

On the Changing Nature of Currency Crises

by

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Introduction

Currency crises have become a common occurrence around the world in the era of capital account liberalization. Following numerous crises in Latin American in the 1980s, speculative attacks on currency wrecked havoc in the Scandinavian countries in the late 1980s, the European Monetary System in 1991-1992, in Mexico in 1994-1995, in East Asia in 1997-1998, in Russia in 1998, in Brazil in 1999, and in Argentina and Turkey in 2000-2001. And, now (April 2005) we may soon face a dollar crisis that can have severe repercussions for the US and the whole world economy. After each major episode a new *generation* of crisis models emerged, and, arguably, we still lack a clear understanding of what has remained the same and what was novel in different episodes of crises.

Despite their many differences, the successive generations of currency crisis models can be thought to revolve around the same set of questions. At one level, they appear as a problem of overborrowing made possible by an excessive expansion in bank credit. Often, capital inflow is stimulated by financial liberalization and leads to a credit expansion in the recipient country that is followed sooner or later by a debt problem. Depending on the country, the debt pile up could be either private or public, and owed to either domestic or foreign investors, but the destabilizing dynamics it sets off appear similar. At yet another level, these crises have resulted from abrupt capital flow reversals caused by capricious shifts in investor sentiment.

In the 'first-generation' models, both problems, overborrowing and the capital flow reversal, were explained by the same mechanism. Monetization of government deficits fuelled an explosive rise in credit supply, giving rise to an unsustainable increase in expenditures and rising prices. With a fixed nominal exchange rate, that led to real currency appreciation and usually went hand in hand with a rising current account deficit. As a result, the devaluation risk steadily rose and brought to an end the capital inflow, re-imposing the foreign exchange constraint. The beginning of the 'end' came when the depletion in foreign exchange reserves set off a rush among speculators to get out of the domestic currency before the inevitable maxi-devaluation struck.

In the crises of the 1990s, the destabilizing processes that needed explanation were still the same. Explosive increases in bank credit gave rise to overborrowing and at some point capital flow abruptly reversed. The reserve depletion caused by monetized government deficits was no longer an explanation that seemed applicable as excessive credit expansion took place even when there were no government budget deficits. Likewise, the devaluation risk stemming from current account deficits caused by the spending spree, and reserve depletion no longer seemed the decisive factors in explaining capital flow reversals. In much of the 1980s, fixed price assets in the form bank loans were still the main conduit of financial capital flows into developing economies whereas variable price assets such as bonds and stocks began to take their place by the end of that decade. The explosive expansion of secondary asset markets in developing countries during this period (Grabel 1996, Singh, 1997, 2003; Singh and Weisse, 1998) meant that portfolio dynamics driven by speculative expectations on variable price assets, and thus the very dynamics of asset price bubbles, could become the driving force behind erratic

capital flows. Once capital inflows into developing countries began to finance speculative asset positions first and foremost, the capital account dynamics have started to become decisive rather than those associated with the current account.

In this paper, I argue that the growing importance of variable price financial instruments as conduits of capital flows in the 1990's, has created a potential for destabilizing trend speculation on the part of international investors. This suggests a state of the world where expectations of asset price capital gains rather than arbitrage opportunities emerge as the predominant motivation behind capital flows. Similarly, once the expectations of asset price increases cease for whatever reason capital flow reverses regardless of whether devaluation risk and foreign exchange reserves are high or low. This is the sense in which currency crises have become 'capital account' driven.¹

This differs from Krugman's (2000) influential typology of different generations of models that are thought to reflect the transformation of currency crises. In his classification, the 'first generation' models refer to reserve depletion caused by monetized government budget deficits, while the second generation models focus on governments' willingness to devalue to avoid reserve depletion and the third generation models emphasize financial balance sheet problems stemming from currency and maturity mismatch. In what appears to be an alternative classification, Krugman also makes a distinction between *fundamentals* driven first-generation models and *expectations* driven second-generation models (Williamson, 2001), which might at best imprecisely correspond to the contrast drawn here between 'current account' versus 'capital account' driven crises. As we shall see, the current account driven crises need have little to do with monetized government budget deficits and lax public finance, and the capital account driven crises' salient characteristics have little to do with the complications caused by currency (and maturity) mismatch, nor how governments prefer to react when faced with the threat of a speculative attack. In the following sections, current account and capital account driven crises are discussed and contrasted. The paper ends with a brief summary of the main argument.

Current Account Driven Crises

When currency crises first broke out in the Southern Cone countries in Latin America in the late 1970s, disinflation was being attempted for the first time in context of a liberalized capital account. Also, the nominal exchange rate functioned as an anchor in all these stabilization programs because belt tightening was not thought to be sufficient in itself to bring down the inertial part of inflation. The main objective was to reduce domestic inflation by decreasing incrementally the rate of devaluation. In later years, similar disinflation programs with the exchange rate as the nominal anchor were also used in many other countries in different parts of the world.

Often, inflation did not fall in tandem with the incremental reduction in the rate of devaluation of currency, causing the exchange rate to appreciate in real terms. Initially, it was thought that this would have a contractionary effect as it would tend to reduce net

exports. But, time after time, the result was invariably the opposite: a private consumption led boom in output that eventually went bust in a few years. For instance, in both Chile and Argentina, where these types of programs were first implemented, private consumption rose by more than 10 percent within a year the program had been implemented, and the GDP increase was also close to double digits. With such rapid expansion of output, it was not long before the current account deficits began to balloon as well, reaching for instance as high a ratio as 14 percent of GDP in Chile within two years (Calvo and Vegh, 1999). The same pattern, a private consumption led an explosive increase in output that went bust in a few years, repeated itself in many other countries that implemented disinflation programs with a nominal exchange rate anchor.

The boom phase of the cycles seemed to be explained by the discrepancy in the speeds with which rate of devaluation and inflation declined.² Just as the very credibility of the disinflation program brought down the expected rate of devaluation, the domestic nominal interest rate also fell in line with the uncovered interest rate parity condition. The decrease in the real rate of interest was even greater because the decline in the rate of inflation often lagged behind (Rodriguez, 1982). Moreover, the real wages also often rose, because the decline in inflation, though not as fast as the decrease in the rate of devaluation, was nonetheless faster than the decrease in the rate by which nominal wages continued to increase. Thus, falling real interest rates, coupled possibly with rising real wages was a part of the explanation of the consumption led boom in output.³ But, what is perhaps more important was the increased ease of access to credit throughout the economy. As economic liberalization, of which the adoption of a credible disinflation program has often been a part, set the stage for an increase in the capital inflow, a steep increase in borrowing usually ensued. Both the consumers' and firms' willingness, as well as their ability, to borrow increased whether in fact their real income rose or not.

Taylor (1998) argues that credit expansion and overborrowing begin with the adoption of a credible economic liberalization program as it gives rise to a positive interest rate spread, because the nominal interest rate usually falls less than the decrease in the expected rate of devaluation. This fuels a steady capital inflow, causing the domestic money supply to increase. If the central bank sterilizes, a further increase in the domestic interest rate leads to an even higher interest rate spread, stimulating even a greater inflow. The capital inflow in fact induces domestic banks to raise the volume of credit they supply, which in turn raises both the money supply on the one hand and prices and output on the other. As long as the real exchange rate continues to rise, banks can indeed make easy profits by lending inside the country what they borrow from outside at a much lower rate of interest. But, they thereby ignore the devaluation risk and the possibility that the trend of real appreciation of currency can reverse itself. Is this then a *prima facie* evidence of the moral hazard problem?

Indeed, the large *open* positions banks took in many of the East Asian countries were blamed for setting the stage for the crisis by the proponents of the moral hazard argument. Thus, in McKinnon and Pill's (1997, 1999) view the problem in East Asia was too rapid financial liberalization that did not allow the time needed to develop the institutional infrastructure for prudential regulation of banks and the financial system.

Corruption, cronyism and lack of transparency were thus thought to be the *ultimate* causes of the large *open* positions banks took and overborrowing throughout the economy. A number of arguments can be made against this moral hazard view.

Even in economies with a well-established tradition of prudential regulation and well-developed financial system, a period of rapid profit growth fuels overconfidence and gives rise to a climate of financial exuberance. This was in fact one of Minsky's salient points about business cycle dynamics in an advanced capitalist economy such as the US, where the most recent episode of irrational exuberance is too well-known to recount. But, lest the US is dismissed as an argument against *moral hazard*, because it has been rife with corruption - as it now turns out - to a degree more than ever thought possible, the Nordic countries - not known for their corruption and cronyism - also experienced an explosive increase in bank credit on the heels of financial liberalization in the late 1980s that eventually ended in a banking and currency crisis. The speculative fervour that develops in episodes of asset price bubbles stimulates corruption rather than the other way around. Thus, it is more plausible that corruption is more the effect than the cause. Second, independently of moral hazard, other compelling reasons exist why one would expect bank credit to be procyclical under conditions of economic liberalization, which can explain bouts of overborrowing. Among these that have already come under extensive scrutiny is the strong pro-cyclical effects of the Basel Accords that set minimum capital requirements for banks (Isenberg and Phillips, 2004; Griffith-Jones and Spratt, 2002; and Rude, 2005).

Yet another reason, not yet as well recognized, is the fact that liquidity preference and currency substitution become intertwined under conditions of financial and capital account liberalization. This acts as a built-in macroeconomic destabilizer, as it effects procyclical variations in the liquidity position of banks. Because of various problems - high inflation, credibility, exchange rate risk, etc. - currency substitution is unsurprisingly quite extensive in many developing countries around the world.⁴ Thus, it is not unusual for people in these economies to try to keep a large part of their idle balances in foreign currency. Financial and capital account liberalization, when successful, embed currency substitution within the local banking system and lower transaction costs, channelling thereby these inactive balances into foreign exchange deposits in domestic banks. As a result, under normal conditions changes in the liquidity preference entail currency substitution, causing first and foremost *quantity* rather than *price* changes in the form of shifts in the composition of total bank deposits between active and inactive balances. This, in turn, acts as a built-in macroeconomic destabiliser because domestic banks' reserve requirements are invariably much higher for foreign exchange denominated accounts than for those denominated in local currency. When inactive balances swell in the banking system at a time of rising liquidity preference and economic slowdown, the effect is to lower banks' liquidity by redistributing deposits within the system from low to high-reserve accounts. Likewise, banks' liquidity situation is improved during times of rising economic activity and falling liquidity preference when the relative size of active balances in domestic currency accounts increase in relation to inactive balances that mainly consist of foreign exchange deposits.

Given all this, policies that aim at eradicating practices that are thought to give rise to moral hazard are likely to be counterproductive not only because there might be other causes that are at least as important as suggested above, but also stamping out such practices can have adverse unintended consequences if these happen to be ‘second best’ solutions to other ‘distortions’ in the economy. For instance, deposit insurance and lender of last resort practices of central banks can create moral hazard problems, but they have also been quite effective in containing systemic risks such as bank panics since the 1930s (Eatwell and Taylor, 2000, p. 47). Thus, the cost of getting rid of such practices can plausibly outweigh the moral hazard problems themselves.

When it comes to the ‘bust’ phase of the cycle, the argument is more straightforward. The output expansion fuelled by the excessive credit creation is unsustainable, mainly because the real exchange rate appreciation and rising output give rise to a ballooning current account deficit, causing a steady increase in the devaluation risk. This means that the domestic nominal interest rate now needs to keep increasing in order to maintain a positive interest rate spread to ensure that the capital inflow continues. As a result, rising interest rates and the current account deficit first slow down, and eventually reverse, the economic expansion. Depending on the level of the foreign exchange reserves and the rate of their depletion a run on the currency can occur at anytime. In capital account driven crises that are discussed next, what is fundamentally different is essentially the modality of the capital inflow and its reversal.

Capital Account Driven Crisis

Under conditions of capital account liberalization, the exchange rate becomes just another asset price that can be subject to speculation. This means that just like in the case of any other forward looking asset price, rumours, noise and investor sentiment, at least in the short run, are likely to be more important than what is happening in the real economy in determining movements in its price. Yet, ever since Friedman (1953) argued that destabilizing speculation would be unprofitable, and, thus, unsustainable in the long run, most mainstream economists have assumed that speculation as a rule could not be destabilizing. Asset price bubbles were considered highly unlikely if not impossible in a ‘normally’ functioning market. The rise of the ‘efficient market hypothesis’ in the 1960s had bolstered the influence of Friedman’s argument, as it gave credence to the idea that actual market prices of assets must be the best estimates of their *true* values at a given point in time.⁵ The intuition behind Friedman’s (1953) argument rested on a simple view of arbitrage, in which the market comprises smart traders who know the true values and misinformed noise-traders. If securities are undervalued, as the argument goes, then the smart traders would continue to buy them until their prices are bid up to their true value. Likewise, if securities are overvalued, smart traders would sell them, bringing their price down to their true value. Indeed, under these conditions, speculation is always stabilizing and profitable. Misinformed noise traders thus create riskless arbitrage opportunities that smart traders profit from, while making losses themselves.

Undoubtedly, the assumption that smart traders or speculators know with certainty what the true value is exceedingly unrealistic. But, even under this strong assumption, it does not follow that the deviation of the current price of an asset from its true value creates a riskless arbitrage opportunity. Because traders in general have a finite time horizon, a speculator who sells overvalued assets short can find that by the time s/he is supposed to close his/her position, the true value has increased, or, that the assets in question have become even more overpriced.⁶ In both situations, the speculators who have sold securities short would be making losses. Even if the true value is known, it does not follow that it would be equal to the expected future price. Thus, because the fear of making losses would cause smart traders to limit the initial positions they take in an over or undervalued asset, current price might not smoothly adjust to its true value. Needless to say, if we drop the assumption that speculators know what the true value is, the risk of loss they perceive is likely to be higher, and the compensatory shift in demand for the undervalued asset smaller. That is why the modern ‘noise trader’ or the ‘behavioural’ approach to finance holds that *riskless* arbitrage is not effective in relation to the prices of shares or bonds as a whole and severely limited even when it comes to the relative prices of individual assets (Shleifer and Summers, 1990; Shleifer and Vishny, 1997).

In this setting, unlike what Friedman (1953) foresaw, successful (*read* rational) speculators are those who engage in ‘trend’ speculation, where they act like noise traders themselves in the short run, trying to feed the bubble rather than help deflate it (DeLong *et al.*, 1990).⁷ In other words, they chase asset price trends to jump on the bandwagon of noise traders and know when to get off while the rest rides on. In a similar manner, the asset price bubbles that have emerged in the aftermath of economic liberalization appears to have created ample opportunities of trend speculation for international investors. Depending on the special conditions of each country, asset price bubbles have emerged in different asset categories. In some countries it was the real estate market, in others the equities, corporate bonds or government debt instruments. In the following, the simplest type of a debt instrument such as a short term government bond is assumed.

In order to draw a contrast between capital flows motivated by expectations of capital gain in asset prices from those that are driven by arbitrage opportunities, a useful starting point might be the uncovered interest rate parity condition, which, as written below, simply states that the difference between the domestic nominal interest rate and the international interest rate must be equal to the sum of the devaluation risk (*DR*) and the country (or sovereign) risk (*SR*).⁸

$$i - i^* = DR + SR \quad (1)$$

where *i* is the domestic nominal interest rate and *i*^{*} the international interest rate. The change in foreign exchange reserves is in turn the sum of the current and capital accounts;

$$\Delta F = T(Y, E) + C(i, i^*) \quad (2)$$

where T is trade balance, Y is output, E the real exchange rate (where an increase means a fall in the value of the domestic currency). As it is commonly assumed, $T_Y < 0$, $T_E > 0$ and $C_i > 0$, holding i^* , DR and SR constant.

In Taylor's (1953) argument discussed above, the first equation turns into an inequality once a developing country adopts a credible stabilization program. The interest rate differential on the left hand side exceeds the sum of SR and DR , and the greater the interest rate spread the higher is the magnitude of capital inflow. Over time, output expansion and real exchange rate appreciation cause the trade deficit to rise and that eventually pushes up the DR . Under these circumstances, a positive interest rate spread can only be maintained with a higher domestic interest rate. Because the domestic interest rate cannot be increased indefinitely, it becomes harder to check the decrease in the foreign exchange reserves by raising the interest rate past a threshold, causing a further increase in the DR . This is the beginning of the end, and once reserves begin to fall steadily the actual mechanism of the speculative attack need not be different from Krugman's (1979) account.

In its present form, Equation (1) implicitly assumes that arbitrage works only through assets that are held to maturity for their interest yield, since expectations of asset price changes are not part of the arbitrage condition. If, instead, the prospect of capital gain is the motivating factor behind capital flows, asset price expectations would need to be introduced into the interest parity condition. One simple way in which this can be done is by defining – for want of a better term - the *total* exchange rate risk (TER) as the difference between the devaluation risk (DR) and the expected increase in asset prices (ΔAP^e),⁹

$$TER = DR - \Delta AP^e, \quad (3)$$

and rewriting equation (1) as,

$$i - i^* = TER + SR. \quad (4)$$

Note that in Equation (1) the *total* exchange rate risk is simply assumed equal to the devaluation risk because the expected change in asset prices is implicitly set equal to zero. Now, let us assume a situation where a credible disinflation program with a nominal exchange rate anchor is about to be implemented in some developing country, and that this gives rise to the expectation that the nominal rate of interest on government bonds will decline in the near future. The adoption of the stabilization program, again, as assumed before, leads to a decrease in the devaluation rate (crawling peg), giving rise to a positive spread. But, in addition, the expected asset price change turns positive as well, as it is now expected that the implementation of the stabilization program will attract capital which will push down the nominal interest rate in the near future and thus raise the value of old issue bonds. Thus, in this case, the *total* exchange rate risk falls not only on account of the lower expected devaluation risk, but also because of the expected increase in asset prices. Again, capital flows in, the supply of bank credit expands and spending

and output rise. But, now, in contrast to the earlier case, the *TER* begins to rise as soon as the expected increase in asset prices peters out – as the interest rate levels off after its initial rapid decline following the first implementation of the disinflation program, - even when the current account deficit might still be insignificant and reserves are high.

To the extent that foreign hedge fund managers begin to believe that domestic asset prices have peaked, they might simply close their positions and move elsewhere. Provided the *SR* is still low, an increasing number of ‘local’ speculators who might also think that asset prices have peaked would switch to foreign currency denominated bank accounts within the country. In either case, whether the foreign hedge funds leave the country or bank deposits shift to foreign exchange denominated accounts in domestic banks, there is an unexpected weakness in the value of the home currency, i.e. a slowdown at the rate at which the devaluation rate is decreasing (crawling peg), or a fall in reserves. This can falter the market confidence in the stabilization program, causing the *DR* to rise unexpectedly as well. At this point, it is possible that the current account deficit that might until then seen as a *normal* corollary of the capital account surplus might all of a sudden be deemed unsustainable and thus a problem. In other words, it becomes a problem because the capital inflow falters as the expected asset price increases peter out. At the end, the *TER* ends up rising on account of both the initial fall in the expected asset price increases and the eventual rise in the devaluation risk.

Even if the exchange rate survives the initial capital outflow, with the *TER* rising, the nominal interest rate begins to rise steeply. Unlike the situation discussed in the previous section, the higher interest rate is unlikely to succeed in keeping the interest rate spread positive and thus buy much time for the country in question. First, to the extent that rising interest rates signal investors that negative asset price changes are ahead, they are likely to stimulate a net outflow rather than an inflow of capital. In the stylized world of the Mundell-Flemming model, this means that the capital flow is a negative function of the expected *rate of change* of the interest rate. Within a certain range involving higher time frequencies, this effect is likely to be much stronger than the conventional positive relationship that is postulated in Equation (2) between the *level* of the interest rate and the capital inflow.

Most if not all of the IMF-backed stabilization programs that were in force at the time a currency crisis erupted in one or the other developing country barred the central bank from acting as an intermediary and as a lender of last resort.¹⁰ The objective of these stabilization programs was instead to rely on market forces to maintain liquidity, where two self-correcting mechanism were often presumed (Ekinici and Erturk 2004). First, because the private banking sector often held a large portfolio of government debt instruments – mainly because some private banks become the primary dealers in these assets after financial liberalization - they would have a stake in maintaining the value of these assets and be inclined to buy what the speculators wanted to unload. Second, the capital outflow would self-correct by pushing interest rates higher, which would then reverse the outflow.

More often than not, neither mechanism worked, as the two tended to clash with each other. As remarked above, the expectation of further increases in interest rates initially stimulated an outflow as investors tried to avoid capital losses by exiting sooner than later. Thus, interest rates had to reach exorbitantly high levels before the capital outflow could at all be stopped, let alone reversed. The excessively high interest rates in turn raised prohibitively the cost of short term borrowing for the primary dealer banks who were supposed to absorb the portfolio speculators were unloading. The result often was a chain reaction of bank failures, where exorbitantly high interest rates pushed them over the edge even if the banking system was strong enough to weather the shock of the initial bursting of the asset price bubble. Moreover, once banks were forced to default on their foreign debts they also threatened the solvency of the public sector, causing the (SR) to unravel as well (Corbett and Vines 1999). The solvency of the public sector was also threatened when the public debt was high to begin with, since with very high interest rates it did not take very long before it began to look out of control. Thus, quite often, government guarantees that were meant to reduce the devaluation risk for foreign investors during the good times, whether explicit - as the dollar indexed bonds (*tesobonos*) in Mexico – or implicit, came back to haunt the solvency of the public sector.¹¹ Once the SR unravelled which was likely to happen one way or another no interest rate increase, no matter how big, could stem the outflow of capital and a complete meltdown became inevitable.

Conclusion

The objective of this paper has been to draw a contrast between current account and capital account driven crises. In the former, excessive credit expansion and overborrowing are the destabilizing processes that play the decisive role. Capital inflow is predominantly governed by arbitrage opportunities, where its reversal is tied to rising devaluation risk associated with reserve depletion. Starting with the late 1980s, capital account driven crises come to predominate as fixed price assets in the form bank loans are increasingly dwarfed by variable price assets such as bonds and stocks, giving rise to portfolio dynamics driven by speculative expectations on variable price assets. This, combined with the increased predictability of asset prices, in turn, set the stage for destabilizing trend speculation on the part of international investors. Typically, the capital inflow continues as foreign investors chase a rising trend of asset prices, and reverses when they begin to think that asset prices have peaked. Once the asset price bubble deflates, the threshold of sustainable debt is drastically reduced and a chain of bank failures are triggered. After a crisis breaks out, the single most effective policy response is whether the provision of lender of last resort is made available or not, which is rarely (commonly) the case in the periphery (centre). But, even in the US, the effectiveness of lender of last resort intervention is not without limit if financial imbalances that are thereby compounded prevent a return to robust growth. Anxiety about the world reserve currency is bound to rise if lacklustre growth in the US is accompanied with a steady rise in its net indebtedness.

Endnotes

¹ This is broadly consistent with the approach other heterodox economists have taken, such as Arestis and Glickman (2002) and Grabel (1995), among others. See also, Allen and Gale (1999).

² Interestingly, in neither the detailed individual country studies nor the literature on disinflation programs do excessive public spending and monetized government budget deficits get the top billing (Taylor, 1999, 2001).

³ Another view argues that the rapid increase in private consumption is caused by the disinflation program's lack of credibility in the eyes of the public. Because the consumers do not think that the fall in inflation will be permanent they increase their expenditures especially on big ticket consumption items and expensive imports with the idea of buying what they can before inflation begins to go back up (Kiguel and Liviatan, 1992; Calvo and Vegh, 1999). However, this argument does not explain where the extra income to spend comes from.

⁴ See, among others, Rodriguez (2003) for Mexico, Bahmani-Oskooee and Techaratanachai (2001) for Thailand, Komarek and Melecky (2003) for Eastern Europe, Prock et al (2003) for Latin America, Civcir (2003) for Turkey.

⁵ The 'efficient market hypothesis' has gained currency among economists with Samuelson's (1965) 'proof' that in a market that is *efficient* in appropriating all available information stock prices should exhibit a random walk, and Fama's (1965) 'demonstration' that the stock market almost actually does. But, it turns out neither proposition is valid. Empirically, it is shown that stock prices do not exhibit random walk, and theoretically it is now known that *unforeseeable* prices are neither necessary nor sufficient for *rationally* determined stock prices. See, among others, Shleifer and Summers (1990), Shleifer (2000), Lo and MacKinlay (2002), Bossaerts (2002) and Shiller (2000). In light of these developments in the finance literature, Friedman's contention now appears far from persuasive if it ever was. Among the early criticisms of Friedman (1953), see Kemp (1963) and Baumol (1957).

⁶ Shleifer and Summers (1990) call these, respectively, the *fundamental value* and *noise trader* risk,

⁷ In the modern finance literature on asset price bubbles the emphasis, until recently, was on rational traders' risk aversion which was thought to prevent them from eliminating noise driven price movements. However, the focus has been shifting to 'trend' speculation as the winning strategy for speculators, a fact well known to market participants all along (Soros, 1987; Temin and Voth, 2004).

⁸ The devaluation risk in turn can be decomposed into two components: a major devaluation risk (MD) and exchange rate drift (ERD), which entails relatively predictable incremental changes in the peg. In a fixed exchange rate regime ERD is insignificant or zero while MD is positive; and in the case of floating regime it is exactly the opposite: ERD is significant while MD is zero or negligible (McKinnon and Pill, 1999).

⁹ This is discussed in more rigorous terms in Ekinici and Erturk (2004). The devaluation risk and expected asset price increase can be expressed respectively as: $\Delta AP^e = \Delta \ln P_{t+1}$ and $DR = \Delta \ln e_{t+1}$ (where P_{t+1} is the price of the asset at time $t+1$ and e is the nominal exchange rate), and the modified interest parity condition where assets are held for the

expected increase in their price is given by: $\Delta \ln P_{t+1} = i^* + \Delta \ln e_{t+1} + SR$. In the case of a simple discount instrument with a face value of X , the price of the instrument is $P_t = X / (1 + i_t)$ at time t , which gives, $\ln P_t = \ln X - \ln(1 + i_t) = \ln X - i_t$, with the reasonable approximation $\ln(1 + i_t) = i_t$. Likewise, because

$P_{t+1} = X / (1 + E i_{t+1}) = X / (1 + E i_{t+1})$, (where E is the expectations operator), it follows that: $\Delta \ln P_{t+1} = i_t - E i_{t+1} = i^* + \Delta \ln e_{t+1} + SR$, or $i_t = E i_{t+1} + d_t$, where,

$d_t = i^* + \Delta \ln e_{t+1} + SR$. This means that, in a Keynesian spirit, asset prices (interest rate) follow a forward-looking unit root process (with respect to the expected rate) with drift (d_t). In other words, with given expectations about the drift, the current interest rate is governed by its expected future value. Thus what speculative investors expect about the future determines what happens in the current period.

¹⁰ In general, the failure to provide lender of last provision appears to have caused the greatest harm in transmitting the financial debacle to the 'real' economy. A stark asymmetry often exists in the policy response to banking *cum* currency crises as to whether it takes place in an advanced or developing country. Prompt lender of last resort intervention, which in general is very effective (Allen and Gale 1999), has only been the common reaction only in the former, while it has generally been held back in crises involving developing countries. Rude (2005) argues that this is *functional* in terms of how the world economic system reproduces itself in the current neo-liberal era, as contractionary adjustment to periodic crises are the means by which market discipline is instilled where political resistance is weakest.

¹¹ In fact, the link between the initial fall in the *DR* and the eventual increase in the *SR* might be more immediate. A strict anti-inflationary policy stance – as was the case, say, in Cavallo's plan in Argentina – that is designed to reduce effectively the *DR*, at the same time can have the effect of raising the default risk on the stock of outstanding domestic debt (and thus the *SR*) because it thwarts the ability of the country in question to inflate its domestic debt if need be. McKinnon (1994) explains in a similar vein why the risk premium on Italian and Spanish debt had increased after the Maastricht Treaty as the member countries in the Europe Union have effectively gave up their ability to inflate their debt. See also Vives (2002).

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