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The Winner's Curse: Premature Monetary Integration in the NAFTA

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During the 1990s the NAFTA has stimulated a process of financial integration which was not properly anticipated at the beginning of the decade or regulated under the treaty arrangement. The secular process of private sector currency substitution ('dollarisation') stimulated by successive financial shocks now poses serious challenges for the conduct of North American monetary policy. Although the monetary calculus for a potential dollar area yields a positive outcome for peripheral members, historical experience suggests that the asymmetric impact of external shocks will require specific arrangements to contain the economic and social results. Further, the consequences of currency unification for capital markets under the gold standard, the sterling area, currency boards and the euro-zone have all meant that inter-governmental agreements for liquidity provision and prudential regulation have become necessary. This is the 'winner's curse': the success of North American market integration is necessarily leading to a degree of institutional co-operation that US legislators have desired to avoid.

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INTRODUCTION[1]

The progress of North American Free Trade Agreement (*NAFTA*) since its inception in 1994 has considerable implications for Latin American economic integration as a whole. Over half of all intra-regional trade within Latin America is with Mexico, while Mexico also accounts for over half of the trade between the US and Latin America. Mexico is the destination for most US investment in the region, and the origin of the bulk of immigration - both legal and illegal. NAFTA also represents a new standard for integration initiatives, particularly for those between developed and developing countries; and has had a profound effect on the design of multilateral trade and investment treaties. The three NAFTA countries now account for nearly a quarter of world trade; while trade between its members represents 40 percent of their total trade.

The NAFTA also represents a major departure in the economic and institutional relationship between the United States and the other nations of the Americas. On the one hand, it involves an explicit commitment to market integration - not only in goods but also in services and capital markets - with significant additional agreements in employment and environmental standards. On the other hand, NAFTA appears to involve an implicit step back from the traditional US commitment to multilateral agreements on free trade and open capital markets on a global scale – and possibly even a retreat into a regional trade and currency zone.

The first seven years of NAFTA have seen not only a rapid trade expansion between the partners but also a major financial crisis in Mexico. While the US administration has been willing to support the Mexican economy in crisis, very little institutional change has taken place in order to reflect the real degree of economic integration between the two countries. This policy of 'benign neglect' seems to have been justified in the case of commodity trade: the NAFTA passed a major 'stress test' in the form of a major peso devaluation in 1995 and a subsequent import surge into the US, without serious protective reaction. Although trade remains seriously unbalanced and the export of services such as road transport is still constrained by state-level restrictions, the periodic inter-governmental meetings seem capably of handling differences in an effective manner and furthering the integration process.

The same cannot be said of financial policy, where both the scale and direction of flows and the institutional arrangements are highly problematic, in view of the potential for macroeconomic disruption caused by periodic monetary crises. The increasing dollarisation of the Mexican economy and the exogenous nature of capital flows have severely reduced the capacity of domestic authorities to stabilise the economy. The need for greater understanding of the implications of the use of the dollar for the Mexican economy is evident. However, this is not just a matter of monetary cost-benefit in terms of seignorage loss and lower interest rates; or even only an issue of increased credibility

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and loss of adjustment capacity. The central issue is in fact the nature of the institutional arrangements that underpin any currency system – particularly the provision of liquidity and the regulation of capital markets.

This paper sets out to address this issue by examining a range of historical models for the use of an 'external currency' and then applying their implications for monetary relations between Mexico and the USA in the NAFTA context. Part 2 defines the nature of currency substitution, looks at some evidence on the use of the dollar and the peso, and sketches the main elements of the current debate on dollarisation in the region. The lessons of the gold standard and more recent currency board ('dollar standard') systems of apparently 'unmanaged' use of external money are drawn in Part 3. These suggest that last resort lending and supervisory co-ordination are still required except in special cases such as Panama. In Part 4 the post-WWII sterling area and the Franc Zone on the one hand, and the European Monetary Union on the other, are examined as examples of 'managed' external currency systems with varying degrees of participation by the member countries. Despite the provision of liquidity the need for common fiscal rules and the problem of asymmetric response to exogenous shocks are evident.

In Part 5 of this paper these two strands are brought together to provide an assessment of the monetary options available to Mexico, suggesting that membership of an extended Federal Reserve system would be both feasible and preferable in economic terms. However, the political economy considerations mentioned in the concluding Part 6 seem to imply that the institutional implications of further monetary co-operation may be unacceptable. This the 'winner's curse': the success of North American market integration is itself leading to a degree of institutional co-operation and implicit fiscal support that US legislators desired to avoid when establishing the NAFTA.

2. FINANCIAL INTEGRATION AND CURRENCY SUBSTITUTION BETWEEN MEXICO AND THE USA

Market integration lies at the heart of the explanation for the growth in both Mexican exports and imports. This might seem surprising under the conditions of currency volatility, which is why the increasing dollarisation of the private sector may be related to trade expansion. The dollarisation of the Mexican economy is evident, but difficult to measure, for two reasons. The first, and most obvious, is that the use of the dollar as currency in circulation within Mexico is not registered by either monetary authority; while Mexican assets in Mexico tend to be under-reported for fiscal reasons. The second, and possibly more important reason is because money does not just act as a means of exchange and store of value, but also as a unit of account. In other words, most large contracts and transactions in Mexico are now carried out implicitly in dollars, and peso prices will be varied automatically with the exchange rate – except of course wages.

The literature[2] makes an important distinction between: (a) 'normal' currency substitution based on the services supplied by both currencies and the risks of parity shift (including risk aversion), in other words a risk/return motive for holding assets and transactions motives; and (b) 'pathological' currency substitution based on uncertainty and a change in expectations thereof. Normal substitution can take place due to changes in return or risk, and also if markets are completed so that new assets are available.[3]

This leaves 'pathological' substitution essentially undefined. In the case of Mexico at least, a more convincing explanation might be that dollarisation is the path-dependent consequence of four factors:

(a) cumulative macroeconomic shocks leading to asset composition changes as wealth-holders (firms, banks and rich households) hedge their positions;
(b) reduced costs of dealing in foreign assets and liabilities, due to technological change, capital account liberalisation and the experience of doing so;
(c) fear of continued macro-shocks of the 'new' type;
(d) the transnationalisation of households themselves, in the form of migration (and remittances) for the poor, and reliance on education, health and consumer goods from the US (requiring large balances there) in the case of richer households.

The official estimate of the extent of dollarisation (see Table 3 below) in Mexico is that no more than 7 percent of total money supply is in dollar form in 1999, with a peak at 27 percent in 1994.[4] However, if to this 'dollar-M4' we add the US bank deposits and securities holdings by Mexican residents recorded by the US Treasury (see Table 4) then the figure is closer to 20 percent in 1999 with a peak of 44 percent in 1994. Vanderbeele (2000) carries out tests for the degree of dollarisation in Mexico since 1980 under this wider definition. Structural factors such as trade integration and regulatory changes explain the dollarisation trend over the long term, while 'pathological' factors such as exchange rate expectations and hysterisis are also present, especially during crisis periods. None the less, structural factors determine changes in the parameters of the money services function and have altered the substitutability of both currencies and thus the elasticity of currency substitution.

However, there is good reason to believe that dollarisation is much more extensive in Mexico than these figures indicates. The recorded holdings of US securities seem much too low in view of at least two decades of capital flight, while there is no estimate of dollars in the hands of the Mexican public. The implicit portfolio balance between US bank deposits and securities seems implausible. If we allow for some US$ 10 bn in securities (rather than the $ 1 bn recorded) plus a further $ 5 bn for circulating currency

[2] See Calvo and Vegh (1992), Giovannini and Tutelboom (1994), Guidotti and Rodriguez (1992), McKinnon (1982), Ramirez (1985), Ortiz (1983), Tavlas (1997). Finally, IMF (2000) even has a 'box' on dollarisation, but appears to confuse it with a fixed exchange rate regime, which misses the central point.
[3] Thomas (1985) suggests that this normal/pathological distinction can be defined in quantitative terms as the point where the elasticity of substitution in response to exchange rate change is greater than unity.
[4] This also the definition used by the World Bank in its webpage on dollarisation (http://www.worldbank.org/dollarization)

(the reserve money in pesos is equivalent to $20bn), then the true 'dollar money supply' available to Mexican residents would be of the order of one-third of the dollar equivalent of the domestic money supply.

The main concern in the early literature in the 'monetary approach to the balance of payments' tradition was the effect of currency substitution in reducing the effectiveness of monetary policy. This argument was then developed in order to explain the lack of effect of monetary expansion on the exchange rate: increased money supply was held to lead to increased currency substitution. Mundell (1961) also stresses the importance of factor mobility (both labour and capital) as a shock absorber within a currency are even if production structures are not symmetrical; this mobility can compensate for the loss of the exchange rate instrument. Mexico would clearly qualify here. Wage flexibility will also be important insofar as labour cannot move freely. Over the crisis, real wages fell by some 30%, similar to the real exchange rate adjustment. Openness of the economy is also held to be important (McKinnon, 1963), and would clearly be a positive factor for Mexico.

However, the experience of EMU has raised a number of other factors, particularly the credibility of exchange rate arrangements and time-inconsistency in governments' fiscal and monetary policy. Countries with similar economic structures are held to respond similarly to shocks (whether trade or financial) then symmetrical (ie common) responses will be appropriate. If structures are different, then disturbances will be asymmetrical and the policy response should be asymmetric too. Further, with a dominant economy (eg US) in the currency area, shocks will be transmitted to the other members (eg Mexico) rather than the other way around.

In contrast, the need for similar inflation rates (eg EMU convergence criteria) is clearly not met at present; although it should be noted that high-inflation countries can converge very rapidly under a *credible* currency conversion - as the Argentine experience indicates. Finally, fiscal integration is held to be important (eg replacing devaluation by transfers for adjustment, tax harmonisation etc) but there is little or no prospect of this. In consequence, currency union would force adjustment back on real wages, unemployment and public expenditure. This may seem regressive, but of course in a semi-dollarised economy devaluation has any asymmetric effect in any case – benefiting those with dollar assets and prejudicing those paid in pesos.

The function and power of the central bank are clearly undermined by dollarisation. As the central bank cannot issue the external currency, the domestic money supply is no longer a policy instrument and the economy may be forced to operate without as a 'lender of last resort'(Caprio, 1996). Banks lose asset value during crises, but retain their liabilities; so LLR is brought in to transfer wealth to depositors/creditors. Some access to assets, tax receipts, credit lines or the issue of currency/reserves must be available to the LLR in order to buy assets at prices which the market considers unrealistic at the time. As these crises usually involve a shortage of liquidity and the central bank creates this, the LLR function is typically assigned to the central bank.

However, this function can be carried out by other actors with access to external funds who can make corresponding asset purchases: the government (the treasury or even an agency such as the state pension fund); another central bank; or even the private sector – typically the head offices of banks with branches or subsidiaries in the host country. Dollarisation of the private sector would eliminate exchange rate risk, and thus one of the major causes of liquidity crises (from attacks on the exchange rate affecting institutions with unhedged balance sheets) and bank runs. It does not, however, eradicate credit risk or the effect of exogenous interest rate (or price) shocks.

However, as Calvo and Veigh (1992) point out, continued fiscal imbalances may force the private banks to lend to the government and to those previously relying on liquidity provision, which increases their bad loan book and then causes bank runs. A high interest-rate T-Bill market as an alternative 'solution' to the fiscal problem leads to longer-term solvency problems and causes the banks to disintermediate.[5]

3. USING AN 'EXTERNAL MONEY': THE GOLD STANDARD AND CURRENCY BOARDS

The 'classical' gold standard system that operated between 1870 and 1913 was, for the participating countries, an apparent equivalent to moving to a 'dollar standard' today. Participating countries declared parities against gold, with implicit cross-rates to be enforced by arbitrage in bullion. Capital controls were largely absent, and although governments did try to influence international lending levels, they had little information on their balance of payments position and thus could not target the current account. In fact, capital flows were very large relative to the size of national economies and their mutual trade during this period. There was also a remarkable co-movement of domestic prices between the leading economies during this period, including long episodes of deflation, due mainly to the flexibility of nominal wages and a large pool of reserve labour. Long-term interest rates were remarkably stable and converged gradually to the 3-4 percent range, due not only to the gold and capital arbitrage but also to increasing confidence that the system would be maintained.[6]

During the Great War the system broke down, and although it returned in the mid-1920s it proved unsustainable as persistent payments imbalances threatened to exhaust the reserves of deficit countries and deflationary pressures worsened unemployment and augmented the burden of mortgage debts.[7] In this inter-war period it was the 'periphery' – that is, Latin America and the Dominions - that was most seriously affected. Argentina and Uruguay suspended payments in 1929, while Canada introduced monetary

[5] This was the result of the currency board system in Argentina during the 1990s, where the government was forced to abroad not only to cover its own fiscal deficits but also in order to provide liquidity to the banks, leading eventually to debt insolvency and an IMD bailout in 2000.
[6] Eichengreen, 1994.
[7] Eichengreen, 1992.

restrictions equivalent to devaluation. Brazil, Chile, Paraguay, Peru, Venezuela, Australia and New Zealand all suspended gold convertibility, and their currencies immediately fell below par.

Thus although the gold standard system did stabilise exchange rates and had a dramatic effect on balance of payments deficits, it did not engender much stability in domestic variables such as money supply or growth or employment. In consequence, it failed to stabilise price levels and real interest rates – in other words, output and employment were unnecessarily sacrificed to external equilibrium.[8] It is also evident that the gold specie flows, through which adjustment was to take place in principle, were quite low compared to the balance of payments adjustments that took place. In practice, the adjustment mechanisms were a combination of Keynesian output shifts and trade multipliers on the one hand, and large capital flows between banking centres and participating countries on the other.

The gold standard system was of considerable advantage to the 'core countries' (UK and France) which managed the system, as the world's capital markets were thus in London and Paris, with depth on which their governments could borrow cheaply and massively.[9] They could also use this dominance in order to influence the policies of smaller European and other peripheral countries. The two central banks intervened heavily in the market to stop volatility; they issued government bonds to bolster their reserves, which were always low, and cooperated closely – both before 1913 and more intensely after 1919.[10] However, the system relied extensively on *private* banks such as Rothschilds using their gold balances as the two central banks never had sufficient gold and in particular to support the Bank of England and the Bank of France in the 1907 crisis.[11] The point here is that private capital flows were not entirely guided by immediate arbitrage gains, but by the longer-term advantages to large banks of supporting international monetary stability.

The adoption of the gold standard by the industrialised countries meant that Latin America did not have to balance bilateral trade: exports to the US which were used to pay for imports from Europe until the breakdown of the gold standard in 1913 lead to severe disruption.[12] On independence Latin America had inherited a motley circulation of silver and gold coin; and the decline of silver prices after 1870 left those countries that were not on the gold standard on a *de facto* silver standard. As this latter became indefensible so they retreated onto paper money. However, subsequent inflation led to most countries attempting to get onto the gold standard by the end of the century, even though many did

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[8] See Hallwood and MacDonald (1994), Chapter 13.
[9] Note that the main source of fiscal deficits then was military, not social expenditure.
[10] "The biggest difference between the pre-1914 gold standard and the old exchange system of the 1920s was that two of the most important players – the United States and France – bent the rules by sterilising additions to their reserves in order to avoid domestic inflation. Without central bank co-operation, the system could not survive." (Furguson 1998, II, 462)
[11] Indeed as early as 1825 the Bank of England itself was bailed out by Rothschilds (Ferguson, 1998: I, 136). Rothschilds became involved in forcing stabilisation policies on Brazil throughout the nineteenth century, including large coffee purchases (II:346-7); gold mining for supply in South Africa and gold price 'fixing' (Furguson II 352-3).
[12] See Bulmer-Thomas (1994).

not have sufficient gold reserves. Argentina, Brazil and Chile solved this problem by collecting taxes in gold and entered early. Others - Costa Rica, Ecuador and Peru – had hardly joined by 1913, while Caribbean countries adopted the dollar instead. However, rising commodity prices during the pre-war decades meant that lack of export competitiveness was not a general problem. Where domestic inflation in non-traded sectors affected costs, tariffs were often used to achieve effective devaluation.

The Great War meant the end of the gold standard system and the movement of capital, leading to suspension of convertibility and wholesale debt default. However, even in the classical period, the way in which the gold standard (supposedly) operated between industrialised economies was not really relevant to Latin America. Balance of payments difficulties arose from terms of trade shocks rather than fiscal imbalances, and could not be corrected by relative price shifts domestically in order to promote exports. Any inflow of gold after export price rises led inevitably to unsustainable import levels. Thus even in the classical gold standard period, Latin America tended to suspend convertibility in periods of gold outflow.

During the 1920s, some countries adopted gold standard for the first time (eg Bolivia) and others returned (including Argentina, Brazil and Mexico) precisely because of the automatic stabiliser it provided.[13] However the decline in exports was so severe after 1929 that gold reserves evaporated and three countries (Argentina, Mexico and Uruguay) suspended the gold standard before the British decision to stop selling gold and foreign exchange on demand in 1931. Most countries introduced exchange controls and rationed imports until forced off the standard by US suspension in 1933. The result was relatively positive because declining fiscal receipts from trade duties led to expansionary monetary stances, which stimulated domestic demand and promoted a rapid recovery from the Great Depression despite the massive trade shock.[14]

In contrast, Australia and Canada stayed on the gold standard without excessive strain between 1890 and 1913. Unlike Latin America, Australia and Canada had no independent monetary authorities and thus could neither play by 'the rules of the game' or break them. As neither Dominion could sterilise capital flows, it was the international mobility of capital rather than adherence to gold standard rules as such which made the system work smoothly.[15] This may suggest that Argentine being driven off the gold standard in the 1890s while Australia was not, despite its depression in that same period for much the same reason, was due to sustained capital market access. This access in turn can be seen as a reputational benefit of credible membership of the sterling-gold zone derived from Dominion status, which made exit more difficult and ensured support from London.

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[13] Diaz-Fuentes (1999).
[14] See Thorp (1984).
[15] Dick, Floyd and Pope (1996) use a portfolio model of balance of payments adjustment that treats asset markets in a world-wide general equilibrium framework with imperfect capital mobility, which gives a better understanding of the way in which the gold standard really worked than the price-specie-flow mechanism of adjustment espoused by Taussig and Viner.

Currency boards may appear to provide a modern parallel to the gold standard system based on the dollar or a basket of international currencies. Although the domestic money supply is no longer a policy instrument in the sense of being linked to the external reserve position, there is no open access to foreign money. There is no *official* lender of last resort (LLR) in the form of a central bank under a currency board system.[16] However, in practice other actors with access to external funds can make the corresponding asset purchases: the government (the treasury or an agency such as the state pension fund); another central bank; or even the private sector (head offices of banks with branches or subsidiaries in the host country). This tends to cause further instability because continued fiscal imbalances[17] may force the private banks to lend to the government and to those previously relying on liquidity provision, which increases their bad loan book and then causes bank runs. A high interest-rate treasury bill as an alternative 'solution' to the fiscal problem leads to longer-term solvency problems and causes the banks to disintermediate.[18]

For instance, Berg and Borenszreib (2000) examine the costs and benefits of full dollarisation as compared to a currency board, taking Argentina as the test case. The benefits include lower international borrowing costs, which they quantify by looking at the effect of currency risk on the default risk component of international (ie dollar) borrowing costs. The quantified costs are the loss of seignorage (much less than the interest rate gain) but the effect of having no easy exit option and the absence of a lender of last resort are only discussed qualitatively.[19] They also argue that optimal currency area criteria such as convergence with the US economy are not relevant to this case.
For instance from 1996 the monetary authorities in Hong Kong assumed explicit responsibility for the provision of LLR facilities to banks experiencing day-to-day liquidity shortages. In 1998 banks were given unrestricted access to liquidity through repurchase agreements using the Exchange Fund (which holds the Hong Kong foreign exchange reserves).[20] However, it should be noted that 90 percent of deposits are concentrated in one bank and its subsidiaries; and as this bank was well diversified internationally, systemic risk was reduced and the LLR function was implicitly provided 'internally'. Again, Argentina in the early 1990s strict application of the currency board system shifts LLR responsibilities to the private sector (as had been the case of Canada before 1935, or indeed Scotland under the free banking system during the eighteenth and nineteenth centuries). This was made viable by the fact that all but one of the domestic

[16] Banks lose asset value during crises, but retain their liabilities; so a lender of last resort (LLR) is brought in to transfer wealth to depositors/creditors. Access to assets, tax receipts, credit lines or the issue of currency/reserves must be available to the LLR in order to buy assets at prices which the market considers unrealistic at the time. As these crises usually involve a shortage of liquidity and the central bank creates this, the LLR function is typically assigned to the central bank.
[17] Which themselves may result from the need to bail out fragile banks by taking over their bad loan books.
[18] As Calvo and Veigh (1992) point out
[19] In fact, as mentioned above, Argentina has two lenders of last resort: the Argentine treasury borrowing on New York and London, and the foreign banks located in Buenos Aires borrowing from their head offices.
[20] The HK authorities also bought up (with the public sector pension fund) a third of the Han Seng to provide non-bank liquidity and confidence.

banks were foreign-owned, and could thus rely on its head office (or in the last resort, the home country central bank) as LLR.

Finally, there is the case of Panama. Under treaty arrangements established on independence, dollars serve as legal tender and are the only (paper) fiat money.[21] There is no central bank, money creation or exchange rate or interest rate policy as such - the minimal differential reflects the (low) default risk. The treaty arrangements ensure the supply by the US Treasury of fiat money to meet banks' requirements to replace old notes or for cash against deposits in US banks. There is no provision for LLR as such, although most banks are foreign affiliates and thus can rely on home country facilities. Moreover, in Panama the money supply (deposit money in this case) is comparatively small and the banking system has a very strong reserve position, as the large dollar inflows were mostly converted into external assets. Above all, Panama represents no systemic risk to the US economy.[22] The implications are two: on the one hand this model requires the core country to assume explicit responsibility for fiat money supply; and it is also only viable in small economies where the banking system is not heavily committed to the domestic economy – that is, in offshore financial centres.

Note that in Panama, the money supply (deposit money in this case) is comparatively small: in 1999 'deposit money' (the only type recorded) was US$ 1 bn as opposed to $42 bn in Mexico and $1462 in the US. However, the banking system has a very strong reserve position (by definition), to match the very low official forex reserves of less than $1 bn (Mexico is 32) in 1999. Panamanian interest rates are only 1-2 percent above those of the US. Above all, Panama represents no systemic risk to the US economy.

4. CONSTRUCTING A CURRENCY ZONE: THE STERLING AREA, THE FRANC ZONE AND THE EMU

The heyday of this dollar standard was the nineteen-fifties and sixties, and as the dollar was the only reserve currency, it was the rest of the world (RoW) which intervened in foreign exchange markets in order to stabilise parities. The RoW held their reserves in US Treasury securities rather than Federal Reserve liabilities, which implied a passive sterilisation of US payments imbalances, while the RoW was unable to sterilise the effects of capital flows on their own money base. In consequence, currency substitution

[21] The only other such treaty is with Liberia.

[22] In 1999 'deposit money' (the only type of money recorded) was US$ 1 billion as opposed to $1462 bn in the US. However, the banking system has a very strong reserve position (by definition), to match the comparatively low official reserves of less than $1 bn in 1999.

out of (into) the dollar raised (lowered) the world's money base as a whole.[23] Significantly, the Bretton Woods system broke down because of the costs to the core member (the US) of maintaining the stability of the core currency (the dollar) in the face of fiscal deficits.[24]

An alternative approach to the use of an external currency in the post-WWII period was the arrangement in place between the UK and the Sterling Area participants during the 1950s.[25] Post-war arrangements with the aftermath of empire were dominated by the desire to retain trading arrangements and the role of sterling as an international reserve currency in the face of the 'dollar shortage'. The UK maintained capital controls for all payments outside the Sterling Area, whose members kept their reserves in London (in sterling) and enforced common currency controls with the UK. The sterling balances were liabilities for the UK, of course, and exceeded UK foreign exchange reserves (ie dollar balances) by four or five times; although they were to some extent matched by UK direct investment (ie fixed assets) in member countries. The currency zone was thus underpinned not only by trade flows, but also by capital movements. The system was finally undermined by the desire of members to switch to a stronger reserve currency (the dollar) and to lift capital controls on the one hand. The relative economic weakness of the 'central banker' for the zone (the UK) relative to both members and to the rest of the world, was also a key causal factor.

The other post-colonial model, which has survived rather better, is the CFA Franc/Euro arrangement in West and Central Africa.[26] The members benefit from a fixed exchange rate against the French Franc (now the Euro) which is adjustable in consultation with the French authorities. Full convertibility is guaranteed by the French Treasury for those currencies emitted by the Bank of Central African States and the Bank of West African States respectively. In turn, these two central banks deposit at least 65 percent of their foreign exchange reserves with the French Treasury, at market-related yields. As these balances can be both positive (from accumulated external earnings and aid transfers) and negative, an automatic 'overdraft' facility is available; but member countries enter into formal commitments to limit fiscal deficits. The key consequence is the unlimited convertibility of the CFA Franc into Euros, which is complemented by full cross-convertibility of currencies within the zone and free capital movements.

Although the CFA system came under strain with the devaluation of 1994 (after various commodity price shocks), leaving a legacy of debt, it has performed well as a whole.

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[23] McKinnon (1982) supposes that world money demand is a stable function of income but that substitution into and out of the dollar is unstable and depends on exchange rate expectations. Under these circumstances (an extreme case of the so-called 'N + 1 Problem') only the US money base is directly controlled; so that of the rest of the world depends on the domestic assets of the Federal Reserve.

[24] The parallel with the US current account deficit thirty years later is cause for concern – dollarised economies can only hope for a 'soft landing'.

[25] See Schenk (1994) for a complete account. The members included the Commonwealth (except Canada) and related countries in the Middle and Far East. The system effectively came to an end with the 1958 devaluation of sterling.

[26] Created in 1939 as the Franc des Colonies Francaises d'Afrique, it is now called Franc de la Communautee Financiere d'Afrique. It covers 14 African countries. See Hadjimichael and Galy (1997).

One of its shortcomings is that the countries inside the zone do not form an optimal currency area between themselves –. The strength of the system is its market credibility, which is provided not so much by the backing of the French Treasury (which in practice manages to manage the system so that member balances remain positive) as the economic and political cost of withdrawal. Although the Euro does not appear to circulate as such, it certainly 'backs' domestic money in a more effective way than a currency board (with no external discipline of LLR) would do – while allowing for devaluation in response to a persistent misalignment. The equivalent setup in the case of Mexico, would involve the Banxico holding its reserves with the Federal Reserve against an overdraft facility and some sort of stability pact as 'operating rules' as in the CFA. Full convertibility at a fixed (but not irrevocable) rate would be ensured in this way.

Early debates on the European Monetary System and Monetary Union were not dissimilar to current discussions of dollarisation in the Western Hemisphere. Initial expectations were that member countries would not meet the fiscal targets necessary nor legislate for the required labour market flexibility. [27] These were felt to be necessary because price stability in the region as a whole would require a strict limit on aggregate money supply, and that individual members should not be allowed to borrow directly from the central monetary authority in order to prevent moral hazard. In consequence, with unified interest rates the only adjustment mechanism available to asymmetric shocks would be labour costs. Given the level of social entitlements built into the 'European Project' the only option was employment flexibility.

The benefits of monetary unification were held to include: (i) increased allocative efficiency due to reduction of exchange rate risk, although shocks might be transmitted to the bond market; (ii) risk adjusted interest rates would fall, leading to increased investment and growth; (iii) avoidance of overshooting, misalignment of exchange rates and currency speculation; (iv) payments can be made in own currency rather than in dollars requiring trade surpluses with the US; (v) savings in transactions costs estimated at half of one percent of European output; (vi) gains in monetary credibility for high inflation countries, above all in Southern Europe; (vi) trade promotion effects due to reduced price uncertainty.

The costs of monetary unification were considered to include: (i) the loss of adjustment capacity, which depends upon how well demand and supply shocks are correlated – it was felt that these were better correlated in US than in EU[28]; (ii) built-in fiscal and wage inflation pressure would force excessive deflation for long time after unification; (iii) low wage member countries would attract 'broadening' investment while high income ones attract 'deepening' (high wage and value added) investment so that structural subsidies would be necessary to ensure productivity convergence; (iv) a single monetary policy would not suit all members due to very different financial structures[29]; (v) the strong constraints on fiscal policy would be politically unsustainable.

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[27] Hallwood and MacDonald (1994), Chapter 14.
[28] Which were also felt to be true to the faster adjustment of *non-traded* prices in the US.
[29] Which disrupted the EMS in 1992.

The central point in the traditional analysis[30] was that factor mobility is crucial in order to keep the real exchange rate steady as well as the nominal parity. The example given (of course) is labour mobility, and without wage flexibility, unemployment can result. However, the experience of EMU has raised a number of other factors, particularly the credibility of exchange rate arrangements and time-inconsistency in governments' fiscal and monetary policy. Countries with similar economic structures are held to respond similarly to shocks (whether trade or financial) then symmetrical (ie common) responses will be appropriate. If structures are different, then disturbances will be asymmetrical and the policy response should be asymmetric too. Further, with a dominant economy (eg Germany, or in our case US) in the currency area, shocks will be transmitted to the other members (eg to Spain or Mexico) rather than the other way around.

Subsequent theoretical advances in the analysis of market expectations on the one hand and the experience of fiscal adjustment (the Maastricht Treaty) and the relatively smooth introduction on the Euro, have led to a considerable shift in opinion as to the relevant criteria.[31] It is clear that members must agree on the monetary policy rules, but a problem of credibility remains if the new monetary institutions (i.e. the ECB) have no reputation in capital markets.[32] Moreover, if one member is economically dominant, the transmission of the business cycle to the periphery will be exacerbated – particularly if the latter is subject to asymmetric terms of trade shocks.[33] However expectations are central to success: the credibility of low inflation cause lower interest rates and thus outweigh the increased adjustment costs. The gains to the core economy (or economies) are not quite so clear; indeed its own credibility will be diminished by its LLR role – or at least the pressure to adapt interest rate policy to the broader needs of the zone.

The size of the Euro capital market now approximates that of US. [34] In fact, European monetary unification is about capital market integration as much as fixed exchange rates as such: it is profoundly changing the financial structure of Europe.[35] In consequence, the direct effects such as the elimination of currency risk foreseen in the Ceccini Report[36] are now considered to be less important than the indirect effects such as larger bond and equity markets, mergers of banks and stock markets. These in turn lead to further pressure to introduce further reforms in order to reduce the cost of intra-EU transactions and to increase the depth and liquidity of European financial markets. Finally, appropriate regulatory structures are gradually emerging in response to these changes, despite the fact that the powers of the European Central Bank were originally confined to money supply in the pursuit of price stability.

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[30] E.g. Mundell (1961).

[31] See de Grauw (1992), Danthine, Giavezzi and von Thadden (2000), and Detken and Hartmann (2000).

[32] If the Federal Reserve exercised these functions for a dollar zone, this would not be such a problem.

[33] Which in the case of dollarisation would include relative price shifts *within* the US economy.

[34] Danthine, Giavezzi and von Thadden (2000)

[35] Detken and Hartmann (2000) find that for most market segments, the euro immediately became in 1999 the second most widely used currency for international financiang and investment. International bond and note issuance overtook the dollar in the second half of the year. The investment role of the euro is not so dynamic, as most of the early external asset supply of the euro is actually adsorbed by euro-area residents.

[36] EC (1990).

5. ASSESSING THE MEXICAN OPTIONS FOR MONETARY INTEGRATION

Although Mexican economy is increasingly integrated to the US economy, their business cycles are not highly correlated because of the vulnerability of Mexico to repeated financial crises. These in turn are followed by large demand adjustments (as in 1983 and 1995) and although trade recovers quickly, investor confidence tends to recover much more slowly.

The benefits to Mexico would thus be the reduction of the risk premium, possibly towards Canadian levels. This would reduce foreign and domestic borrowing costs considerably (Table 3). As Table 5 and Figure 1 suggest, the gains would be very large – affecting both fiscal resources and domestic investment levels very positively. On government debt alone, a 100 basis point reduction in the dollar yield spread costs would be equivalent to a saving of $1 billion a year. Probably as important would be the reduction in variability of interest rates and thus in business uncertainty, leading to a stimulus to fixed investment and thus competitiveness.

A major concern in European (and other) discussions of currency unification has been the seignorage loss, and specifically the cost of replacing the money supply. The net cost depends on how money supply is interpreted, because reserves are no longer necessary. At the simplest level, reserve money in Mexico is equivalent to $20 bn, and is backed by $32 bn of official reserves (see Table 1). However, if wider money supply M4 in national currency is *all* a potential liability against Banxico, then this has a value of some $200 bn - 5 times reserves. It should also be noted that the large net exposure position of the banks is only just balanced by the Banxico reserves. Further, there is a short-term government debt rollover of at least $100bn a year (which triggered the 1994-5 crisis). In other words, the reserves are collateral for a number of different things at the same time.

Unlike in the EMU – and possibly Canadian – cases, seignorage is not really an issue here. $30 billions in reserve money implies $1bn a year in increased money supply in real terms for 3 percent GDP growth. This is about 0.2 percent of GDP, and 1 percent of fiscal income. However, in terms of the risk premium on foreign borrowing; with external debt of government at $ 100 billions, then a reduction of 100 basis points in the spread would exceed this cost – while the present spread is of the order of 400 basis points. In other words, the likely reduction in the risk premium would far outweigh the seignorage loss.

Further, as Table 2 indicates, overall Mexican debt has stayed remarkably stable in dollar terms at around $100 billions: the main change is the shift from domestic to foreign holdings up to 1995; and then the switch back afterwards, so 1999 looks very much like 1993. However two thirds of this is held by residents abroad.[37]

The 1994-95 peso crisis clearly indicates the importance of the LLR function in Mexico. The Mexican banking system was extremely vulnerable, and *dollar* as well as peso

[37] Note that in the case of Spain (1998) 25 percent of debt is held by non-residents.

liquidity had to be supplied by the national authorities; the latter was not too problematic (although pressure for restrictive monetary and fiscal policy difficult) and ultimately took the form of the government taking on bank's bad loan books. Dollar liquidity was provided in the event by the US authorities, although without sufficient speed (or advance warning) to support the peso and prevent the collapse of the banking system.[38]

In view of the size of the Mexican economy and financial system, the simple 'panamanian' solution of a currency treaty to allow Mexico to use dollar bills is hardly a feasible solution. On the one hand, the Mexican financial system would require an enormous capital expenditure (of the order of $200 billion) to convert peso into dollar assets; Panama having built these up over nearly a century and in receipt of large dollar inflows which were converted into external assets. This contrasts with membership of a federal reserve system (when the US authorities would simply exchange peso notes for dollar notes at nominal printing cost) or CFA-type system where only the external reserves are handed over (with monetary rules) in exchange for parity underwriting. In short, it would require a tripling of Mexican external debt. On the other hand, the US authorities would – by allowing use of the dollar- be committed not only to supply of currency but also to an implicit support for the economy (which could no longer adjust thorough devaluation); and this could not be conceded without some control over monetary policy.

This argument, in combination with the high degree of trade and investment integration between the US and Mexico, would seem to imply that a dollar equivalent to the Euro/CFA area is the logial solution. Moreover, the reserve currency in question (the dollar) is fully convertible and the US economy is much stronger in relation to Mexico. It is true that the present overvaluation of the dollar and the chronic US current account deficit (as well as the recovery prospects of the Euro and the Yen) imply a considerable potential for dollar devaluation. However, this would not have the same effect on Mexico (or Canada) as it did on Sterling Area members because the former are far more integrated with the US economy than the latter were with the UK. As in the case of the CFA, the key steps would be three: first, the transfer of Mexican reserves to the Federal Reserve or the US Treasury in some agreed proportion of the peso money supply; second, the fixing of an exchange rate which can be credibly maintained; and third, a commitment by the US authorities to maintain the agreed exchange rate. This in turn would require agreement on the operating rules for fiscal and monetary policy in Mexico.

Whatever the principles of optimal currency areas might indicate, in view of the degree of dollarisation in practice in Mexico, and the extent of US intervention during the 1994-95 crisis, a logical step worth examining is that of the Banco de Mexico (Banxico) being called upon to assume the functions of the '13th US Federal Reserve Bank'. Membership of the Federal Reserve System includes depository, supervisory and government serve functions as well as the contributions to monetary policy (and the right to call on other

[38] The degree of Federal Reserve concern and involvement is evidenced in the minutes of Federal Reserve meetings at the time. See *www.bog.frb.fed.us/fomc/Transcripts/1994/940324ConfCall.pdf* [March 24 conference call on Mexico]; */941220Meeting.pdf* [Dec 20 meeting]; */941230ConfCall.pdf* [Post-crisis emergency conference call on December 30 1994]

members for liquidity). Examining these functions is important because it indicates not only the scope of Fed membership, but also implies that if (as is very probable) this does not occur, then the functions will have to be taken on by another institution.

The depository function of the member banks include the replacement and circulation of fiat money and the management of the reserves required of depository institutions. Reserve banks also handle receipts of Treasury funds (eg income tax payments), and issue and redeem public debt in various forms. These are functions that the Bank of Mexico carries out at the national level 'in pesos'; and these could also be carried out for the Mexican authorities under an integrated monetary system; indeed it could carry out similar functions for other US federal agencies.

The supervisory and regulatory functions of reserve banks include the monitoring of domestic and foreign banks and bank holding companies in their territory. The Banxico doesn't do this, but the Superintendicia de Bancos does, and the function could be transferred. The Superintendencia also regulates securities markets; which would require a link with the SEC. Indeed this latter step is probably inevitable anyway as most stocks are traded on US markets. Nonetheless, participation in the federal supervisory system (involving information exchange and taking part in the drafting of financial regulations) does pose constitutional problems for both countries in principle – although in practice the political problem would be greater north of the Rio Bravo.

The crucial issue is thus the ability of a federal bank to set and influence monetary policy. There are two quite different features of this relationship. On the one hand, Banxico would lose its own reserves and the ability to set interest rates through open market operations, and would be thus unable to help domestic banks in difficulty unless the Governors of the Federal Reserve approved of such an action – committing the overall 'pool' to such support. This would, of course, have far more market credibility than at present. On the other hand, the president of Bancixo would presumably serve, in rotation, on the Federal Open Market Committee, which makes monetary policy for the US economy as a whole – which would raise important constitutional issues (taken up below) but not economic ones. As we have seen the former loss would not be significant, the problem being the latter gain.

Finally, the relative size of the two economies means that the implicit expansion of the dollar money supply would not be sufficient to mean that any future Mexican difficulties would affect the value of the dollar as such, which would continue to be underpinned by the strength of the US economy. The Mexican money supply (see appendix) is only equivalent to 3 percent of that of the US; the reserve money ratio is similar.

Of course similar considerations apply to Canada. Buiter (1999) considers a North American Monetary Union (NAMU) from the point of view of Canada, which currently has a flexible and an inflation and looks at (a) the adoption of US $, and (b) full monetary union. Transactions costs savings arise with either, but the seignorage loss in (a) is more than (b). Macroeconomic stabilisation aspects of *permanent* fixed exchange rate are key to optimal currency area arguments (Mundell, 1961; McKinnon, 1963); these effects are

equal in (a) and (b). The loss of a lender of last resort is the main cost of unilateral dollarisation, which makes (b) better than (a). Integration of the capital markets, moreover, eliminates the extraneous instability and excess volatility inherent in the market-determined exchange rate. Buiter argues that "on balance the economic argument favours a full, formally symmetric monetary union, but not the unilateral adoption of the US dollar" However, "because of the absence of any democratic political institutions spanning both Canada and the US, the political arguments against any form of monetary union are overwhelming".

6. CONCLUSIONS

There are three main conclusions arising from this paper. First, that NAFTA trade expansion has been much faster than that originally contemplated (or estimated in the CGE models), and it cannot be explained by price effects – that is the 1995 devaluation. Moreover, there has been relatively little progress in intra-industry integration. Market integration appears to be proceeding in a more 'direct' fashion associated with cross-border investment and the process of *de facto* currency substitution. This "winner's curse" was not contemplated by the architects of NAFTA.

Second, the process of currency substitution ('dolarization') is difficult to measure but clearly marked; affecting not just asset holdings but also the basis for financial transactions and price calculations. This currency substitution is part of secular trend reflecting trade integration and capital account liberalisation. It is driven by the private sector, and accelerated by exchange rate uncertainty. However, Mexico and the US clearly do not meet the usual criteria for a currency area - unlike Canada and the US.

Third, the ideal solution might be for the Banco de Mexico to become the 'thirteenth member of the Federal Reserve' thus for the US authorities to underwrite the monetary stability of the Mexican economy. This would be difficult to achieve, because of the need for Washington to act as both lender of last resort and financial supervisor. There are, however, a number of intermediate solutions – equivalent perhaps to the Franc Zone or the Sterling Area – that could perform the necessary functions without implying Mexican participation in US monetary policy decisions.

The problem appears to lie in the Federal District rather than in the Distrito Federal. The *de facto* dollarisation on the Mexican economy and the widespread desire for monetary stability mean that there almost certainly exists sufficient political support for the ceding of legal sovereignty. US public opinion is probably not ready for such an option, because of the implications of constructing new cross-border institutions – which in this context would be regarded as a constitutional issue – although there are signs of change.[39]

[39] Both the Federal Reserve Bank of Dallas and Senator Mack (Florida) now support the extension of a 'dollar area' southwards.

Trade and financial rules and regulatory agencies would have to take into account the legitimacy of their Canadian and Mexican counterparts (in essence the European 'passport' system) which would require legislation that would be regarded by opponents as having profound constitutional implications. NAFTA harmonisation of trade and financial services regulations will eventually require major changes at the level of individual US states, if only to prevent regulatory arbitrage and regulatory capture: this might be even more politically difficult than changes in Federal legislation. In a sense, the US is coming to terms with having neighbours for the first time - this does not just require alterations in external economic relations (' border controls') but also to internal economic organisation - the fabric of civil society itself.[40]

In sum, there seems to be an inescapable tension between *de facto* dollarisation in Mexico - and by extension in the Americas - pushed by private sector portfolio composition decisions, on the one hand, and the evident drawbacks to *de jure* dollarisation as a government policy on the other. This tension does not just arise from the need to retain exchange rate flexibility in order to adsorb external trade shocks and respond to shifts in the G3 parities. Dollarisation will not stabilise domestic output or bring the Mexican (or Latin American) business cycle into line with the US, if historical experience is any guide. An active fiscal policy will be necessary to maintain growth and employment, which will in turn require a shift away from the current orthodoxy on budgetary balance and flexible access to capital markets unencumbered by debt.

Finally, the current debate underestimates the institutional problems of liquidity management in response to changes in private sector asset demand. This requires central banking commitments by the US which is currently unwilling to assume, even though it does appear to be prepared to permit the dollarisation of small economies such as Ecuador and El Salvador. This commitment is more likely to arise from repeated and cumulative response to emergencies rather than from a considered strategy of monetary integration, which is unfortunate.

[40] See FitzGerald (1999) for further discussion.

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Table 1 Monetary Survey

Mexico

	1993	1995	1997	1999
International Liquidity (US$ bn)				
Official Reserves	25.1	16.9	28.8	31.8
Bank Assets	2.4	3.3	2.9	2.8
Bank Liabilities	36.6	44.4	35.2	31.2
Net Balance	(9.1)	(24.3)	(3.5)	3.4
Monetary Survey (US$ bn equivalent)				
Reserve Money	15.2	8.7	13.5	19.8
Money Supply	46.3	19.7	33.0	41.6
Domestic Credit	94.9	67.6	112.7	106.9
Exchange Rate (per US$)	3.106	7.643	8.083	9.514

Source: IFS

Canada

	1993	1995	1997	1999
International Liquidity (US$ bn)				
Official Reserves	12.5	15.0	17.8	28.1
Bank Assets	41.1	64.1	84.4	79.2
Bank Liabilities	67.2	77.1	109.0	95.6
Net Balance	13.6	2.0	(6.8)	11.7
Monetary Survey (US$ bn equivalent)				
Reserve Money	23.3	23.5	24.2	31.7
Money Supply	88.8	101.2	119.0	138.6
Domestic Credit	383.5	423.7	488.3	485.1
Exchange Rate (per US$)	1.324	1.365	1.429	1.443

Source: IFS

USA

	1993	1995	1997	1999
International Liquidity (US$ bn)				
Official Reserves	62.3	74.8	58.9	60.5
Bank Assets	552.3	606.5	791.3	808.8
Bank Liabilities	828.2	1011.9	1208.1	1264.3
Net Balance	(213.9)	(330.8)	(357.9)	(395.0)

Monetary Survey (US$ bn equivalent)				
Reserve Money	400.2	453.8	513.2	652.4
Money Supply	1231.0	1220.7	1280.2	1462.1
Domestic Credit	5026.0	5674.8	6493.7	7693.4
Exchange Rate (per US$)	1.000	1.000	1.000	1.000

Source: IFS

Table 2 Mexico: government debt by residence of holder

	1993	1995	1997	1999
Total govt debt (bn pesos)	318.0	751.6	821.8	1126.2
Domestic	134.8	155.4	273.7	466.1
Foreign	183.2	596.2	548.1	660.1
(foreign share)	58%	79%	67%	59%
Exchange rate	3.106	7.643	8.083	9.514
Total debt (bn US $)	102.4	98.3	101.7	118.4

Source: Banxico

Table 3 Aggregate Money Supply in Mexico

	1993	1994	1995	1996	1997	1998	1999
M4 (bn pesos)	580.4	724.2	869.3	1116.2	1405.4	1769.0	2115.6
National Currency	527.2	530.3	754.7	985.6	1283.5	1627.0	1971.5
Foreign Currency	53.1	193.9	114.6	130.6	121.9	142.0	144.0
Deposit Rate	15.1	13.3	38.1	24.7	14.7	13.8	9.6
Inflation Rate							
Depreciation rate							
GDP	1256.2	1420.2	1837.0	2503.8	3179.0	3791.2	4622.8
Foreign/total M4	9%	27%	13%	12%	9%	8%	7%
M4/GDP	46%	51%	47%	45%	44%	47%	46%
Real interest rate: peso prices							
Real interest rate: dollar prices							

Source: Banxico

Table 4 Reported Monetary Assets of Mexican Residents

US $ billions	1993	1997	1999
M4: Domestic currency	169.6	158.8	207.2
Foreign currency	17.1	15.1	15.1
Total	186.7	173.9	222.4
Liquid claims on US	20.7	36.0	36.0
Banks	20.0	35.3	35.1
Non-banks	0.7	0.7	0.9
Total monetary assets			
Pesos	169.6	158.8	207.2
Dollars	37.8	50.4	51.2
Total	209.4	209.2	258.4
Dollars/total	18%	24%	20%

Sources: Banxico and US Treasury

Table 5 Spreads on 'Americas' Bonds in New York

	Jan 2000	Jan 2001
US Treasury 10 years	6.75	5.14
Spreads (basis points):		
Canada (2010)	+28	-19
Mexico (global 2010)	+327	+356
Brazil (global)	+655	+701
Argentina (global)	+542	+737

Source:IFS

Figure 1: Mexico Bond Spread 1997-2000