

6

Real-World Applications

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The previous three chapters have focused on establishing basic facts about exchange rates and building models to explain currency price determination. It has been argued that, first and foremost, financial capital flows play the dominant role in today's market (in both the short and long run). Those flows are in turn a function of agents' potentially-volatile expectations as guided by their mental model, which is related but not inevitably bound to what might be traditionally called "fundamental" factors. Psychological influences such as bandwagon effects and forecast-construction bias may also affect market participants' forecast. That crises emerge is a function of the means by which exchange rates are determined, plus agents' overly optimistic expectations of both profit and the level of debt they can safely carry.

In this chapter, the models developed in the previous one are used here to explain the post-Bretton Woods history of the dollar (vis-a-vis the Deutsche Mark and, after December 1998, the Euro) and the Mexican and Asian financial crises.¹ For the former, the events are outlined and then shown exactly as they would appear on the augmented mental model and open-economy Z-D diagram. In general, we should expect to see currency prices moved by bandwagon effects,

interest rate differentials (especially as we move beyond Bretton Woods and capital flows increase in size), macro growth and stability (sometimes as indicated by unemployment rates), inflation, and trade imbalances (though the last only sporadically). When explaining the crises, they are described in the context of the schematic developed at the end of chapter five. It is expected that data will show that catastrophic depreciations occur when financial returns far outstrip real ones, agents take on unsustainable levels of debt, and currency prices become separated from the predictions of the mental model.

As mentioned earlier, Post Keynesians do not assume that economic modeling creates a black box into which we can place inputs that then generate deterministic predictions or explanations. These models are to be used as a means of guiding the analysis rather than ruling it. They suggest those phenomena most likely to play an important role in currency price determination and crises; but other factors may be important, too. For that reason, to truly understand the Post Keynesian analyses of exchange rates and crises, they must be seen in the context of an explanation of real-world events.

THE POST-BRETTON WOODS HISTORY OF THE DOLLAR

In the discussion that follows, the dollar's fortunes are measured with respect to the Deutsche mark and, once that disappeared, the euro. Roughly speaking, each period identified represents a long-term rise or fall in the value of the dollar. Given that, the post-Bretton Woods era can be divided into six episodes: Bretton Woods Collapse and Adjustment (1971-9), Dollar Run Up

(1980-5), Dollar Reversal (1985-95), Last Days of the Mark (1995-8), Euro Decline (1999-2001), and Euro Recovery (2001-8). The highlights of each, along with the driving factors, follow.

Bretton Woods Collapse and Adjustment: 1971 to 1979

The period from the end of the fixed exchange rate system through the second OPEC oil embargo witnessed a sustained decline in the dollar (see Figure 6.1). This began under Bretton Woods as payments imbalances weighed against the US and led to several dollar devaluations. As capital flows grew and the absolute size of speculative money in the portfolio capital market increased, so it became more and more difficult for governments to defend par rates. In the end, the pressure from speculators (who were betting on further and/or larger dollar devaluations than were forthcoming) was such that US decided to allow the dollar to float. The dollar experienced a brief rebound as its trade account moved into surplus (around 1973-4), but that surplus turned generally into a growing deficit (with a brief interruption in 1975) for the rest of the period. The value of the dollar followed as agents took this as a sign of a continuation of the weak US economic performance that had led to the collapse of Bretton Woods. In addition, US inflation stayed mostly above the German and the gap between US and German unemployment, though closing, favored Germany throughout the period. It is also likely that the dollar carried with it some negative bandwagon and sentiment because of its public role in the collapse of Bretton Woods. As evidence of this possibility, US interest rates and industrial production actually rose with respect to the German through this period. However, such was market participants' tendency

to interpret dollar news in a bad light that this was actually one of the few times in the post-Bretton Woods era that rising US macro growth was seen as a negative given its potential to raise US imports.

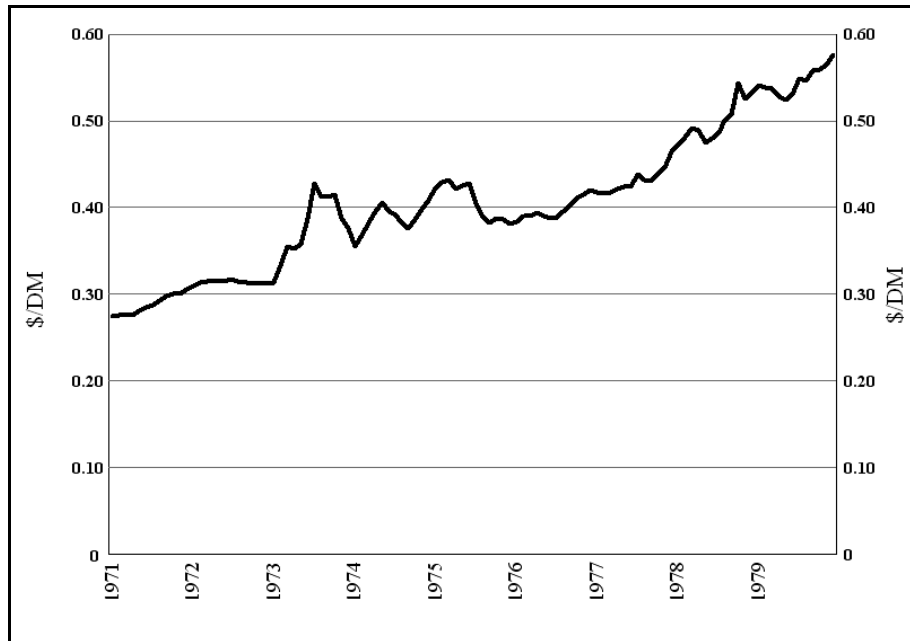


Figure 6.1: The Value of the Dollar During the Bretton Woods Collapse and Adjustment (1971-1979).

This is shown on Figures 6.2 and 6.3. In the former, agents' interpretation of events is highlighted and, for clarity, those lines of causation that did not play an important role are omitted. This convention is followed throughout the chapter. In addition, notes and variables are added where necessary, with the latter treated as members of the set "Indicators" (though not placed physically inside the oval). The following discussion will repeat some of the above, but the intent is to show exactly how the events described in the previous paragraph are illustrated in the model. In the sections that follow, I will dispense with the introductory description and jump straight to

reconciling the historical events with the model.

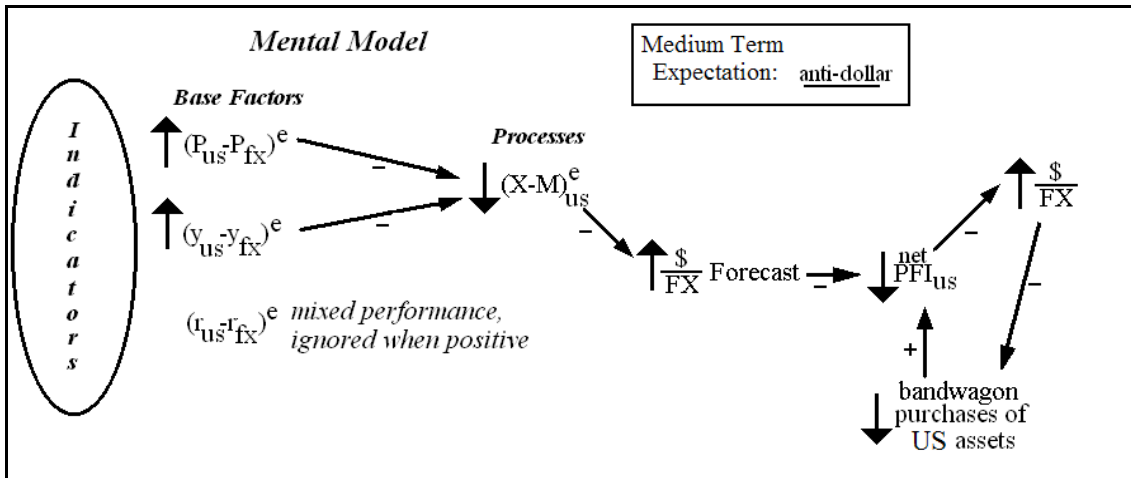


Figure 6.2: Mental Model, Bretton Woods Collapse and Adjustment, 1971-9.

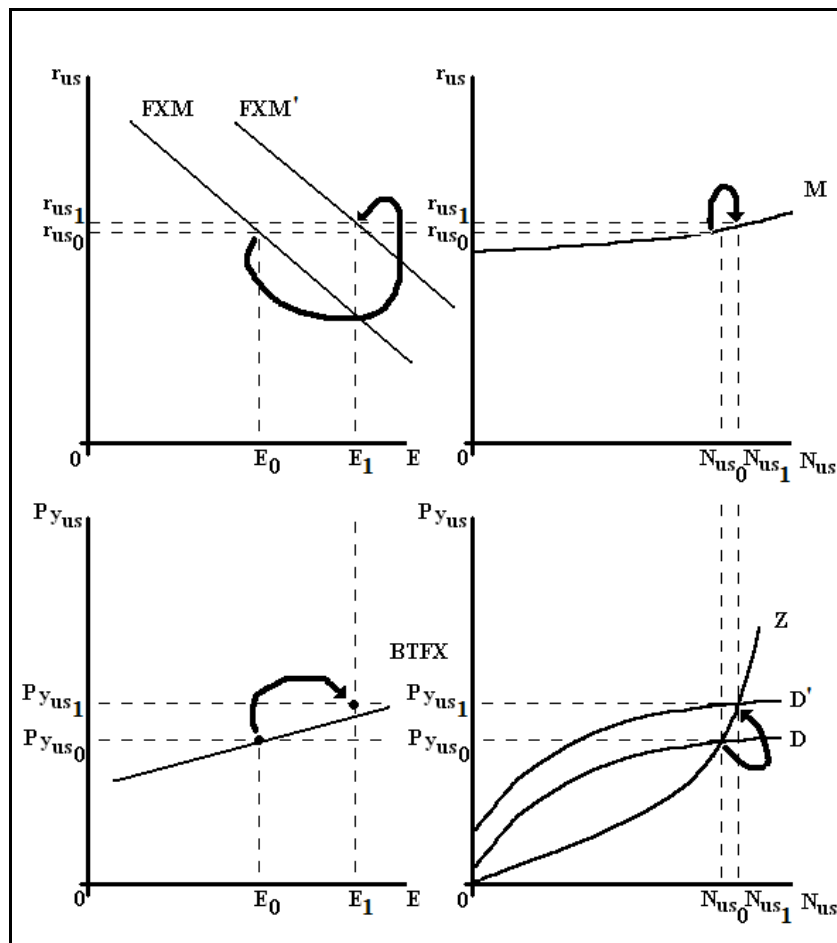


Figure 6.3: Open Economy Z-D, Bretton Woods Collapse and Adjustment, 1971-9 ($E = \$/FX$).

Most important in this period was the negative medium-term expectation and accompanying bandwagon the dollar carried with it from the collapse of Bretton Woods (shown in medium-term expectations box and the positive feedback loop on the far right). While the latter had the effect of directly contributing to net PFI_{us} outflows and dollar depreciation, the former led agents to ignore otherwise positive US developments and overweight negative ones (see, for example, the notation on expected interest rate differentials). Because of this, not only was the primary focus through this period on US trade imbalances (which were not, paradoxically, consistently poor, though they had turned to deficit by the end of the period), this was one of the few times that agents took a superior US macro performance to be indicative of a future depreciation since it would encourage imports (hence the existence of only one line of causation from $(y_{us} - y_{fx})^e$, which leads to trade flows and not financial capital). The entire period represents a sort of mini collapse of the dollar wherein the fall of Bretton Woods (along with other dramatic events like Watergate) gave the US currency significant downward momentum and pushed it past what agents might have considered appropriate based on the mental model alone. In fact, the overshooting was such that when recovery came, it was in the form of an equally dramatic rebound.

In terms of the open-economy Z-D diagram, the key piece of information to transfer from Figure 6.2 is, of course, the fall in the forecast value of the dollar (illustrated by the rightward shift of FXM). The US economy generally performed well and interest rate movements favored the dollar. For these reasons, D is shifted upward and this creates pressure on M that leads r_{us} to move from r_{us0} to r_{us1} . Meanwhile, the US trade account went from rough balance to deficit, despite the dollar depreciation. Note that the flat BTFX curve is able to show this development.

Dollar Run Up: 1980 Through February 1985

At the very end of the above period a regime change took place that led to a major revision in the indicators included in agents' mental model (see Figure 6.4 for the dollar's movements). First, central banks throughout the developed world adopted a strong stance against inflation, using monetary policy as their primary tool. Second, in October of 1979, the Federal Reserve announced a shift to targeting of monetary aggregates rather than interest rates.² Meanwhile, Monetarism had become a very popular perspective among academic economists. The combination of these events not only caused US interest rates to rise to historic levels, but it led agents to include rates of money supply growth in the set of indicators and to interpret inflation as a sign that real interest rates in that country would soon rise. This is why $(P_{us}-P_{fx})^e$ is not shown in its traditional role in Figure 6.5. Instead, it is to be understood that information regarding relative inflation is entering the mental model as an indicator and then through the link labeled "US monetary policy shift" and into interest rate expectations. In general, as market participants had become jaded by the size and resilience of the US trade deficit (which is shown as "ignored" in Figure 6.5), they began to look instead at variables more closely related to portfolio capital investment, particularly interest rates. The latter were the primary driving force throughout this period, though there was also a move to the dollar as safe haven (see the increase in \$ liquidity on Figure 6.5) in light of world unrest (Cumby 1988). It is noteworthy that even when the pro-US interest differential closed in the fall of 1984, momentum continued to push the dollar over the last five or six months, a sign that the market was in a boom period where the medium-term expectations and the bandwagon effect became the primary drivers of the currency price. Relative

There are three salient events on the open-economy Z-D: the change in the monetary policy stance leading to the upward shift of M and a rise in r_{us} ; the shift and movement along FXM (the former as a function of decreases in the $\$/FX$ Forecast shown on Figure 6.5), and the large increase in the US trade deficit. While the US experienced a severe recession during this period, it was followed by a strong recovery. I therefore chose to leave Z and D in Figure 6.6 unchanged, though I suspect that one could make an argument for lowering D. In that event, one must still show a net rise in r_{us} and the US trade deficit and a fall in $\$/FX$.

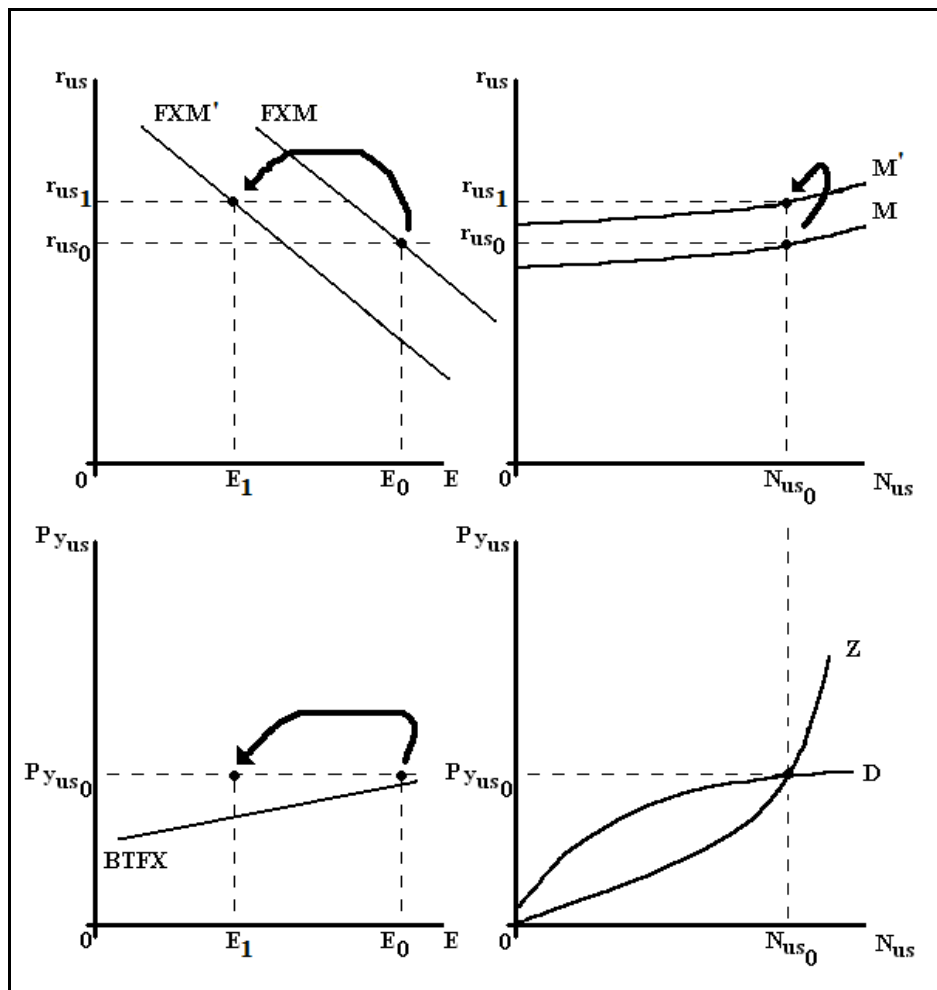


Figure 6.6: Open Economy Z-D, Dollar Run Up, 1980-5 ($E = \$/FX$).

Dollar Reversal: March 1985 Through April 1995

The bust arrived quickly thereafter (see Figure 6.7). When the bandwagon effect moves the exchange rate well out of line with the price expected by relying solely on the mental model, then the confidence of agents in subsequent forecasts may decline. The more tenuous the foundation, the less it takes to shatter it and start a rush in the opposite direction (just as in a currency crisis). Such a development is especially likely when a particularly dramatic episode had been the impetus for the currency run (e.g., a change in Federal Reserve policy and a sharp rise in the dollar interest rate).

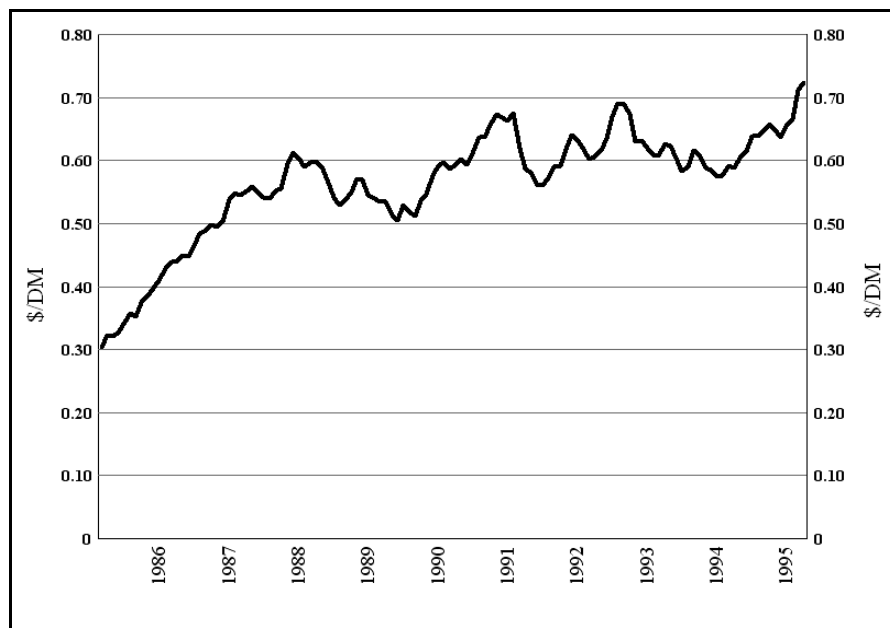


Figure 6.7: The Value of the Dollar During the Dollar Reversal (1985-1995).

Hence, in spring of 1985, when the dollar had peaked and agents were becoming increasingly anxious regarding the likelihood of depreciation (especially in light of the fact that the dollar

advantage in the interest rate differential had been closing for some months), the fact that data were suggesting a weaker US economy was taken as the cue to begin the rapid slide. When officials in the United States, Germany, Britain, Japan, and France announced in September that they would pursue an “orderly” dollar depreciation, this only aggravated the situation (as did a sudden concern with the US “twin deficits” of trade and federal budget which was encouraged by the attention paid by the scholarly and popular press—note that these are shown as “Plaza Accord” and “Twin Deficits” indicators contributing to the expectation of a fall in net expected PFI_{us}). The superior inflation performance of the US over the first half of this period was largely ignored (if not interpreted as a negative, indicating low future interest rates). Likewise, the generally better unemployment numbers in the US did little to affect the dollar (both are indicated by “ignored” labels on Figure 6.8). By 1987, the dollar had fallen below even its post-Bretton Woods collapse level. Within eight years (1980-7) the dollar had almost doubled and then halved (versus the mark). It is very difficult to imagine how one could justify this as a function of the underlying “fundamentals.”

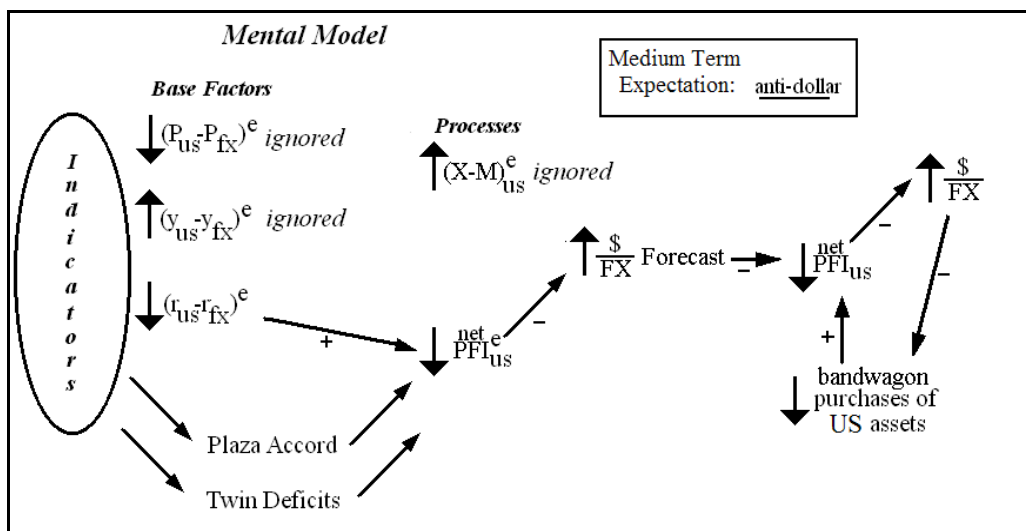


Figure 6.8: Mental Model, Dollar Reversal, 1985-95.

From 1987 through 1995, the dollar moved generally lower but in very mixed trading. This appears to have been largely due to the persistent negative interest rate differential between the dollar and the mark. It is also likely that the precipitous drop had created a negative medium-term expectation and bandwagon for the dollar. Trade flows had little impact through the bulk of this period as the US deficit generally improved (at least during the first half of the period when the US experienced sluggish growth and recession); the dollar continued to fall (note the “ignored” label on trade flows). Only at the end (beginning in 1994) does the reversal in the current account appear to be correlated with a move in the dollar.

Most important to indicate on Z-D in Figure 6.9 are the fall in dollar interest rates (note the downward shift in M), the strong rise in \$/FX Forecast (leading to the rightward shift in FXM), and the improvement in the trade balance (see the BTFX diagram). I again, for simplicity, chose not to shift anything on Z-D, but a rise in D could have been justified (with the caveat that the net directions of change in the M, FXM, and BTFX diagrams must remain the same).

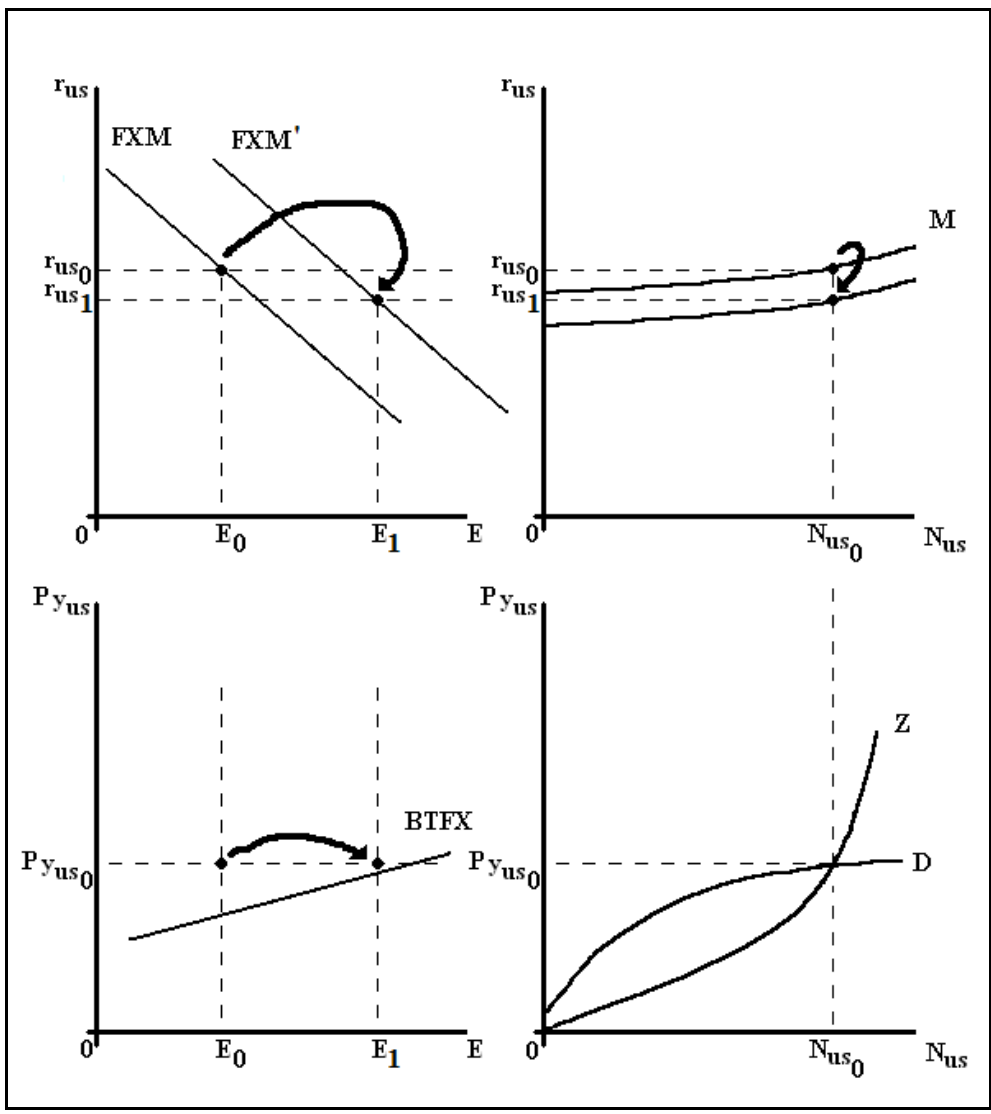


Figure 6.9: Open Economy Z-D, Dollar Reversal, 1985-95 ($E = \$/FX$).

Last Days of the Mark: 1995 Through 1998

Though US inflation performance versus Germany was generally inferior during this period, the dollar rallied in early 1995 and continued to do so almost continuously (save a minor reversal that started in August of 1997) through the last days of the mark (note that $(P_{us} - P_{fx})^e$ is marked

“ignored” on Figure 6.11; Figure 6.10 shows dollar movements over this period). That it did was due almost entirely to interest differentials, which had turned positive and remained there. Meanwhile, as macro data became available, the tendency was to decide how this might impact interest rate policy in the country in question: strong growth was thought to suggest tight monetary policy, and weak the opposite. Indeed, on average (up to the last few months), such data (e.g., unemployment) generally favored the US against Germany. Interestingly, the collapse of US net exports was almost entirely ignored. Figure 6.11 shows the dominant role of interest rate differentials, including the unusual role played by macro growth in this period (noted by the addition of “macro growth” as an indicator affecting relative interest rates) and the market’s decision to ignore inflation and trade flows. Bandwagon effects did not appear to play a strong role in this period, though there was a clear pro-dollar sentiment over the medium term.

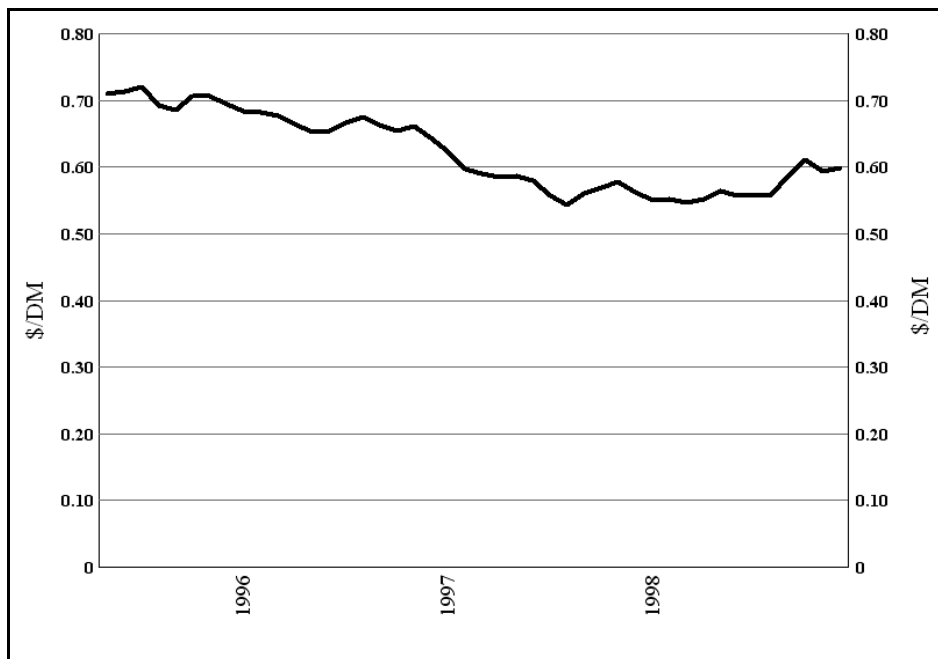


Figure 6.10: The Value of the Dollar During the Last Days of the Mark (1995-1998).

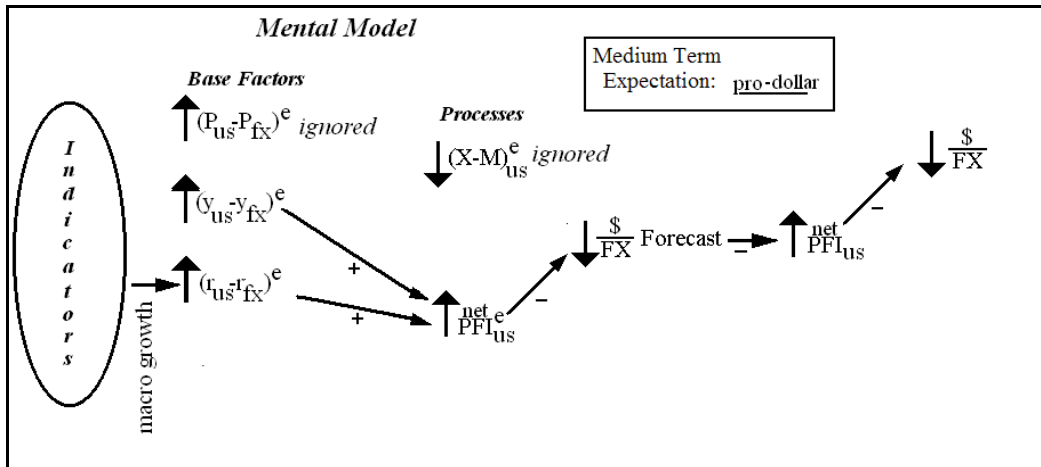


Figure 6.11: Mental Model, Last Days of the Mark, 1995-8.

Figure 6.12 shows the strong US economic expansion (upward shift in D) along with tighter monetary policy (upward shift in M), and expectations of a stronger dollar (leftward shift in FXM). This all combined to create a large and growing trade deficit in the US, as shown in the BTFX quadrant.

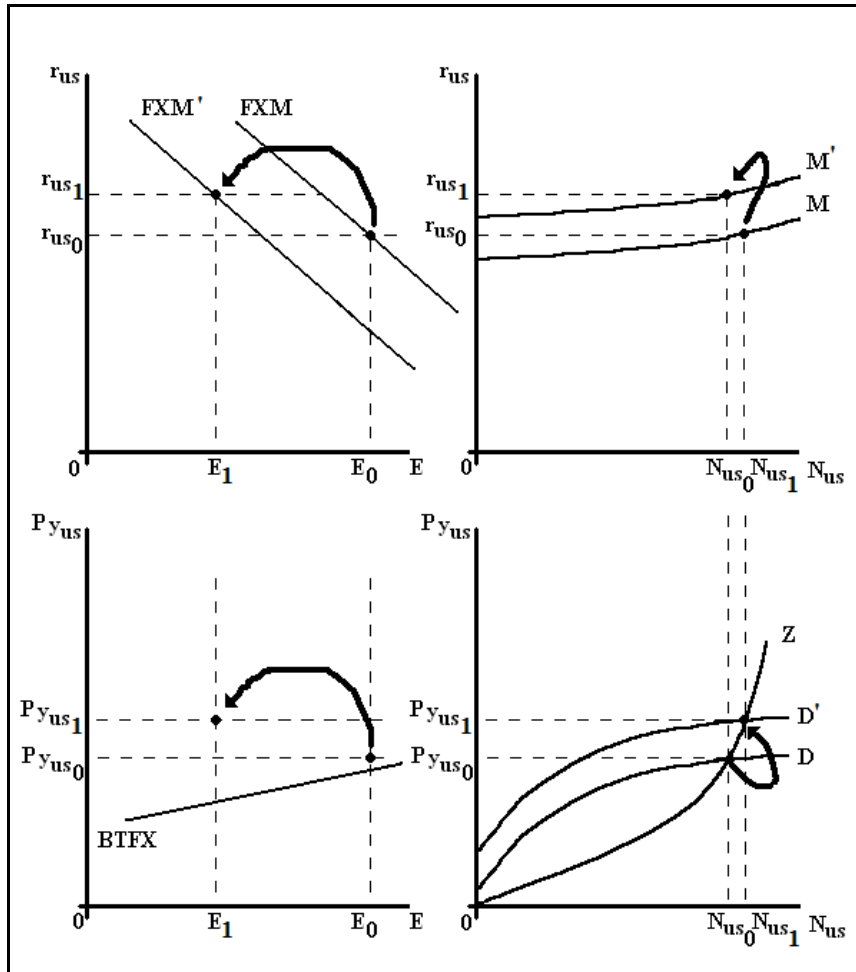


Figure 6.12: Open Economy Z-D, Last Days of the Mark, 1995-8 (E = \$/FX).

Euro's Decline: 1999 Through June 2001

Though the mark ceased to exist and the euro was born in January 1999, the beginning of the next period is really a continuation of the previous one (see Figure 6.13). The primary factor imparting the downward momentum (and a bandwagon) was simply the interest rate differential. So long as it remained positive with respect to the dollar, the euro fell. In addition, there was concern rather than euphoria regarding the new monetary instrument and thus capital began to flow out of

Europe (the latter indicated by the negative impact of “Advent of the Euro” on Figure 6.14).



Figure 6.13: The Value of the Dollar During the Euro Decline (1999-2001).

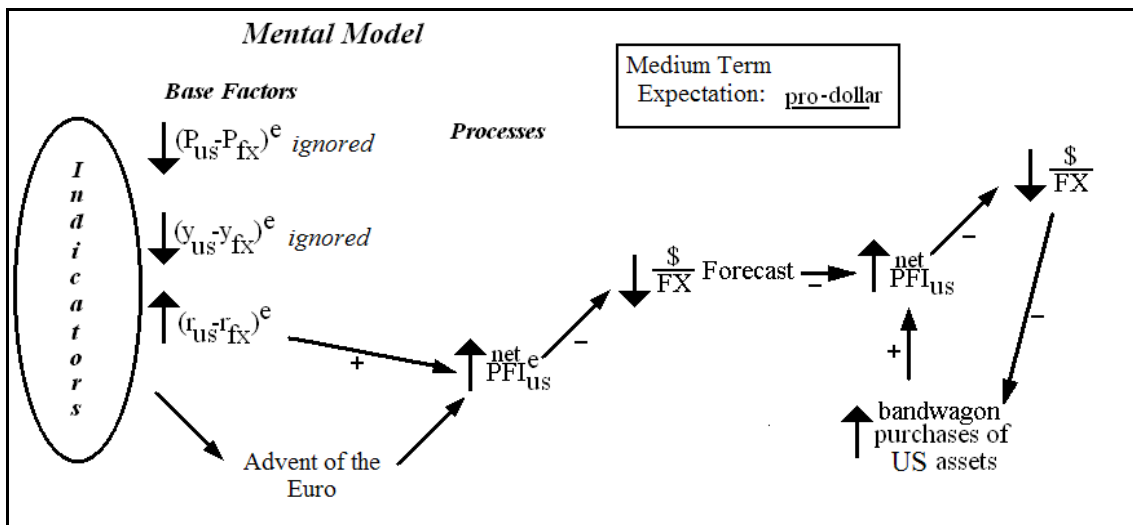


Figure 6.14: Mental Model, Euro Decline, 1999-2001.

The interest rate differential that had given the mark and then the euro downward momentum began to close in mid-1999, and did so by 2001. Still, the euro fell, now more on momentum than

economic indicators. Indeed, though the trends were unclear at the time, US inflation and macro performance (marked with “ignored” on Figure 6.14) were generally worse than German.³ Market participants expressed some confusion over this themselves, suggesting that the bandwagon factors well may have taken over from the mental model as shown in Figure 5.13 was taking place. The Euro had lost roughly 35 percent of its value in thirty months, numbers very difficult to justify in fundamental terms (and especially given that it was about to rocket in the other direction). Though the dollar’s rise in this period was perhaps not as dramatic as that experienced through 1985, the conditions were similar: a general background of profitable interest rate differentials were coupled with a dramatic event in the political/economic arena. And, again as in 1985, an equally dramatic reversal was in the offing.

In the Z-D diagram (Figure 6.15), you see evidence of the fall in \$/FX Forecast from Figure 6.14 and a dramatic rise in the already large US trade deficit. Monetary policy is shown as tightening so that interest rates rise but, again I chose not to complicate the diagram by shifting Z or D. In this instance, had I done so it might have been appropriate to shift D upward (though this period ends with a US recession), which would have magnified the rise in the trade deficit and interest rates.

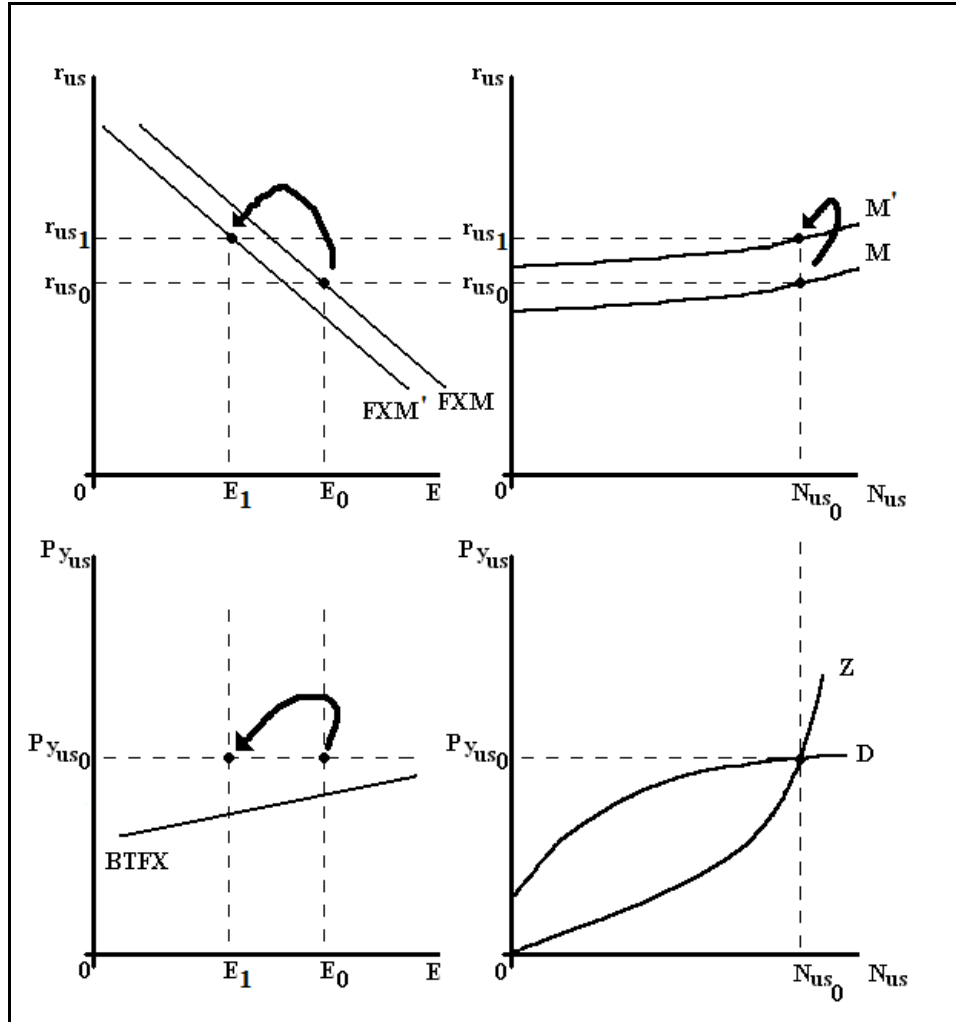


Figure 6.15: Open Economy Z-D, Euro Decline, 1999-2001 ($E = \$/FX$).

Euro Recovery: July 2001 Through 2008

Interest rate differentials had already become negative with respect to the dollar by April of 2001, though the dollar continued to appreciate through June. Thereafter and through 2008, interest paid on the euro exceeded that on the dollar in comparable accounts—and the euro rapidly made up for lost ground (see Figure 6.16). Comparatively little attention was paid to inflation (which

was generally higher and rising in the US—this is marked “ignored” on Figure 6.17) and unemployment (note the question mark in front of $(y_{us}-y_{fx})^e$, indicating that indicators of US versus foreign growth were mixed, and largely ignored in any event). A new variable (re)entered the scene, however: the US trade balance. Its appearance was, indeed, spectacular, with the trade deficit more than doubling in nominal terms by the close of 2005. At the time of this writing (May 2008), there has been a slight recovery in the current account balance, but the dollar is floundering at historic lows. Meanwhile, markets are concerned with the viability of the US financial sector due to the latter’s involvement with subprime lending (i.e., lending to agents with a high default risk) and the news regarding the US macroeconomy remains mixed so that there appears to be little hope that US interest rates will rise in the near future. However, once the dollar does pick up, it would not be surprising to find that it does so very rapidly.

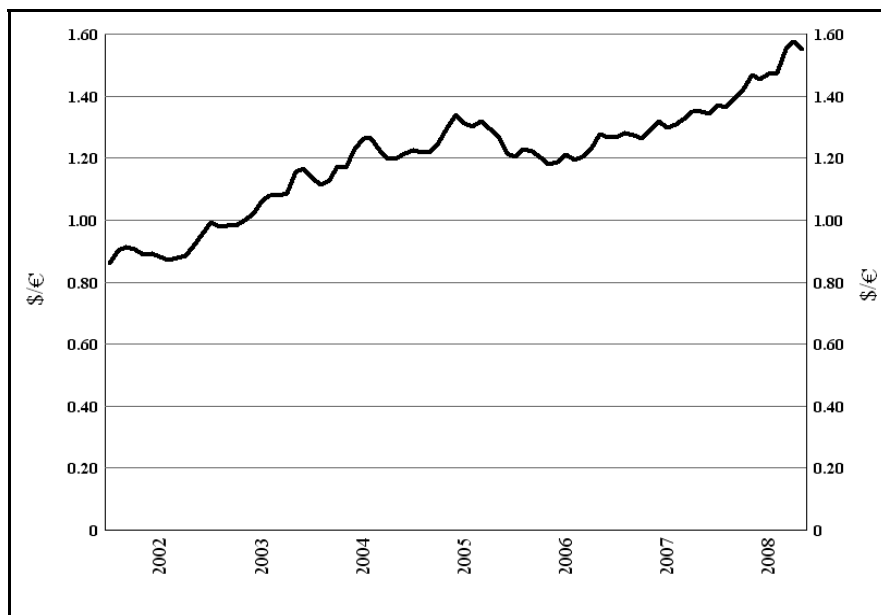


Figure 6.16: The Value of the Dollar During the Euro Recovery (2001-2007).

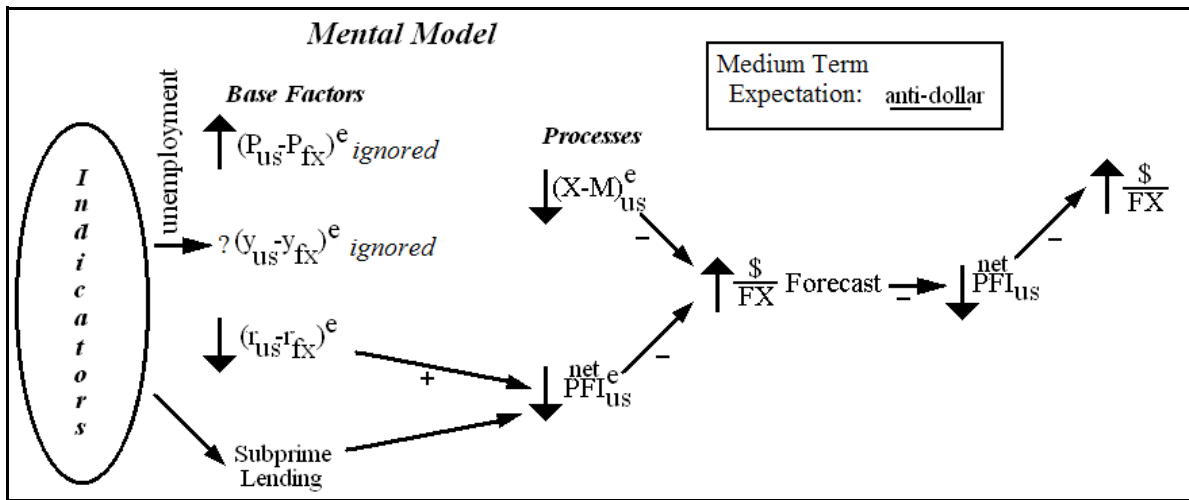


Figure 6.17: Mental Model, Euro Recovery, 2001-8.

Figure 6.18 has the open-economy Z-D for this period. It shows the decline in US interest rates (downward shift in M), the currency-market preference for the euro over the dollar (rightward shift in FXM), and the rising trade deficit. Note that the last occurred despite a falling dollar and a largely stagnant US macroeconomy. This is so because, as Robert Scott has calculated, “Rapid increases in the price of oil and related products were responsible for 63 percent of the increase in the deficit” (Scott 2006). In other words, a rise in the price of imports combined with price inelasticity of demand caused a rightward shift in BTFX that was sufficiently large to more than offset the dollar depreciation. The current account has improved over the past several months, but thus far this has been minor compared to the initial deterioration.

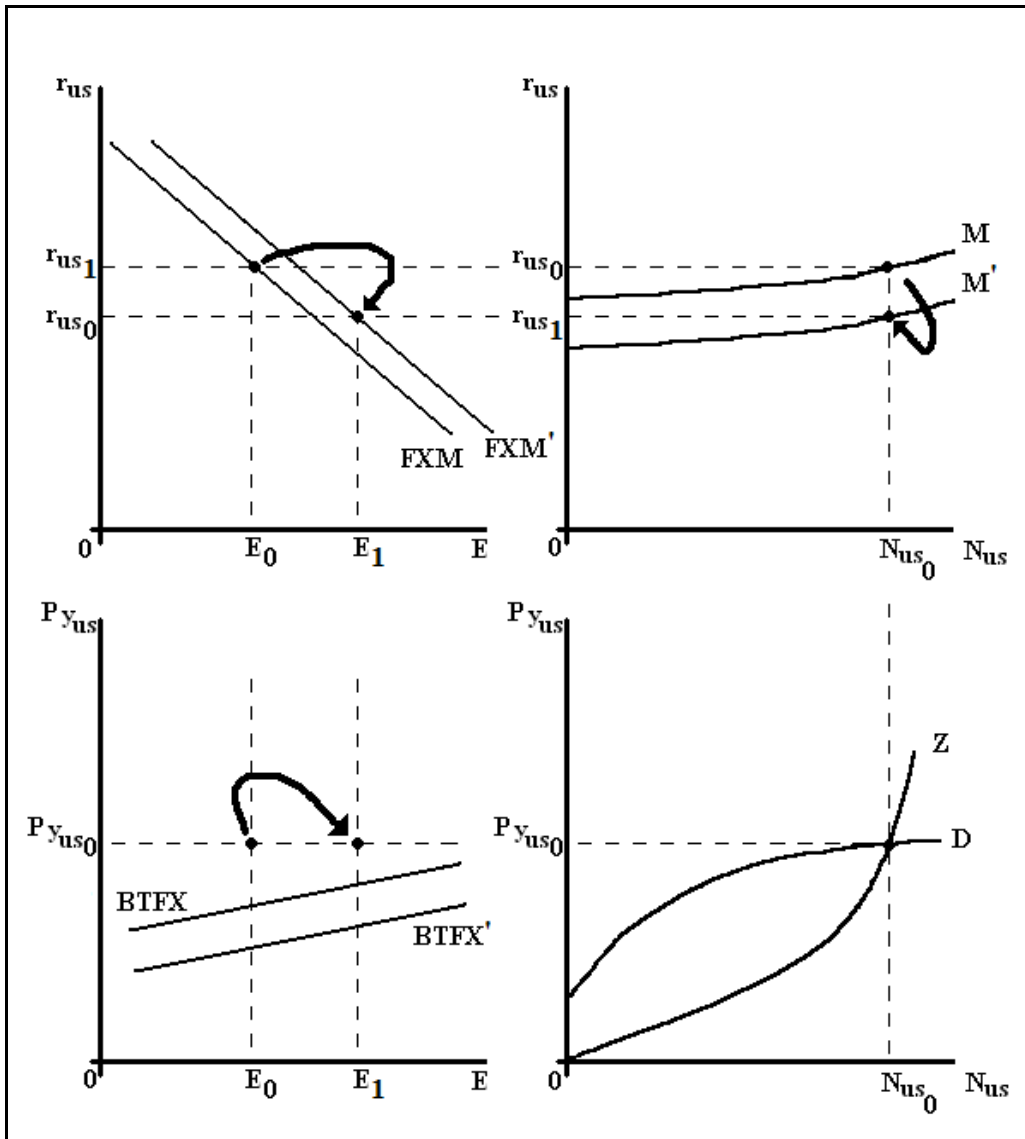


Figure 6.18: Open Economy Z-D, Euro Recovery, 2001-8 ($E = \$/FX$).

CURRENCY CRISES

As suggested in chapter five, international financial crises can be explained in the context of the three tension points illustrated in Figures 5.17 (for flexible exchange rate systems) and 5.18 (for

fixed). These are a function of bandwagon effects in currency and asset markets, a Keynes'-style business cycle, and the tendency of agents to take on increasing levels of debt during "good times." Study of real-world currency crises should show evidence of agents bidding up (or holding) currency values above those levels implied by the mental model, excessive financial rates of return, and increasing financial fragility. Eventually, one of these untenable processes will reach the breaking point and a catastrophic deflation will result.

The Mexican Financial Crisis: 1994

Two recent and particularly dramatic examples of this phenomenon were the Mexican and Asian financial crises. Beginning with the former, it occurred in 1994 and led not only to the collapse of the peso, but a 6 percent contraction in real GDP. While the immediate cause appears to have been comments from President Ernesto Zedillo regarding the possible need to devalue the peso (called "The December Mistake" by outgoing president Carlos Salinas), the seeds were sown in the 1980s.

In order to understand what happened, recall Figure 5.18 (which will be used because the peso was on a sliding peg). As is not uncommon in developing-country crises, the catalyst appears to have come in from a policy shock. In fact, a series of financial liberalization measures were put in place (see for example Cruz, Amann, and Walters 2006). As Julio Lopez-Gallardo, Juan Carlos Moreno-Brid, and Martin Puchet Anyul explain:

The first step was the implementation of a system of auctions, whereby the interest rates were established for commercial bank deposits at the central bank and lending from the central to commercial banks. Later on, in the second half of the 1980s, the mandatory reserve ratio of banks was drastically reduced (from 50 per cent to 10 per cent) and the interest rates for some specific banking instruments were liberalized. In turn, commercial banks were given complete freedom to allocate according to their own preferences the resources obtained from these instruments. This reform was followed by the full and complete liberalization of domestic interest rates in 1988. The banking system was re-privatized in 1990, and a year later the mandatory reserve ratio was eliminated for all banking liabilities denominated in domestic currency. In 1993 commercial banking portfolio investment was completely deregulated.

(Lopez-Gallardo, Moreno-Brid, and Anyul 2006: 370)

Ilene Grabel adds, “The attraction of large inflows of [portfolio investment] after 1989 resulted from the Brady Plan-proscribed neoliberal reforms” (Grabel 1996: 447).

The intent of these measures was, of course, to open up financial markets and thereby attract the capital necessary for real economic growth. What happened instead was that while the policies encouraged domestic and foreign demand for Mexican financial assets (via net demand for domestic assets and net inflows of portfolio capital on Figure 5.18), real growth lagged considerably. The two positive feedback loops on the bottom portion of the diagram were soon

working to drive up financial asset values and support what might otherwise have been considered an overvalued peso. As evidence of the former, from 1989 to 1994, real (deflated by CPI) share prices rose at an annual rate of 33.1 percent; during that same period, real GDP growth was 3.91 percent—not paltry, but well below what agents in the financial market were expecting to earn (International Monetary Fund CD-Rom). Tension was thus clearly growing at the financial-returns divergence point on the left-hand side of the diagram. There was, in addition, a general shift in economic activity as, from 1980 to 1993, GDP represented by industry fell from 22 percent to 20 percent, while that comprised of finance and real estate went from 8.6 percent to 14.9 percent (Cypher 1996: 452).

With respect to the peso, the booming asset market was allowing the government to maintain the pegged rate. It did this by keeping GAP small due to the bandwagon effect (see Figure 5.18) . This merely delays the inevitable, of course, and tends to make the day of reckoning to be much more serious once it does arrive. Unfortunately, it is not really possible to prove that market participants would have, under other circumstances, believed that the peso was overvalued. However, we do know that the real value of the peso in dollars actually climbed 4.64 percent per year from 1986 to 1994, and that this occurred despite the fact that Mexican real GDP growth lagged behind US and the Mexican current account went from modest surplus in 1987 to a \$30 billion deficit in 1994 (the US experienced a substantial improvement in their trade balance; all data from International Monetary Fund CD-Rom). Of the tangible variables on the mental model, only the interest-rate differential favored the peso. Though this is generally a very important determinant of exchange rate movements, the fact that tension was growing everywhere else in

the system meant that it would soon prove to be insufficient to generate a mental-model forecast that remained reasonably close to the pegged domestic currency value. The currency-forecast divergence point was thus growing increasingly strained. One more indication of the weakening position of the peso was the fact that the ratio of foreign currency reserves to the current-account deficit (a commonly-used indicator of the ability of a nation to maintain a fixed rate—the numerator appears on Figure 5.18) fell from 206 percent in 1988 to 21 percent in 1994 (International Monetary Fund CD-Rom). These all contributed to the rapid exit from peso-denominated assets that followed the December Mistake.

This leaves financial fragility to be examined. Given the growing real economy and the asset-market boom, Figure 5.18 would predict a rise in debt/income, particularly short-term and foreign-denominated. There certainly occurred in Mexico leading up to the crisis. According to Cruz, Amann, and Walters (2006), domestic credit to the private sector rose from 11 percent of GDP in 1988 to 39 percent in 1994. And in terms of locational mismatch, Lopez-Gallardo, Moreno-Brid, and Anyul indicate that “...the inflow of foreign funds resulted in heavy external indebtedness of the private sector, including the banks; the exposure of the latter in foreign currency rose from about 19,000 (million of dollars) in December 1992, to about 24,000 in December 1993, and to 25,000 in December 1994” (Lopez-Gallardo, Moreno-Brid, and Anyul 2006: 376). On that same subject, Cypher writes, “By late 1994, the OECD estimated that one-third of the loans extended by the Mexican banks were in foreign currencies and that 25 percent of these loans were to businesses and individuals who had no income in foreign currencies” (Cypher 1996: 456). In other words, debtors in Mexico were becoming more and more dependent

on the value of the peso remaining where it was. The data on maturity mismatch are a little more mixed in that there was actually a decline in short-term borrowing from 1990 to 1992; but there was then a rapid reversal such that it increased sharply up through the crisis (Cruz, Amann, and Walters 2006:715, Figure 3). All these developments were, not surprisingly, accompanied by a rise in non-performing loans, which were “estimated to be more than double the value of the equity capital of the entire Mexican banking system by late 1995” (Cypher 1996: 457). This is wholly consistent with Minsky’s hypothesis.

The above offers evidence of increasing tension at all three points in Figure 5.18. The seeds of the crisis were sewn by free-market reforms dating back to the 1980s and continuing up through the early 1990s. These caused a bidding up of asset prices, which led to unrealistic expectations of returns in the financial sector, debt-burdened economic agents whose liabilities were weighted toward the short-term and foreign currency, and a willingness to peg the peso at a level well above that the market could sustain. That the first inklings of a problem arose from comments about the currency peg is not really significant. In the end, so long as the processes contributing to the three tension points continued, one of them was going to break and the rapid outflow of portfolio capital (and collapse of asset and currency values) would have followed.

The Asian Financial Crisis: 1997

The story of the Asian financial crisis parallels that of Mexico’s in terms of a Minsky-style run up in debt levels and bandwagon-supported pegged currency values; however, rather than the

financial-returns divergence point emerging in the stock-market, it did so in real estate. As Thailand's experience was not only typical, but the first in the row of dominoes, this analysis will trace their experience.⁴

From 1985 to 1995, Thailand's was the fastest growing economy in the world (Jackson 1999: 172). According to the World Bank's *East Asian Miracle Report*, it was a model for economic development (Lauridsen 1998: 137). But, from June 1997 to July 1998, Thai GDP fell from 170 billion to 102 billion US dollars (Jackson 1999: 2). Mired in the worst economic crisis of their history, one had to ask how this could have happened to an economy with such a strong endorsement from the world's economics establishment.

Again, Figure 5.18 should be employed rather than 5.17 as the Thai baht was pegged to the dollar. And again, we can point to a series of neo-liberal reforms as the seeds of the disaster. Pasuk Phongpaichit and Chris Baker write that:

From the mid-1980s, there was a rapid sequence of policy changes: conversion to export of manufactures, increased openness to foreign investment, and liberalization of the capital market...From 1989 to 1993, Thailand pursued financial liberalization including capital account convertibility, stock market reforms, and the creation of an offshore banking facility.

(Phongpaichit and Baker 2004: 151)

These reforms had, as they did in Mexico, the effect of rapidly raising expectations to unrealistic levels. Joseph Lim cites data that show the ratio of portfolio investment inflows to GDP in Thailand rising from 0.25 in 1981-5 to 0.94 in 1986-9 to 1.42 in 1990-4 (Lim 2004: 50). By 1996, this ratio was 2.43 (Lim 2004: 50). Based on Figure 5.18, one would expect this to drive financial returns higher. It did, but not in the stock market. In terms of the latter, although from 1993 to 1994, real GDP grew at 8.6 percent per while CPI-deflated stock prices rose by 23.3 percent per year, Thai stock prices were actually declining the two years before the crisis. At the same time, however, there was a rise in the percentage of GDP associated with finance, which went from 4.6 percent in 1989 to 10.5 percent in 1996 (author's calculations, data from Asian Development Bank) and in Bangkok, new housing construction increased by an average of 17 percent per year while land prices quintupled in the central business district and rose by over 3000 percent in outer areas (real estate data are for 1987 to 1995; Sheng and Kirinpanu 2000: 14). By contrast, rates of real GDP growth were declining, and in 1996, it appeared that this trend was accelerating (Lauridsen 1998: 143). The financial-returns divergence point was becoming tense.

Meanwhile, there were concerns about the fact that the baht was being pulled higher by the rising dollar to which it was pegged, but no immediate action was taken (Lauridsen 1998: 144). Capital was still flowing in, which made it unnecessary for Thai authorities to buy their own currency to keep it at the fixed rate since portfolio investors were doing it for them. But, Thai growth was rapidly slowing and its current account deficit was ballooning. And while the collapse in the ratio of foreign-currency reserves to the current-account deficit was not as pronounced as in Mexico, it had fallen from 378 percent in 1993 to 253 percent in 1996. Market participants were clearly

aware of the currency-forecast divergence as attacks were made on the baht as early as November and December of 1996 (Lauridsen 1998: 145).

With respect to financial fragility, the rising real-estate prices and relatively high if shrinking growth rates caused agents' margins of safety to do precisely what Minsky's theory predicts they would do in good economic times. Measured as a percent of long-term debt, the short-term debt load doubled from 1981-5 to 1996 (author's calculations using data from Lim 2004: 50) and external debt rose from 36.06 percent of GDP in 1981-5 to 49.94 percent in 1996 (Lim 2004: 50). Hence, both maturity and locational mismatch was rising. Against this, because physical investment opportunities were drying up, not only did this mean that recession loomed, but those caught up in the cycle of increasing debt loads were funneling their newly borrowed funds into increasingly speculative ventures. As Yap Koie Sheng and Sakchai Kirinpanu write, "It would not be an exaggeration to say that half of Bangkok's landed families became real estate developers and the other half became real estate investors and speculators" (Sheng and Kirinpanu 2000: 15). They later add, "Many developers had one characteristic in common: they did very little market research which was considered unnecessary, because the demand was everywhere" (Sheng and Kirinpanu 2000: 15). According to the theory of crises put forth in the previous chapter, they were bound to be disappointed.

And so, at a time when the baht was being supported by a tenuous bandwagon and Thais were locked into short-term and foreign debt, the first cracks emerged in the housing market. This actually occurred in waves, with the first striking in 1994. But the problems became most evident

after the release of a government report in 1997 (note the additional evidence of initial overconfidence and locational mismatch in the description):

The news of an enormous oversupply of housing pushed speculators to dump their units. This further subdued housing prices and made it more difficult for developers to sell their units. This shifted attention to the situation of the developers. As the economy slowed down and interest rate increased, it became harder to sell units, while buyers stopped making down payments. Once it was clear that many developers were in trouble, the attention shifted to financial institutions. Developers had heavily borrowed from banks and finance companies, with large developers borrowing on offshore markets. Without repayments by the developers, the finance companies became insolvent, but this was not immediately clear to the general public.

(Sheng and Kirinpanu 2000: 18)

They soon did learn, however, when Somprasong Land defaulted on their Eurobond interest payment in February 1997 (Lauridsen 1998: 147). This led to further revelations regarding the unsound state of the Thai financial market (caused by unrealistic expectations in the real estate market combined with locational and maturity mismatch), reversing the capital outflows that had heretofore made it possible to support the baht peg. By mid year, authorities were forced to allow the baht to float and its collapse followed thereafter.

CONCLUSIONS

Post Keynesians build models that are intended to be explanations of the real world and not academic thought experiments. They therefore see testing their predictions against the facts of experience as a vital step in the process of model development. This chapter's history of the movement of the dollar since the end of Bretton Woods and of the Mexican and Asian financial crises shows that an explanation based on Post Keynesian principles can succeed in showing what has driven exchange rates in this era of large portfolio capital flows.⁵ This is terribly important and encouraging and means that, with the models so vetted, the next chapter can consider policy.