shore markets. Trade is an important factor in establishing a currency as an international currency, notably by fulfilling the transaction/medium of exchange and unit of account motives of currency demand. A well prepared liberalization of currency use for international trade and foreign direct investment transactions can even be helpful in achieving the international investment and reserve currency status. While in the distant past the later was also linked to preponderance of a country in trade markets, it is now linked to the prevalence of the currency in international financial transactions, which supposes that the country in question engages at least partly in some liberalization of capital account transactions.

This paper shows theoretical and practical reasons explaining the current dominance of the US dollar and the euro in the invoicing of international trade. There is little doubt, though, that in the medium-to-long term the RMB will become a major currency of settlement in international trade. This is not only the current direction of government policy but also that of markets, as evidenced by the rapid expansion of off-shore trade payments in that currency. In the meantime, though, the US dollar and the euro are enjoying a near-duopoly as settlement and invoicing currencies in international trade. The stability of this duopoly is enhanced by a number of factors recently highlighted by economic analysis: coalescing, "thick externalities" and scarcity of international currencies are useful to explain that, until such time that RMB payments match at least the share of China in global trade, the US dollar and of the euro will remain the main currencies in the invoicing and payment of international trade.

Section 1 looks at the factors that determine the use of currencies in the invoicing and settlement of international trade. Section 2 looks at the actual reality of currency use for international trade flows, and short-term prospects for the development of a possible alternative to the use of the US dollar and the euro (in particular in Asia), the RMB.

Keywords: cooperation with international financial institutions, coherence, G-20, financial crisis.

JEL classification: F13, F34, F36, O19, G21, G32

¹ Counsellor, World Trade Organization. Marc.Auboin@wto.org. All views expressed are those of the author and cannot be attributed to the WTO Secretariat or WTO Members. Thanks are due to Patrick Low, for his support in producing what is still very much work-in-progress.

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I. The determinants of currency invoicing internationally

A. What defines an international currency?

A. Blinder (1996) offers a good definition blending four characteristics which encompasses the three classical functions of money (a medium of exchange, a unit of account, and store of value): an international currency accounting for a preponderant share of the official reserves of central banks; a currency used "hand-to-hand" in foreign countries; a currency in which a disproportionate share of international trade is denominated; and a dominant currency in international financial markets.

This paper mainly focuses on the currency denomination of trade, which fulfils only one of the four characteristics defined by Blinder, but which, for centuries, has been at the core of a country's role in international trade and central to the importance of that currency internationally. When official reserves were in gold, any other metals or physical benchmark, and when international financial markets did not allow for the exchange of non-merchandise related assets and liabilities, an international currency was essentially a currency used for trade purposes - fulfilling the roles of medium of exchanges (of payment), i.e. a currency that reduces transactions costs and inefficiencies of barter trade, and of a unit of account, i.e. a currency allowing for the valuation of merchandises between two or more countries.

The unchallenged status of the US dollar as the main international currency during several decades (P. Kenen, 1983) has been strengthened by the expansion of financial markets, in a context of opening up of capital account transactions during the 80's through the year 1990's. The dominance of the US dollar in international transactions has been such during this period - as was the prevalence of the Sterling Pound in the previous century - that the academic interest on currency use has been falling somewhat, until the introduction of the euro. The availability by the European Union of data on the use of the euro resulted in increased interest by analysts, notably to examine whether the event of the euro was coinciding with a decline of US dollar use.

At the same time, in the early 2000's, progress in trade theory allowing for a better account of firm heterogeneity was used to improve the understanding of the micro-economic determinants of invoicing in international trade at the firm level. All in all, these factors have revived the discussion on currency use in international trade - a discussion that is now further fed by the creation of an off-shore market for the Renminbi (RMB), and the large appetite of the market for local currency financing of trade in the Chinese currency. The success of RMB use triggers new questions as to the future panorama of currency use in world trade and the event of multi-currency environment in the future (Section II).

B. Recent literature on the drivers of international trade invoicing

Industry characteristics: Coalescing, homogeneous goods, size, bargaining power

A new set of studies have emerged since the mid-2000's to examine the determinants of international trade invoicing. Progress in using firm and transaction-level data has in

particular enabled to complement traditional theories about the functionality of money in international trade transactions.

In a seminal paper, Goldberg and Tille (2008) showed that exporters are eager to limit the fluctuations of their prices relative to that of the goods of its competitors, when the goods are substitutes, and hence for this reason would opt for the invoicing currency of their competitors (the so-called "coalescing" effect).² Since the lack of disaggregated data may miss the potentially strong heterogeneity in invoicing practices across industries, Goldberg and Tille conducted transaction-based analyses of invoicing practices by US and Canadian firms, industry-by-industry. They found that exporters in industries where goods are close substitutes make little use of their own currency unless they are from the US, and that exporters from a country with a volatile exchange rate also hardly use their own currency. Model calculations are pretty robust in demonstrating that this "coalescing effect", whereby exporters minimize price differences relative to their competitors by reducing the volatility and transaction costs inherent to using different currencies, "goes a long way to explaining the well-known dominance of the US dollar. The use of the US dollar in trade flows that do not involve the United States reflects trade in homogeneous products".

The authors note that exchange rates regimes have an influence on behaviour as well, as exporters from the US dollar "zone" are indeed more likely to make use of that currency. They also found that the company and transaction size mattered. The size of the transaction also has an impact since the largest transactions are less denominated in the leading currency: they noted that Canada's large imports are much more likely to be invoiced Canadian dollars than in US dollars. The relationship between currency invoicing and transaction size had not been mentioned by the literature before. Country size matter as well. In general, empirical evidence tend to support the assumption that exporters, who face competition from local firms in the destination country, are likely to invoice their exports to a large market in the currency of that market. This is explained by the fact that local competitors set their prices in their own currency (even more so if these firms are price setters in international markets) - the coalescing effect reinforcing this assumption. Country size may also affect invoicing in an indirect way if exporters are facing the strongest competition in this large export market, the weight of that market being likely to influence the whole invoicing strategy of the exporter across all markets.

The bargaining power between the exporter and the importer seem to matter as well. The choice of the invoicing currency is not neutral in respect of the trader's exposure to exchange rate risk. From that point of view, the exporter and importer may be facing opposite interests: the importer might want to limit the share of foreign currency invoicing and maximize the share of its own currency, to limit the risk on its costs, particularly if it is a large customer/importer. Alternatively, the exporter would want to unilaterally determine the currency of payment that maximizes its export earnings. Golberg and Tille emphasize that bargaining power will have an impact on the currency chosen. In this relationship, size appears to be a bargaining tool for the importer, in absence of better arguments with the exporter. Finally, the concentration of retailing towards large distribution chains seems to reinforce the bargaining power of importers against exporters (Vox column by Golberg and Tille, on October 2, 2009)³.

² These results are consistent with McKinnon (1979), who found that industries producing homogeneous goods tended to trade in currencies with low transactions costs.

³ Available at www.voxeu.org

Inertia and "thick market externalities", applied to currency invoicing

Consistent with the criteria developed by Blinder (1996), an international currency is one in which a disproportionate share of international trade is denominated. As shown in Section I.A, the US dollar is the main currency fulfilling this criterion. Its use exceeds the share of the US in international trade (on both exports and imports), and that of its trading partners within NAFTA (see in particular Table 1.1). As the dominant currency, it is also used in third party trade, notably in the Asia-Pacific region, which has experienced the fastest growth of international trade in the past two decades. No doubt that this growth has comforted the US dollar's position globally in the invoicing and settlement of international trade. The US dollar is also widely used in the LATAM region, and in commodities markets. As indicated above, country size matters, particularly in the case of the United States; the assumption is that the currency of the exporter's country is likely to be used if the exporting country is very large relative to destination markets. This is all the more true if a country is defined from a "(trade, currency) bloc perspective" (Golberg and Tille 2008).

Krugman (1980) explained that inertia also plays a role in currency invoicing. He argued that the more a currency is established, the more difficult it is for users to shift to other currencies: there are clearly lower transaction costs in using a widely available and liquid currency. Economies of scales emerge as a large level of transactions in a currency ends up lowering the spreads for that currency in foreign exchange markets and in bank charges, for either cash transactions or transfers. Krugman's view is supported by the observation that, despite the end of the Bretton-Woods system and of the increased volatility of the US currency, the dollar's established position has remained relatively unchanged in international markets. Goldberg (2012) confirms the inertia phenomenon – and the difficulty to displace well-established currencies ("everyone uses the dollar because everyone else is using the dollar").

Using a theoretical model, Rey (2001) had also looked at inertia in the use of a specific international currency. Part of this inertia is linked to the fact that if multiple currencies are being used, higher transaction costs would pass through to export prices. Hence, there is an incentive to use only one invoicing currency to maintain lower international prices and competitiveness. The currency of reference is chosen according to the "thick market externality" principle, whereby the transaction costs of using a particular currency in the market are reduced with market size. Therefore, the currencies of countries with large trading power, high levels of openness and substantial bilateral trade flows are more likely to be chosen.

Chandrasekhar (2010) argued that the resilience of the dollar as an international reserve and transaction currency was based on overall US strength in international relations. Using alternative reserve currencies, such as IMF Special Drawing Rights (SDRs), presented problems on its own. For example, SDRs can only be used by governments and not by private entities in regular transactions. A similar example can be chosen from the process of monetary integration in Europe. While, before moving to a single currency, the European Union tried to develop the use of its internal unit of account, the ECU, its private market never took off beyond the largely symbolic labelling of limited bond issues and currency invoicing for intra-firm trade within the European Union. The composite character of the EU, the lack of reserve status currency, and the limited liquidity available, compared

unfavourably with internationally-traded currencies such as the Deutsche Mark and the French Franc.

Trade, macroeconomic volatility and currency use

The attractiveness of currencies is also driven by the ability of the country issuing the currency to respond to macroeconomic shocks and limit macroeconomic "volatility". Macroeconomic volatility is a function of volatility of the currency itself on exchange rates markets. Baron (1976) emphasizes the role of exchange rate volatility on both the volume of international trade and the use of trade currencies. Exchange rate volatility may have negative effects on the structure and the cost of output, profit maximization and decision to trade and not, thereby possibly reducing trade and currency use (Cushman (1983), Gros (1987), De Grauwe and Verfaillie (1988), Giovannini (1988), Bini-Smaghi (1991)).

Some models emphasize that exchange rate risk reduces net trade, which is the difference between trade and intra-industry trade. This is evident in Kumar (1992) who argues that exchange rate risk acts as a "tax" on the comparative advantage of the exporting sector relative to the domestic sector. If comparative advantage is reduced, economies of trading countries will become less specialized and intra-industry trade will increase at the expense of inter-industry trade.

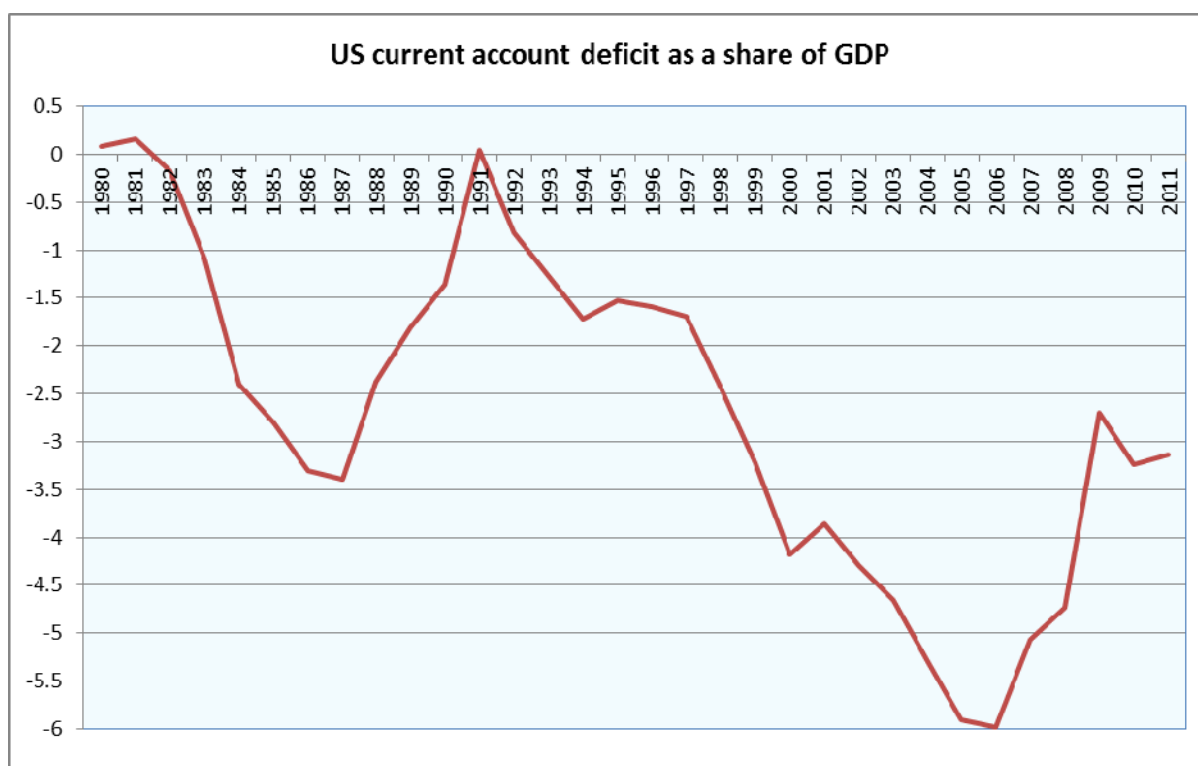
More recent empirical work finds some direct, rather than indirect, impact of exchange rate volatility on currency invoicing. This is the case of Wilander (2006), who found a negative relation between exchange rate volatility of exchange rates and the invoicing strategy of Swedish exporters. Donnefeld and Huag (2003) find similar results for Canadian exporters.

As explained by Corsetti and Pesenti (2005), the currency of invoicing has an influence on the way in which macroeconomic shocks are transmitted, with exporters able to price in their own currencies being less subject to exchange rates fluctuations and in a better position to pass on changes in prices linked to exchange rates changes to consumers. Importers have also a preference for invoicing in local currency to minimize their exposure to currency changes (Goldberg and Tille (2009)).

Bacchetta and Van Wincoop (2005) used a general equilibrium with nominal price rigidity to show that the higher the market share of an exporting country in an industry, and the more differentiated its goods, the more likely its exporters will price in the exporter's currency, notably to limit output volatility. They also found that the currency in which prices are set has significant implications for the optimal pricing strategies of firms (in particular the incentive for exporters to stabilize its price in the importer's currency), exchange rate pass-through to import prices, the level of trade and net capital flows, and the optimal monetary and exchange rate policy (to reduce transaction costs). They also consider that country size and the cyclical nature of real wages play a role, albeit empirically less important. They also came to another important conclusion, whereby the currency formed in a monetary union is likely to be used more extensively in trade than the sum of the currencies it replaces. This conclusion is shared by Pisanni-Ferry and Posen (2009), and to a large extent evidenced by reality (Section II.A).

Liquidity

"Thick market externalities" are necessary but not sufficient to explain the use of large currencies to lower transaction costs. To achieve economies of scale at the international level, the market for a currency needs to be large, liquid, and global at any point in time. It should be accessible to non-residents on demand and supply currency in sufficient quantities. In the case of the US dollar, the non-resident (euro-dollar) market has been (and is) regularly supplied through the US balance of payments: US dollar balances abroad are regularly fed by the current account deficit, hence increasing abroad the volume of dollars available for trade and financial transactions. As shown by the graph below, since 1980 the US current account has been balanced only once during the recession of 1990-1991. Since this recession, the US current account deficit has actually increased for 15 years, reaching 6% of the GDP in 2006. Since the 2008-09 financial crisis, an recovery of the US savings rates has allowed a reduction of the current account deficit by almost half.



Source: IMF

At the same time, the US economy has been offering sufficiently strong returns on US dollar assets and monetary stability (low inflation...) to attract investment to finance the current account. Besides, current account deficits did not translate necessarily in a deterioration of US investment position. This is explained by the fact that U.S. assets overseas have gained in value relative to the domestic assets held by foreign investors. This, in itself, helped reinforce the international role of the US dollar. US net foreign assets have not been deteriorating in line with the current account deficits, except since the recent financial crisis, due to the relative under-performance of domestic ownership of foreign

assets (foreign equities) in comparison to foreign ownership of domestic assets (mainly US treasuries and bonds).

As a result, US dollar holdings by non-residents continue to irrigate the international financial and trading system, and constitute, for all uses, the largest pool of currency in the world. According to Goldberg (2010), for example, the very large majority of US dollar banknotes for "hand-to-hand", cash transactions, are held outside the US territory: about three-quarters of hundred-dollar notes, and half of fifty-dollar notes are held abroad. The share for all US dollar notes is 60%. US Dollar bond markets are supported by the issuance of US dollar-denominated debt, which currently account for up to 40% of bond holdings; the US dollar is also the prime currency of issuance for corporates in Asia and the Pacific, Latin America and the Middle-East, all of which have developed their capital markets in the recent years with some relation to the US dollar. According to the IMF, the largest share of international reserves is also denominated in US dollar (some 60% of the total).

Another factor in favour of US dollar-denomination of trade is the large number of countries having a currency explicitly or implicitly pegged to the USD (some 90 in the world, a stable number in the past two decades) – notwithstanding full dollarization in several countries.

All in all, US dollar-use is supported by a strong economy, producing little inflation, stable returns on investment for non-residents, and liquid currency markets. In the international market for currencies used for settling transactions, denominating or trading assets, this mass of US dollar-denominated assets at the disposal of non-resident is of considerable advantage for maintaining the international role of the US dollar, despite some debate about whether this will continue in the future (see in particular, Frankel, 2008).

II. Current realities and prospects about currency use in trade settlements, invoicing, and other transactions

A. The US dollar-euro *de facto* duopoly

State of Play

The number of international currencies having the characteristics of reserve of value and means of payment, offering stability, liquidity and substitutability, globally, are relatively scarce at the present time. The creation of the euro has certainly increased the hierarchy between the main two currencies (the dollar and the euro), and other currencies, in respect of these standards.

As indicated in Section I.B, before the introduction of the euro, the prime currency of transaction, reserves and investment was, with no comparison, the US dollar. By order of importance, there was a second choice of currencies comprising the Deutsche Mark, the Japanese Yen, the UK Pound Sterling, the French Franc, the Australian dollar and the Swiss Franc, reflecting the importance of each currency as a trade, financial or reserve currency. While other currencies could be of importance in regional markets, they were of lesser importance in international markets.

Since the introduction of the euro, two currencies are dominating the world market for currencies. Other currencies such as the Pound Sterling and the Yen are still important but are regarded as no substitutes to the US dollar and the euro by the markets. The RMB can be an alternative in the medium-to-long-term, but remains scarce by such definition – not that it is not stable or available for trade, but it still offers limited convertibility, and hence limited liquidity globally and no hedging facilities.

Table 1.1 provides an overview of the most traded currencies in foreign exchange markets. It is interesting to note that total transactions have more than tripled in the past decade, from US dollars 1.4 trillion in 2001 to US dollar 4 trillion in 2011 reported in the Bank of International Settlement (BIS) most recent "Triennial Bank Survey".

Table 1.1: Currency Distribution in Foreign Exchange Transactions

Currency	2001	2004	2007	2011
US dollar	89.9	88.0	85.6	84.9
euro	37.9	37.4	37.0	39.1
Japanese yen	23.5	20.8	17.2	19.0
Pound Sterling	13.0	16.5	14.9	12.9
Australian dollar	4.3	6.0	6.6	7.6
Swiss Franc	6.0	6.0	6.8	6.4
Other currencies	25.4	25.3	31.9	30.1

Source: Bank of International Settlement (BIS), Triennial Bank Survey, 2010

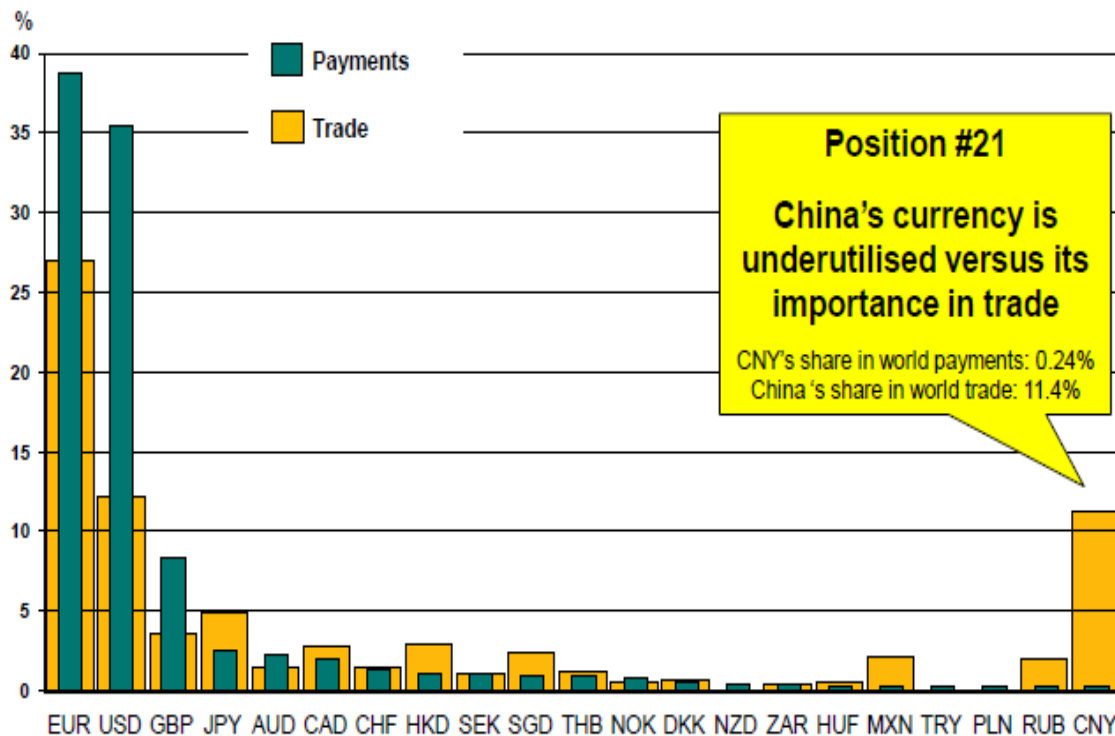
Notes: Since two currencies are involved in every transaction, the sum of percentage share of individual currencies equal 200%.

There are unfortunately no single set of comprehensive and consolidated statistics regarding international trade settlements and invoicing. As indicated in Goldberg and Tille (2008), data availability varies widely across countries. The authors used national studies and various additional sources of information. Alternatively, Figure 1.1 relies on information provided by the Society for Worldwide Interbank Financial Telecommunication (SWIFT) which records trade transactions and payments using its platform. Estimated US dollars 1.4 trillion of payments related to physical trade transactions have been channelled through SWIFT in 2010, which can be regarded as real life sample of global trade. In Figure 1.1., payments are not only about international trade.

Figure 1.1 nevertheless confirms the high use of the US dollar and of the Euro, in relation with their strong market share in global trade. Logically, China's currency, which is still subject to relatively stringent exchange controls, notably on non-trade transactions, has a share of world payments significantly lower than its share in world trade - leading SWIFT to consider it to be "underutilised".

Figure 1.1 World payments currencies versus trade

Source: SWIFT Value Analyser. Trade (import/export) 2010, in value.
June 2011. Customer Credit + Financial Institution Transfers (MT103 + MT202 excluding cover). Traffic sent, in value.



Factors behind the current duopoly

Applying the concepts explained in Section I, we have seen since the introduction of the euro a relatively "stable" duopoly in currency use over the past decade - albeit there is no market barrier-to-entry preventing another large currency from being supplied and actually having success.⁴ As shown by the success of RMB use in off-shore markets, a strong demand exists for it. The main driver of RMB international development is hence for the time being of regulatory nature (for trade, mainly restrictions on good exports). However, other important factors will determine the pace of the adoption of the RMB, such as the familiarity of users, the existence of attractive trading opportunities, accessibility, and perhaps RMB appreciation expectations.

⁴ This duopoly is not necessarily an imperfect competition duopoly in the meaning of the equilibria defined by Cournot, Marshall and Nash - whereby duopolistic powers would have an interest in "cooperatively" reducing output/quantities supplied to the market to maximize profit, and hence form an effective monopoly on price setting. The currency market is still one that expands very rapidly, as evidenced by BIS statistics, and monetary authorities show no signs of squeezing supply to achieve some kind of duopolistic "Yalta" of market shares in the use of currencies. The relative "stability" of that duopoly may reflect other factors at play.

The concepts highlighted in Section I.A help understand the stability of the current duopoly. For example, the "thick market externalities" principle, whereby the transactions costs of using a particular currency are reduced with market size is partly linked to the absence of any other currencies in which economies of scale of that size can be achieved. As indicated in Table 1.1., the US dollar is present in 90% of all transactions in the 4 trillion dollars a day foreign exchange market. The considerable pool of liquidity in US dollars on which foreign traders can count across the world is also an advantage. The euro is present in almost 40% of all transactions. According to the BIS, the "US dollar-euro" pair (or segment) of the foreign exchange market account accounts for almost one-third of total transactions, that is more than US dollars 1 trillion-a-day.

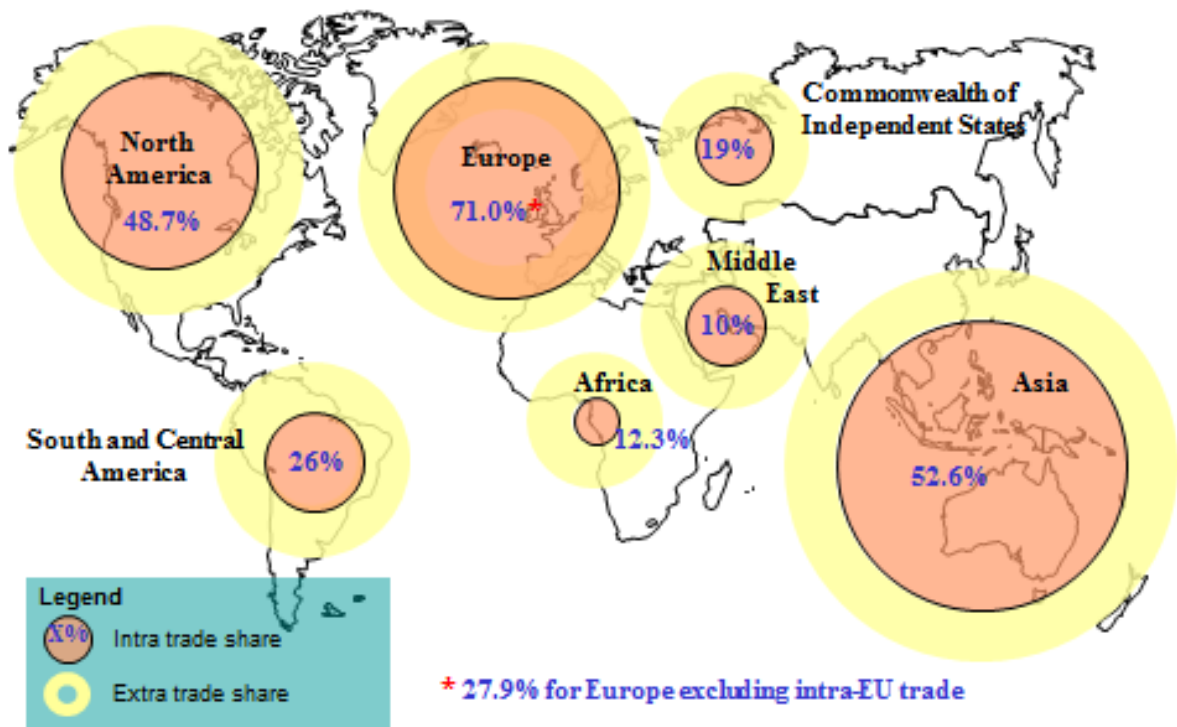
Besides, thick market externalities imply that currencies of countries with a large trading power and substantial regional and bilateral trade flows are more likely to be chosen. From that point of view, US dollar and euro use is boosted by the strength of regional links (the NAFTA on the one hand, the euro-zone on the other) and the existence of large domestic markets for currency issuers. The high share of intra-trade against extra-trade is undoubtedly an advantage for currency trade-related use (Figure 1.2). In the case of the euro, invoicing in euro tend to "gain market shares" in areas that have a high proportion of goods and services trade with the euro-zone.⁵ This is corroborated by data from the European Union indicating that not only recently acceded Members of the European Union but also other Eastern European countries have increased their use of the euro in trade and financial transactions.

As intra-Asia trade expands (its share of total Asian trade increased from 49.1% in 2000 to 52.6% in 2010), the US dollar has remained in the region at least until recently a major, if not the main, invoicing and settlement currency for international trade. According to the data published by Goldberg and Tille (2008), the US dollar share in export invoicing of Korea and Japan was as high as 84.9% and 52.4%, respectively, in the early 2000's. The share of Australia's exports denominated in US dollars was 67.9%. Thailand's export share in US dollars was exceeding 80%. Reflecting the relatively large share of raw material and energy products in their imports, the share of the US dollar in Japan and Korea's imports was even higher: 70.7% and 82.2%, respectively. For Thailand, the US dollar share of imports was also over 80%, as for exports.

More recent aggregated statistics have not been found. However, in a trading panorama marked by the expansion of international value-chains in Asia and the production of global goods priced in US dollars, it is likely that the use of the US dollar in Asia's trade has not greatly diminished. According to China's own statistics, RMB settlements have reached 10% of China's trade at the end of 2011, certainly one of the most meaningful developments in the region. However, China's trade accounting for about 10% of world trade, the RMB use in the world, while expanding in Asia, remains for the time being relatively small (10% of 10%). This is consistent with the BIS survey, in which the RMB accounts for only 0.5% of global foreign exchange transactions.

⁵ Between 1999 and 2001, the European Commission published a review of the use of the euro; since then, the ECB has been publishing statistics on euro use. While not specifically attributable to international trade, statistics on cross-border payments outside the euro-zone provide an account of the expansion of euro use by non-euro Members; available at: http://www.ecb.int/stats/payments/paym/html/payments_nea_v_2010.en.html

Figure 1.2: Intra-regional merchandise trade, 2010



Source: WTO

A demand for local currency financing linked to regional integration

Local currency financing and pricing have many advantages in a commercially-integrated zone. As explained above, the choice of currency invoicing has an impact on the way in which macroeconomic shocks are transmitted, with traders able to price and invoice in their own currency being less exposed to exchange rates shifts (Corsetti and Pesenti (2005)).

A lot more countries would like to develop local currency invoicing and use for trade purposes. However, the number of currencies for which a real potential exist is limited (1) because of the high number of hard or quasi-pegs - covering more than half of the total number of countries in the world, and (2) because of the lack of internationalization of non-pegged currencies – because these countries impose restrictions on the use of their currencies, for example by implementing tight foreign exchange controls.

The strongest potential exists in China (Section II.B). As shown in Figure 1.1., RMB use is small relative to the share of China trade in global trade (according to Swift statistics, 0.2% of world's payments, against a global trade share of over 10%). However, the internationalization of the RMB, notably in trade, and generally monetary and exchange reforms, are at the forefront of the agenda of the Government and the central banks of China. As argued later, the current limitation to RBM use is regulatory, not market-based (Section II.B).

Another motive for regional currency diversification is linked to the recent financial crisis, involving the financial sector of the United States and other developed countries. Between the fall of 2008 and mid-2009, the US money market has been under stress, as a result of a lack of confidence between banks operating in it. Moreover, in a tight market, the demand for US dollar re-financing of short-to-medium-term claims has been exceptionally high, from both resident and non-resident banks. This created a shortage in US dollars in off-shore markets, addressed by the Federal Reserve Board with the conclusion of 14 swap agreements with key central banks, with a view to facilitate the payment of trade transactions. Central banks with larger foreign exchange reserves also set aside US dollars reserves for supplying the local market with currency for trade (Korea). Other central banks opened temporarily "discount windows" for local traders willing to discount foreign trade receivables and other bills (Japan) (M. Auboin, 2009). Most of these mechanisms were time-bound and waived when market conditions returned to normal; however, technically, they could be re-activated rapidly.

This first episode of US dollar shortage was followed by a second episode at the turn of the year 2011, when banks prepared for the implementation of new prudential rules known as "Basel III". In order to respect new liquidity and capital ratios, international banks have been restructuring their balance sheets, resulting in a new surge of demand for US dollars. Part of it was due to the need by non-US banks to refinance large amounts of US dollar debts. The demand for US dollar liquidity created a pressure on interbank markets, which was felt by contagion in trade finance markets. This pressure was largely addressed by asset sales (deleveraging) from excessively exposed banks, and continued "quantitative easing" by the US Federal Reserve System.

However, these episodes have only strengthened a growing sentiment in Asia of vulnerability towards the access to US dollar in periods of stress. This sentiment has already developed some time ago, in particular during and after the Asian financial crisis of 1997-99. Since this period, the demand for local currency invoicing and settlement has increased, with a view to reduce the effects of exchange rates fluctuations on a fast-expanding intra-regional trade.

In a move similar to that of European countries in the early 1970's, Members of the ASEAN have agreed under the "Chang-Mai Agreement" (CMI) to promote swap arrangements between central banks and to pool of reserves to fight currency speculation by providing short-term liquidity assistance to its members (essentially in the form of bilateral swap and repurchase agreements – using the US dollar, the Yen and other currencies – with possible repayment in local currency). Rose (1999) noted after the Asian crisis that currency crises tended to be more regional and to spread along the lines of trade linkages, disrupting regional trade flows. Since currency crises create regional costs, the region would have an incentive to mitigate these by providing a financial safety net. This is what has happened under the CMI, which has been considerably expanded in scope and size recently. The number of countries participating in the mechanism has increased and the resources available have now reached US dollars 240 billion.

Recent agreements between the ASEAN and China are paving the way for banks in this region to start exchanging RMBs for currencies from ASEAN countries. China is committed to negotiate swap agreements with each ASEAN country, allowing non-Chinese companies to settle their RMB-denominated transactions with banks in their own countries,

instead of doing it through Hong-Kong, China, where most of the off-shore market for RMB settlement is located.⁶ This move is important if the RMB is to achieve to become a regional currency in the settlement of international trade.

B. The internationalization of RMB use in off-shore markets

A strong start

The internationalisation of RMB use and exchange reforms are stated and approved objectives of the government and central bank of China (the People's Bank of China).⁷ A number of conditions, such the continuation of domestic financial sector reform, are necessary to achieve this aim. However, the Government intends to gradually promote the use of RMB in order to better reflect the size of China in the global economy, in particular in the Asian region. Hence, it has launched a three-phase strategy aimed at liberalizing the use of the RMB for trade and cross border investment purposes, to be followed by some liberalization of capital account transactions to achieve RMB reserve currency status, at a later stage.

The Chinese authorities are currency proceeding step-by-step. The first phase of their plan started in 2009, with the introduction of the "RMB Cross Border Trade Settlement Pilot Scheme", aimed at developing of an offshore market for the RMB mainly based in Hong Kong, China. By the end of 2011, the number of mainland territories from which RMB payments could be made was already large - all in all 95 designated territories covering a large part of the eastern sea-coast of China as well as many large industrial cities. While in general Chinese importers are free to use the RMB as a settlement currency, only designated-exporters can use it for exports, even if the number of agreed exporters is expanding fast (currently it is over 50,000). An important question is whether the RMBs will be used in supply-buyer's international relations. It is at least China's policy. The pace at which it happens depends on how domestic financial reforms move forward.

The promotion of RMB use in international trade has been conducted in conjunction with the liberalization of RMB use in both inbound and outbound foreign direct investment, and very gradual use in bond markets.

The market's interest for RMB-denominated trade transactions in both China and overseas has been very strong in 2010 and 2011, notably in trade between Mainland and Hong Kong, China, and between Hong-Kong, China and the rest of Asia. Several international banks and industrial groups have indicated their interest for using the RMB in China-based operations. Intra-firm trade is also well-fitted for RMB denominated payments and transactions. In 2011 alone, the use of the RMB for trade and other current account transaction has increased over fivefold (Table 2.1). The Chinese central bank announced in December 2011 that more than 10% China's trade was being settled in RMB.

China allows the use of the RMB from HK, China, Macao and also most border trade with neighbours such Vietnam, Russia and Lao. The PBOC has entered into swap agreements with Argentina, Australia, Malaysia, Indonesia and Singapore. As indicated in the above

⁶ Reuters: "China to step up ASEAN Yuan Trade Settlement", May 8, 2012.

⁷ See in particular, "A Managed Floating Exchange Rate Regime as an Established Policy", by Hu Xiaolian, available on the People's Bank of China website, at www.pbc.gov.cn/publish/english/

section, the PBOC is committed to expand the number of swap agreements with ASEAN Members. Some commodity exporters have agreed to use the RMB for their exports to China (Iran, for example). While Hong-Kong, China is likely to remain the main market for off-shore transaction in RMB for the time being (80% of all RMB trade-related transactions in 2011), it is also expanding rapidly in Singapore and London.

Table 2.1: Expansion of RMB (off-shore) use in 2011

RMB, billion	End-2011	End-2010	Growth rate
China's RMB-denominated trade	2,081	369	464%
China's RMB FDI	91	n.a	
HK,China RMB deposits	589	315	87%
HK, China RMB bonds issued	150	36	320%
HK, China RMB borrowing	31	2	1450%

Sources: HSBC, based on the following data: Trade and ODI/FDI: PBOC; RMB deposits: Reuters; Dim Sum bond issuance: HKMA; RMB borrowing: financial media reports; Rank amongst all currencies: SWIFT

The use of the RMB for non-trade settlements is on the increase as well: Hong-Kong, China's RMB deposits have doubled in 2011, while RMB-denominated bond issuance has triple in the same year. Borrowing, essentially from “foreign investment enterprises”, is also growing several-fold.

Still, a segmented currency market

While trade settlements in RMB opportunities are already significant, restrictions continue to apply to exports, some regions and many enterprises. The on-shore and off-shore markets remain segmented. Box 1.1. summarizes the main rules in application.

Box 1.1.: Selected Administrative Rules on Pilot Program of Renminbi Settlement of Cross-border Trade Transactions (Source: Bank of China)

Article 2 and 3: The designated and eligible enterprises are allowed to settle their cross-border trade transactions in renminbi on a voluntary basis, and commercial banks shall receive support in providing renminbi settlement service for these cross-border trade transactions. These Rules shall apply to renminbi settlement of cross-border trade transactions in the pilot areas as approved by the State Council.

Article 6: The cross-border clearing and settlement in renminbi of import and export trade between a pilot enterprise and an overseas enterprise can be done either through the clearing banks for renminbi business in Hong Kong and Macau or through a domestic commercial bank that acts as an agent for an overseas commercial bank.

Article 7 and 8: The commercial banks that are approved by the PBC and Hong Kong Monetary Authority or by the PBC and the Macau Monetary Authority, that are members of the PBC's Large Value Payment System and are providing renminbi clearing service in Hong Kong or Macau may serve as clearing banks for renminbi business in Hong Kong or Macau to provide cross-border renminbi clearing and settlement service. A commercial bank that is capable of conducting international settlement business and operates in the pilot areas (hereinafter referred to as "a domestic settlement bank") may provide cross-border renminbi settlement service for pilot enterprises.

Article 9: A commercial bank that is capable of conducting international settlement business and operates in the pilot areas (hereinafter referred to as "a domestic agent bank") may sign an agreement for agent renminbi settlement with an overseas bank (hereinafter referred to as "an overseas participating bank") that participates in the program of renminbi settlement of cross-border trade transactions, open an inter-bank fund transfer account denominated in renminbi for the overseas participating bank and settle cross-border trade transactions in renminbi as an agent of the overseas participating bank. The domestic agent bank shall report the agent agreement for renminbi settlement and the inter-bank renminbi fund transfer account information to local PBC offices for disclosure purpose.

Article 13: Clearing banks for renminbi business in Hong Kong and Macau may, in accordance with relevant rules issued by the PBC, convert foreign exchange into renminbi and borrow funds from the inter-bank foreign exchange market and the inter-bank borrowing market in the Mainland. The limits on renminbi exchange as well as cap and maturity of inter-bank borrowing are determined by the PBC.

Source: People's Bank of China

An interesting point made by Vallée (2012) is that for the off-shore market to work well and to avoid that it becomes a threat to monetary stability, there needs to be some control by monetary authorities regarding the circulation of RMBs between the on-shore and off-shore markets. To do so, Chinese-owned clearing banks and international banks participating in the off-shore RMB pilot program are granted limited access to the RMB on-shore, inter-bank market by the PBOC (to invest excess off-shore RMB balances), ensuring a controlled circulation of the currency between the on-shore and off-shore market. Since this limited circulation does not prevent the off-shore market to make the RMB, outside China, an effective and convertible currency, it can be asked why is the segmentation kept for the time being.

Vallée's answer is interesting, as it suggests that China is outsourcing the internationalisation of the RMB (for which there is a clear demand) because an international currency requires a well-regulated, solid financial system, which the Hong-Kong financial infrastructure is able to offer, while at the same time allowing more time for China's mainland financial industry to adapt and modernize. Besides, the on-shore financial system of China remains largely insulated from the expansion of cross-border movements, and hence is less exposed to potential volatility that could arise during this transition period.

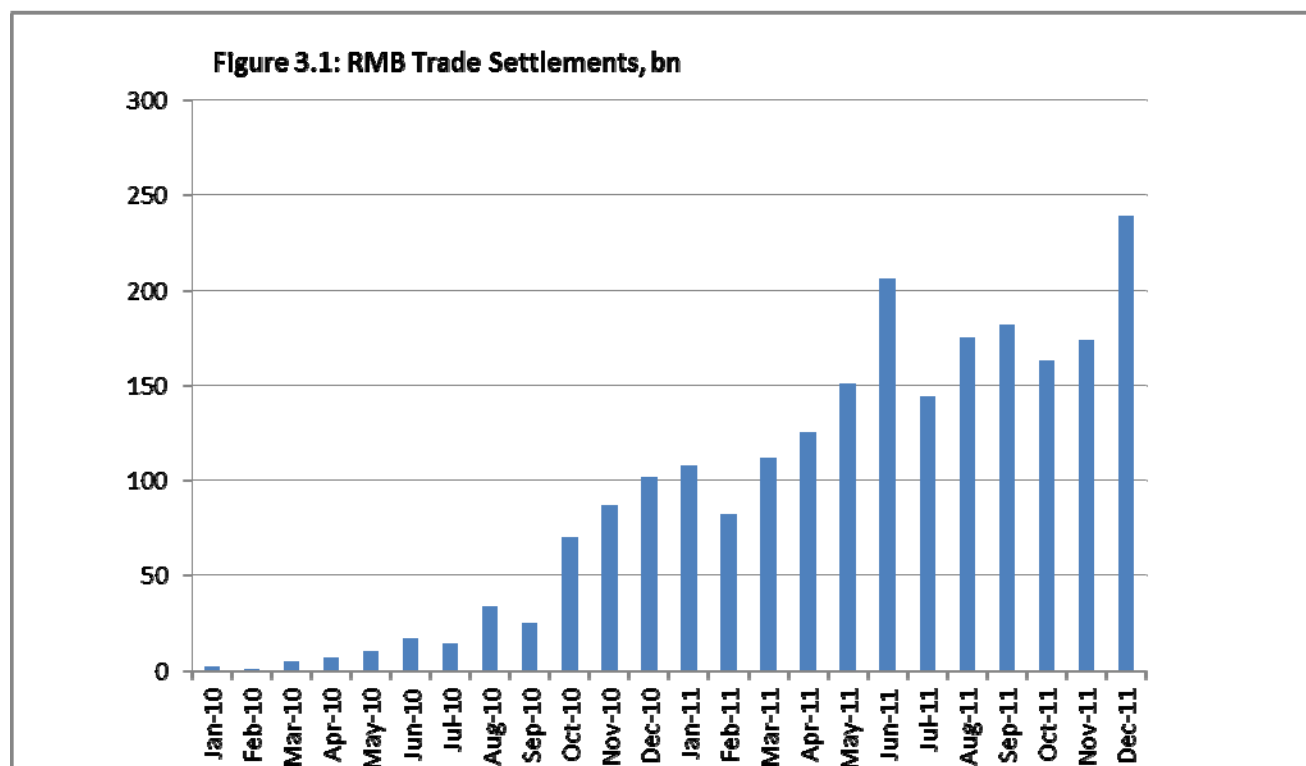
The Chinese authorities are likely to close gradually the gap between the on-shore and off-shore markets as they feel more comfortable with foreign banks' participation in the on-shore domestic money market, and as the domestic banking reform increasingly enables

domestic banks to compete with international competitors in transacting and intermediating in RMB.

Prospects

According to leading banks in the off-shore RMB market, a sizable share of trade and other RMB-related operations seem to result from intra-firm trade. Apart from the obvious interest of importers to use the RMB to reduce exchange rate risk, according to banks operating overseas, appreciation expectations seem also to be one driver of use. The “third-party” use of the RMB – parties that do not have trade relations with HK or mainland, China, remains limited, though.

It is likely that RMB use for trade purposes will continue its upward path, notably as a result of the swap agreements currently developed between China and trading partners in the region, allowing access to the RMB for ASEAN and other traders with close links to China. Figure 1.3 indicates clearly that, despite a slow-down of China's trade flows in second half of 2011, trade settlements have been continuing their upward trend (Figure 3.1).



Source: Honk-Kong, China Monetary Authority (HKMA)

As observed by S. Vallée (2012), the expansion of trade with ASEAN countries offer one of the most significant potential for growth regarding RMB using in trade, a reason why the Chinese authorities are developing swap agreements with ASEAN partners. As explained in Bruegel's study, the natural growth of RMB off-shore deposits will be fed by the trade surplus of the region participating in such swaps agreements. These surpluses can be safely deposited in Hong-Kong, China, as restrictions forcing traders to surrender RMBs or to

exchange them into other currencies no longer apply. If only a share of ASEAN's trade surplus with China (over US dollars 15 billion) was deposited in RMB, the liquidity for RMB use in trade would increase significantly.

Another question regarding market segmentation is whether the currency market can remain segmented by use. It is possible to achieve international trade currency status without liberalizing other forms of financial transactions with the rest of the world? The experience of the past decade shows that there are limitations to such a strategy, a reason for which the PBOC has decided to gradually allow for the issuance of RMB-denominated bonds, along with the use of the RMB in international trade, investment and reserve transactions. This is partly explained by the fact that, to generate economies of scale and reduced transaction costs, the volume in foreign exchange markets needs to grow to a significant level. At the present moment, RMB currency trading account only for less than 1% of total foreign exchange markets, according to the BIS. Given the size of the Chinese economy, it might hence be hard to achieve the kind of savings on transactions costs, without allowing for a higher level of convertibility of RMB-denominated assets - at least part of it. Financial relations are also likely to increase relative to current account transactions, and the international use of the currency will be a function of both the current and capital accounts.

At the border of trade and other forms of transaction is the issue of forward markets. One of the realities of international trade is that traders and their bankers might need access to both spot and forward markets for currencies. Forward markets help traders hedge against exchange rate volatility - which is not a feature of the RMB, a stable currency. They are also used to as a management tool for price setting, on multi-annual contracts, for example. By knowing in advance the amount of export receipts expressed in local or foreign currencies, companies are able to optimize production structure, costs, and adjust prices to competition.

Access to hedging can become a factor of competitiveness for some firms, albeit indeed not all.⁸ The development of forward markets is reflective of the risks and opportunities faced by China in the road of currency internationalization. Internationalization cannot go on its own, and is closely linked to the pace of liberalization of China's mainland financial reforms, as indicated previously.

⁸ As explained in Auboin and Ruta (2011), the availability of financial hedging through forward exchange markets helps reduce the uncertainty generated by fluctuations of nominal exchange rates, although firms have unequal access to hedging facilities and may display different behaviour according to which side of the hedging position they stand. Hence, it is generally accepted that larger exporting firms are in a better position than smaller firms to benefit from exchange rate hedging. Caporale and Doroodian (1994) confirm that hedging is available but generates costs and difficulties related to the firms' lack of foresight as to the timing and volume of foreign exchange transactions. Obstfeld and Rogoff (1998) study the hedging "behaviour" of firms in relation to their risk aversion. They find that risk-averse firms will hedge against exchange rate movements, but hedging costs and exchange rate uncertainty will translate into higher export prices, which will adversely affect (world) output and consumption.

CONCLUSION

A first test for the RMB will be the pace at which it becomes an attractive regional currency offering a credible alternative to well-established currencies such as the Japanese Yen and the Australian dollar. A competition with the US dollar and the euro is not yet in reach, albeit much will depend how quickly and effectively the banking industries of developed countries, on the one hand, and China, on the other, will restructure after the current financial crisis. The ability of the banking sector to offer to traders diversified, secured and convertible solutions for transacting with the rest of the world is also a key factor in the process of making an attractive international currency - certainly second to regulatory change.

Should access of the US dollar become more volatile because of banking crisis in the United States and elsewhere, the desire to diversify payments and to use local currencies will increase - notably in Asia. In the end, though, the ability to exchange the currency in foreign exchange markets is a key factor as well, although this depends heavily on foreign exchange regulation. Global actors in the world economy, be they international portfolio investors, global industrial companies or their banks, expect to be able to operate in a multi-currency environment, and hence to access easily liquid, global sources of foreign exchange - an important management tool in today's world of supply chains.

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