COMMENTSARY

The Yuan Tomorrow? Evaluating China’s Currency Internationalisation Strategy

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‘Stop spend borrowed money! US dollar, here today ... Yuan tomorrow.’ Sign on a bank in Franklin, North Carolina, July 2011

After long hesitation, China has begun a determined campaign to promote the role of its national money, the yuan or renminbi (RMB), as an international currency. Power resources are being employed strategically to widen foreign use of the RMB; wider use of the RMB, in turn, is expected to enhance China’s global prestige and influence. But can it be done? Should we really expect the ‘yuan tomorrow?’ In reality, the challenge that China faces is extraordinarily daunting. Successful internationalisation of the yuan any time soon is by no means guaranteed.

The aim of this essay is to evaluate the strategy presently being implemented by Beijing to achieve its internationalisation goal. Following a brief outline of the principal features of Beijing’s campaign, I take up two critical issues. First is the question of strategic design. This is a matter of China’s intentions. What are the government’s ultimate objectives, and is its strategy properly conceived to achieve them? Second, I evaluate Beijing’s choice of means. This is a matter of China’s statecraft. Have the authorities chosen the right tools and instruments? Are the country’s power resources sufficient for the task at hand? Analysis suggests that while China’s strategy is soundly conceived, its chosen means may well prove inadequate owing to a range of practical limitations. The yuan’s tomorrow will remain a long way off.

The strategy

The challenge posed for China is clear. If internationalisation is to be achieved, the yuan must be able to compete effectively with other widely used currencies. It
must be made more appealing to market actors. The question is: can demand-side
preferences be successfully altered by state-led measures on the supply side?
Plainly, that is Beijing’s intent. The goal is not unreasonable. As the world’s
second largest economy and leader in global exports, China already offers the
foundation of a broad transactional network – a significant source of power.
Beijing obviously hopes to build on that foundation to enhance the yuan’s
appeal for various cross-border purposes. But whether the goal is attainable is
another matter entirely.

Though no precise date can be identified when Beijing first adopted the goal of
internationalisation, a key turning point came in 2006 with the publication of a
report on ‘The Timing, Path, and Strategies of RMB Internationalization’ by a
study group set up by the People’s Bank of China (PBOC), China’s central
bank (PBOC Study Group 2006). ‘The time has come for promotion of the inter-
nationalization of the yuan,’ the study group argued. Internationalisation ‘can
enhance China’s international status and competitiveness significantly [and]
will increase its influence in the international economy’. China will ‘have a greater
say’ and will enjoy ‘a rise in power standing’. We ‘should take advantage of
the opportunity’, the report concluded. Internationalisation is ‘an inevitable
choice’.

China’s leadership evidently agreed. Within government circles a distinct shift
of attitude soon became apparent, spurred in particular by the financial crisis that
struck the world economy in 2008. After years of hesitation in Beijing, interna-
tionalisation now quickly became official policy. By late 2009, as one observer has
put it, ‘The Chinese Government obviously changed its mind and became enthu-
siastic about RMB internationalization’ (Zhang 2009: 24). By 2011, interna-
tionalisation had assumed a place ‘at the heart of China’s financial strategy’, according
to an influential advisor to the PBOC.¹

But how was the goal to be achieved? Up to that point, China had one of the
most tightly controlled currencies in the world, hemmed in by all manner of
exchange and capital controls. How could cross-border use of the RMB be pro-
moted if the money was not easily convertible? Not surprisingly, the government’s
approach has been noticeably cautious, a careful choreography stressing gradual-
ism above all. As in so many areas of Chinese policy, strategy has developed
incrementally in multiple small steps, in hopes of moving successfully towards
internationalisation abroad without threatening control of the financial or political
system at home.

Effectively, internationalisation has been pursued along two interrelated tracks
(Subacchi 2010). One track focuses on building use of the RMB in foreign trade.
At the official level, currency swap agreements with foreign central banks have
been initiated facilitating use of the RMB as a means of payment. At the
private level, regulations have been gradually eased to permit more trade trans-
actions to be invoiced and settled in yuan, bypassing traditional invoicing curren-
cies like the dollar. The other track focuses on use of the RMB in international
finance. Emphasis has been placed on the development of active markets for
yuan deposits and yuan-denominated bonds, mainly ‘offshore’ in the autonomous
region of Hong Kong.
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Trade track

On the first track Beijing’s campaign got off to a start in late 2008, when the PBOC began a series of yuan swap agreements designed to provide RMB funding to other central banks for use in trade with China. Within two years pacts had been signed with eight countries comprising a total value of some 800 billion yuan (roughly $120 billion). Ostensibly, the aim of the agreements was to insure against the kind of risks that could come with another global financial crisis. The availability of RMB funding on an emergency basis would offer China’s trading partners a useful hedge against any future liquidity crunch. But the facilities were also designed to supply yuan, when desired, for use in bilateral trade on a more regular basis – in effect, to provide indirect encouragement for commercial use of the Chinese currency – though none has as yet been used for that purpose.

More directly, Beijing has gradually widened the range of trade transactions that may be settled in yuan, further promoting the currency’s use by non-residents. Informally, the RMB has long been accepted as a settlement currency in border trade with such neighbouring countries as Mongolia, Myanmar, Nepal, North Korea, Russia and Vietnam. More formal initiatives began in mid-2009, when a pilot scheme was launched allowing a limited number of enterprises in five Chinese cities to settle trade transactions in RMB with counterparts in Hong Kong, Macao and southeast Asia. Use of the yuan was authorised for export invoicing and import payments alike, and banks in the selected areas outside the Mainland were allowed to provide related RMB services (including currency exchange, remittances and trade finance). A year later coverage was broadened to include some 20 provinces and cities and to allow settlement in all parts of the world; and by the end of 2010 the number of Chinese companies authorised to participate had risen from the initial 365 firms to more than 67,000. Additionally, since September 2010, foreign enterprises have been authorised to open cross-border yuan settlement accounts at locally registered banks in China, further expanding opportunities for settlement of trade in RMB on a regular basis. By the first quarter of 2011, some 7 per cent of Chinese trade was being settled in yuan, up from essentially zero in previous years.

Finance track

On the second track Beijing has relied heavily on the special status of the autonomous region of Hong Kong, which offers a useful offshore laboratory for experimenting with innovations that the leadership is not yet prepared to introduce ‘onshore’ on the Mainland. Formally, the Hong Kong Monetary Authority (HKMA) – de facto, Hong Kong’s central bank and chief financial regulator – acts as an autonomous agent, independent of any influence from the Mainland. In practice, however, it seems fair to assume that no significant initiative affecting use of the yuan would be undertaken without tacit approval or encouragement from the Chinese government.

As early as 2004 the HKMA launched the RMB Business Scheme, allowing banks in Hong Kong to open yuan deposit accounts for individuals and some enterprises. But the offshore deposit market did not really begin to take off
until mid-2010, when new rules were issued greatly relaxing restrictions on the yuan activities of Hong Kong banks. Daily trading of the RMB on the Hong Kong foreign-exchange market was now permitted, and local financial institutions were, for the first time, allowed to open yuan accounts of their own, clearing the way for creation of a wider range of marketable financial products. The result has been a swift growth in the total value of deposits, from less than 65 billion yuan (C10 billion) at end 2009 to as more than 500 billion yuan (C75 billion) in April 2011.

Development of an offshore market for yuan-denominated bonds began in mid-2007, when selected Mainland banks were permitted for the first time to raise funds by issuing RMB bonds in Hong Kong. Progress in this sector, however, has been slower. In the next 2 years activity in the so-called Dim Sum market amounted to just 22 billion yuan (C3.3 billion), with issues mostly at very short maturity (2–3 years). Some acceleration came in 2010 when permission was extended first to Chinese non-financial firms and then to foreign multinationals doing business in China. Among the first non-Chinese companies to enter were McDonald’s, the fast-food chain and Caterpillar, the US-based maker of earth-moving equipment. But, overall, volume has remained light, in good part because of strict limitations imposed by Chinese regulators on how much of the proceeds of bond sales can be transferred for use on the Mainland. At mid-2011 the stock of bonds outstanding, after accounting for the retirement of maturing issues, stood at no more than 130 billion yuan (C20 billion) – minuscule by international standards.

Finally, parallel to the Dim Sum market, a nascent onshore market for yuan-denominated bonds, centred in Shanghai, has been cautiously cultivated since 2005, when debt sales by non-Chinese issuers – known as ‘Panda’ bonds – were authorised inside China for the first time. Progress here, however, has been slower yet, even after a well-publicised pledge by China’s State Council in 2009 to transform Shanghai into an international financial centre by no later than 2020. Initially limited just to ‘eligible’ multilateral development institutions, access to the Panda bond market was broadened in 2009 to include as well locally incorporated subsidiaries of foreign multinationals. But as of the start of 2011, there had still been only five issues in all for a total of just 5 billion yuan (C750 million).

**Strategic design**

Overall, there is little doubt that internationalisation has indeed assumed a place at the heart of China’s financial strategy. But an international currency, clearly, is not an end in itself. Rather, Beijing’s campaign must be seen as a means to promote more fundamental interests and aspirations. That raises the question of strategic design. What are Beijing’s ultimate objectives, and is the government’s strategy properly conceived to achieve them?

The question of design matters because internationalisation is by no means a journey with a single unique destination. Internationalisation involves multiple roles; the net benefits of individual roles may vary quite considerably and different moneys may embody diverse mixtures of roles. To design an internationalisation
strategy properly, a country's leaders must first know what their priorities are; and then, second, be sure to focus their attention on the combination of roles that is most likely to satisfy their ambitions. The task, needless to say, is easier said than done.

Roles and benefits

That currency internationalisation involves a multiplicity of roles is widely recognised by research specialists. There is, in fact, a standard taxonomy for characterising the roles of international money, which separates out the three familiar functions of money – medium of exchange, unit of account, store of value – at two levels of analysis: the private market and official policy, adding up to six roles in all. Sources generally speak of the separate roles of an international currency at the private level in foreign-exchange trading (medium of exchange), trade invoicing and settlement (unit of account and medium of exchange), and financial markets (store of value). At the official level, we speak of a money's roles as an exchange-rate anchor (unit of account), intervention currency (medium of exchange) or reserve currency (store of value). Though to some extent interdependent, each of the six roles is understood to be distinct in practical as well as analytical terms.

It is also widely recognised that internationalisation can also yield significant benefits for an issuing country. In a diverse scholarly literature stretching back decades, drawing from political science as well as economics, a total of some five broad classes of gains can be identified (Cohen 2011). Briefly, these include:

1. **Reduced transactions costs.** At the microeconomic level, residents of the issuing country benefit from their ability to do business abroad in home currency, thus lowering exchange risk. In addition, profits in the financial sector may be increased as foreign business can be expanded at lower cost.

2. **Seigniorage.** At the macroeconomic level, benefits are generated whenever foreigners acquire some amount of domestic money in exchange for traded goods and services. Cross-border accumulations represent an implicit economic transfer that constitutes a real resource gain for the economy as a whole.

3. **Macroeconomic flexibility.** Cross-border use of a currency can also loosen the constraint of the balance of payments on monetary and fiscal policy. The greater the ability to finance external deficits with the country's own money, delaying or deflecting adjustment costs, the easier it is for the government to pursue policy objectives at home or abroad. In effect, the autonomy dimension of power is enhanced. The benefit is typically thought of mainly in terms of economic advantage: the issuer has more latitude to manage domestic employment levels or price behaviour. But there is also an obvious political aspect insofar as relaxation of the external payments constraint augments the issuer's ability to promote foreign diplomatic or military interests as well.

4. **Leverage.** Influence, a form of 'hard' power, is a fourth possible benefit of an international currency. The autonomy that derives from macroeconomic flexibility, I have argued elsewhere (Cohen 2006), is vital to creating a capacity for leverage over others. Whether that capacity can be actualised, however, is
uncertain and rests on additional considerations. Key is the degree of dependence that is engendered as foreigners come to rely on the national money for any of several international roles. The dependence of others puts the issuer in a position to exercise influence through its control of access to vital financial resources.

5. Reputation. Finally, at the symbolic level, widespread international use of a currency can promote the issuer’s overall reputation in world affairs – a form of ‘soft’ power. Broad circulation may become a source of status and prestige, a visible sign of elevated rank in the community of nations. Influence may then be exercised through co-option and attraction to shape the preferences of others. Though difficult to pin down empirically, the importance of soft power in monetary affairs has by now been well established by historical and contemporary research (Cohen 1998, Helleiner 2003).

Not all of these five classes of gains, however, can be associated with every role of an international currency. To the contrary, it seems more reasonable to assume that the net effects of the separate roles might actually differ quite substantially, as I have suggested elsewhere (Cohen 2010, 2011). Consider, for example, a critical difference between the several medium-of-exchange and unit-of-account roles, on the one hand, and the two store-of-value roles on the other. Use of a currency in foreign-exchange trading, trade invoicing or for official intervention purposes will almost certainly generate some measure of gain at the microeconomic level. But only the store-of-value roles, which by definition imply some level of foreign accumulations, will generate any amount of seigniorage or macroeconomic flexibility for the issuing country – gains that could be quite substantial in magnitude. Neither seigniorage nor greater policy flexibility is possible unless non-residents are willing to acquire and hold significant amounts of the country’s currency, or assets denominated in the currency, as a store of value. This suggests that the economic benefits of internationalisation are unlikely to loom large if external use is limited alone to trade invoicing or the exchange market, which require minimal working balances at most. A considerable role in financial markets and/or reserves will be needed to make internationalisation really pay economically.

Or consider an important difference between the two store-of-value roles. Both roles enhance the autonomy dimension of monetary power, by relaxing external constraints on domestic macroeconomic policy. Through the enhanced ability to delay or deflect adjustment costs, a capacity for leverage is created. But can that potential be actualised? For two reasons, it seems evident that in this respect, the financial market role of a currency is distinctly inferior to the reserve currency role.

First, when compared with the reserve currency role, the financial market role offers fewer direct routes for the exercise of leverage. Use of a currency as an investment medium results from decentralised investment decisions in the open marketplace rather than from centralised government choices. The impact of any influence attempt, therefore, is bound to be more dispersed and diffuse, making it harder to target specific actors with self-conscious intent. When a money is held just by private investors, pressures can be brought to bear on
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others only indirectly. When the same money is held by central banks as part of their reserves, pressures on foreign governments can be applied directly, to much better effect.

Second, the financial market role also offers a lower degree of control over supply, again when compared with the reserve currency role. That is evident from the differing degrees of diversification that prevail in private markets and in official reserves. At the private level, as many as 8 or 10 currencies figure prominently in global finance. Given the high level of competition, few issuing states are in a position even to try to exercise deliberate leverage through manipulating the supply of their currency for investment purposes. At the official level, by contrast, where at most three or four currencies dominate – the dollar, euro and, to a much lesser extent, sterling and the yen – more room is offered for actualising influence.

Priorities and focus

Seen in this light, Beijing’s strategic design would appear to be reasonably well conceived. Attention seems to be focused properly on the combination of roles that is most likely to satisfy the government’s ambitions.

Of course, no one outside the ranks of China’s secretive leadership can be sure what the government’s priorities really are. It seems fair to assume, however, that aspirations must include political as well as strictly economic considerations. China may have an interest in saving on transactions costs or garnering a bit of seigniorage. But from all we know about Beijing’s ambitions for a ‘peaceful rise’ to great-power status, we have to accept that some measure of power is being sought as well – some degree of autonomy and, ultimately, greater influence in global affairs. As one informed source suggests, there may be an ‘economic China’ concentrated on economic development and modernisation. But there is also a ‘political China’ determined, above all, ‘to achieve and maintain power in an asymmetric power relation to Western superpowers’ (Li 2010: 13) ‘Great powers have great currencies,’ Nobel laureate Mundell once declared (1993: 10). Political China manifestly agrees.

Assuming that to be the case, Beijing’s strategy appears to be right on target. In a separate discussion (Cohen 2010), I have explored the relationship between currency internationalisation and state power. My analysis indicates that three of an international money’s six possible roles are of paramount importance in promoting an issuing country’s power. These are the roles in financial markets, trade and central bank reserves. The roles in financial markets and reserves enhance the issuer’s monetary autonomy, making it easier to delay or deflect adjustment costs. Autonomy in turn creates a capacity for influence, though whether that capacity can be actualised will depend on additional considerations that may vary widely over time. A currency’s role in trade is important, above all, because of its impact on the reserve preferences of foreign central banks. The currency composition of central bank reserves generally tends to reflect the pattern of currency choice in an economy’s international commercial relationships. The more a money is used for each of these three roles, the greater is its contribution to the issuer’s power.
It makes sense, therefore, for Beijing to have chosen the two tracks that it has pursued until now. The finance track is critical to establishing the appeal of the RMB as an investment medium, starting with bank deposits and bonds and then, presumably, moving on to a steadily widening range of financial products. Though the financial market role, on its own, is not apt to add much to China’s external power, it is an essential first step towards reserve currency status, which surely promises a greater measure of influence. A given money can play an investment role even if never used as a reserve currency. The reverse, however, is unlikely ever to happen in a market-based currency system. Monetary history suggests that the investment role comes first and then is followed by a reserve role in addition. Certainly that was the pattern followed by the pound sterling in the nineteenth century, which first found an international role as a consequence of London’s pre-eminence as a financial centre, and only later began to be held by central banks as well. Likewise, it was true of America’s greenback, which first rode the rise of New York as a rival to London for foreign lending well before it surpassed sterling as a reserve asset. It is necessary to think in terms of cumulative effects. A country whose currency is used as a store of value in private markets alone gains only the influence created by that role. But a state whose currency is used as a store of value by central banks too gains the cumulative effect of both roles.

The link is the trade role, owing to the vital part that the currency denomination of trade plays in determining which among several investment currencies will emerge as well as a favoured reserve asset. The issuer of an international money that is used as investment medium alone can aspire at best to little more than some modest modicum of power. But add widespread use for trade invoicing and settlement leading to a reserve role, and soon the issuing country becomes much more centrally placed in the global monetary network, enhancing its influence considerably. Hence the importance of the trade track, too. Beijing does seem to have gotten the design of its strategy right.

**Means**

But what about Beijing’s choice of means – its statecraft? Have the authorities chosen the right tools and instruments to make their strategy succeed? Are the country’s power resources sufficient to enhance the competitiveness of the RMB? In short, does Beijing have the power to successfully alter preferences on the demand side of the market? Here we may be permitted a greater measure of doubt.

Historically, preferences on the demand side have tended to be shaped by three essential attributes, as I have explained elsewhere (Cohen 1998, 2004). First, at least during the initial stages of a currency’s cross-border use, is widespread confidence in the money’s future value and usability, backed by political stability in the country of origin. The issuer must have a proven track record of relatively low inflation and inflation variability. It must also have a good reputation for respect of property rights and the rule of law. Second are the qualities of ‘exchange convenience’ and ‘capital certainty’ – a high degree of transactional liquidity and reasonable predictability of asset value. The key to both is a set of well-developed
financial markets, unencumbered by high transactions costs or formal or informal barriers to entry. The markets must be broad, with a large assortment of instruments available for temporary or longer term forms of investment. They must also be deep and resilient, with fully operating secondary markets for most if not all financial products. And third, the currency must promise a broad transac-
tional network to ensure an ample constituency for the currency, otherwise know as ‘network externalities’. This means an economy that is large in absolute size and well integrated into world markets. No money has ever been adopted widely for international use that was not initially backed by a leading national economy. To the extent that these three qualities have prevailed, a money’s appeal was enhanced, encouraging wide adoption.

In China’s case, however, only one of the three attributes is manifestly in evi-
dence – a broad transactional network. Economic size stands out as the RMB’s trump card: the principal power resource that Beijing brings to the international competition among currencies. The Chinese economy is already a giant among nations – the second largest in the world – and, if recent trends persist, could surpass the USA in as little as another decade. The country is also now global leader in exports and a major market for imports, creating a considerable potential for network externalities. In monetary matters, by contrast, China remains some-
thing of a pygmy, with little direct power. If demand-side currency preferences are to be successfully altered, it seems, it will have to be by exploiting China’s growing weight in the global economy, not by any inherent comparative advan-
tage in finance.

In fact, that would appear to be the government’s intent. Beijing is plainly counting on China’s immense leverage as a trading nation, rather than on any financial muscle, to shift preferences in favour of the yuan. At one level, it appears that the aim is to reshape incentive structures through the sheer size of the ‘economic China’. The hope, quite obviously, is that outsiders will be induced to shift to the yuan because of the added convenience it offers for doing business with an increasingly important trade partner. At a deeper level, the aim would seem to be to remould identities and interests by way of the ‘peace-
ful rise’ of ‘political China’. Internationalisation may spread because market actors come to be convinced of its legitimacy – in effect, a confirmation of the Middle Kingdom’s renewed prominence in the community of nations. To para-
phrase Mundell, outsiders may come to believe that as an emerging great power, China should have a great currency.

Both aims make sense. The importance of China’s transactional network is undeniable. Indeed, internationalisation of the yuan is difficult to imagine without it. It is surely necessary. But is it sufficient? As a power resource, is economic size alone enough to make the RMB competitive? About that an ample dose of scepticism is warranted.

The reason goes back to the multiplicity of roles of an international currency and the considerable differences among them. Economic size is clearly key to a money’s role as a vehicle for trade invoicing and settlement. In that respect, it is no surprise the yuan has already begun to establish itself as a trade currency. The share of China’s trade that is settled in RMB, though presently still low, can only be expected to grow. But economic size matters much less when it
comes to the other critical roles that Beijing appears to have targeted in its strategic design – use of the yuan as an investment medium and reserve currency. For those roles other attributes matter more, qualities that in China are still noticeably lacking. Though inflation has not been allowed to pose a serious threat to the yuan’s value, China’s political regime can hardly be said to inspire a high level of confidence among potential users. The ruling party remains autocratic in nature and often arbitrary in behaviour. The governance structure is not known for transparency or accountability in decision-making. It is not even clear whether, over the medium term, political stability can be assured. Nor can China’s financial structure be considered anywhere near adequate to provide the liquidity and predictability that market actors would expect. Onshore asset markets are rudimentary at best, and Hong Kong’s offshore market – while useful as a testing ground – is too small to carry the load on its own. And of course, as we know, the RMB remains largely non-convertible for residents and non-residents alike.

In effect, Beijing has tried to promote internationalisation on the cheap – to make as few concessions as possible in terms of either political or financial reform, hoping that economic size alone will manage to do the job. China’s leadership has shown little willingness to surrender any significant amount of control over either the central government or the financial sector. The ruling Communist Party still brooks no significant political opposition; money and finance are still subject to strict formal management. Judging from the carefully calibrated choreography that has been followed until now, it seems clear that policymakers understand that, eventually, diminished command is the price they will have to pay for an internationalised yuan. But in the spirit of Saint Augustine – who prayed to the Almighty for celibacy, just ‘not yet’ – it seems that Beijing would prefer to postpone the moment for as long as possible.

Should we be at all surprised, then, to see how little progress has been made on the finance track of Beijing’s strategy, in contrast to the trade track? To be sure, Hong Kong’s offshore deposit market has expanded healthily, but that is largely the result of the growing use of the RMB for trade settlement. In the all-important bond sector, progress has been painfully slow for both the Dim Sum and Panda markets. Potential borrowers have been discouraged by still strict controls over what they can do with the proceeds of their bond sales, as well as by a host of unanswered questions. Can China’s financial markets be adequately developed? Can political stability be assured? Can a government be trusted that remains so autocratic in nature? Will property rights be respected? Hesitation in the face of such uncertainties is only natural. It could be a very long time, if ever, before Beijing is able to provide persuasive answers.

**Conclusion**

In short, economic size alone does not appear to be enough to make the RMB competitive any time soon. A broad transactional network cannot easily compensate for other critical inadequacies. The separate roles of an international currency call for different kinds of power resources, and these resources are not necessarily interchangeable. In its choice of means – its statecraft – Beijing would seem to be relying too much on too little. This does not mean that internationalisation of
China’s money is impossible. But it does mean that progress towards the ‘yuan tomorrow’ is unlikely to be as smooth or as swift as many have predicted. The success of Beijing’s strategy is by no means guaranteed.

Notes

1. As reported by Dow Jones News Service, 17 February 2011. The advisor was Xia Bin, an academic member of the central bank’s monetary committee.
2. The eight countries are Argentina, Belarus, Hong Kong, Iceland, Indonesia, Malaysia, Singapore and South Korea. For details, see Chen and Cheung (2011).
3. As reported by the Wall Street Journal, 15 July 2011.

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References