

Discussion

1. Ricardo Hausmann

For some time now, I have been hearing of a mythical place where quite impossible things seem to happen. It is a country the size of a continent, but with a small and very open economy that allows its currency to fluctuate to the tune of its quite erratic terms of trade. It can do so without kindling fears of inflation or wreaking havoc on bond prices. It is a country where short-term interest rates are set with little regard to the exchange rate. Although residents know that the currency will depreciate if the terms of trade deteriorate, they do not run away from domestic assets in order to diversify their already high-income risks. In fact, it has been said that this country has even convinced foreigners to buy bonds denominated in that unstable domestic currency to the point that most of its external debt is *de facto* denominated in the country's own currency!

Obviously such a country cannot exist. And yet, here I am, at the invitation of none other than the monetary authority of that mythical country, trying to see whether Australia's disregard for our most cherished Latin American economic hunches also applies to its treatment of the laws of physics.

Seen from the experience of Latin America, Australia's macroeconomic performance seems very odd indeed. And it probably will appear equally odd to east Asians, but for different reasons. That is why I find it so auspicious to have a discussion about capital flow volatility and the recent financial crises in Sydney.

I have been asked to comment on three papers. Michael Dooley presents a survey of theories of currency crises. He tries to make an honest presentation of the different models, even though we all know where his heart lies. Woody Brock presents us with the implications of the theory of rational beliefs for the recent performance of financial markets. Stephen Grenville and David Gruen present us with a thoughtful piece on the lessons from the recent crises that dispel some major misconceptions that have unfortunately gained wide acceptance. In organising my comments I will be unable to do justice to all three papers, so let me concentrate on some points that may enhance the debate.

The economics profession has a pretty bad track record at deriving lessons from the sequence of crises that have hit the developing world in the last 20 years. It may be useful to mention what those lessons were before we embark on a new attempt at alleged wisdom. We supposedly learned from the Latin American debt crisis of the early 1980s that borrowing to finance fiscal deficits is bad because the government does not invest the resources in productive activities that can generate a stream of new income to pay for the increased debt service. That was a lesson used by Nigel Lawson to explain why there were no reasons to worry about the current account deficit and asset price inflation in Great Britain in the late 1980s: it was driven by private, not public, deficits.

Then we supposedly learned from the Mexican Tequila crisis that borrowing to finance private consumption is bad (Bruno 1996; Summers 1996). In fact, the capital inflows boom of the early years in Mexico coincided with a significant decline in the savings rate, down from close to 20 per cent to only 14 per cent. That is why the east Asian countries did not get into trouble in 1994–95. It was because borrowing was directed to investment, not consumption.¹

So then comes a crisis in the region of the world that had exhibited the highest rates of domestic savings in the world: the ‘miracle’ east Asian economies. So what are we going to say this time? If borrowing to finance government spending is bad, and if borrowing to finance private consumption is bad, and borrowing to finance private investment is bad, then we may as well conclude that borrowing is bad. So before we get too carried away with crony capitalism and corporate governance as our new culprits let us take in a good dose of scepticism.

It is with this spirit that we should try to sort out the different models offered by Michael Dooley. In doing so we must remember that internal consistency is no proof of empirical relevance. Many a beautiful theory has been killed by an ugly fact. First generation models based on a fiscal deficit that will eventually be financed through higher inflation obviously do not fit the relevant facts. Many crises have not been related to fiscal imbalances. Most interestingly, the east Asian crisis does not seem to have been followed by any significant acceleration of inflation.

The most attractive model presented by Michael Dooley is also his favourite. It is based on moral hazard. Investors do not really care about what is done with their money. They know there is bailout money around, so they do not need to care. On the day they realise there is no more bailout money to protect them, they flee, thereby exhausting government reserves and any other extraordinary financing the government may have had available. The promise of the model is that it makes a serious attempt at explaining the timing of crises: they occur when the guarantee money is equal to the capital flow.

Moral hazard is the dominant belief in policy circles. It is behind the emphasis on better supervision and regulation of domestic banks and the backlash against international bailouts. It is also behind the belief that floating limits the perception that there is an implicit exchange rate guarantee.

But is moral hazard empirically relevant? Does moral hazard seem to explain the salient facts? I think not. It seems to me that one of the troubling facts to be explained is why capital flows are so small. In spite of all the uproar, capital flows to Latin America have averaged less than 5 per cent of GDP in the 1990s. That means

1. Gavin, Hausmann and Talvi (1997) showed that the difference between Latin American and east Asian savings rates was explained by the difference in past growth. In fact, in the early 1970s Latin America had average savings rates higher than east Asia. It was the east Asian boom and the Latin American debt crisis that made the two regions diverge. Moreover, they showed that the effect of transitory changes in capital flows on savings was the same in both regions. A transitory increase in capital flows goes about half to consumption and half to investment in both regions.

they have averaged less than 2 per cent of the capital stock per year. With a capital-labour ratio almost 300 per cent higher in the United States, and with a much higher rate of labour force growth, capital flows are bound to equalise capital-labour ratios over the course of several centuries. And this is hard to understand from the point of view of our standard Heckscher-Ohlin-Samuelson theories. In fact, capital flows have been much smaller than under the gold standard, when electronic wire transfers, airline travel and the internet did not exist. These flows are small by the standards of Australian history. They barely reach the recent Australian experience.

Why are these facts a problem? Because moral hazard would explain why there is so much capital flowing across countries. It is a distortion that implies that since the risks involved in international capital flows are implicitly guaranteed, the volume the market allocates exceeds the socially optimal amount. But why is it so small by historical and theoretical standards? It must be that the world is bumping against another distortion more important than moral hazard that would explain why capital flows are so small. This major distortion, whatever it may be, may explain why capital flows are small, and there may be, in addition, some moral hazard. But that distortion is not in Michael Dooley's story.

In addition, moral hazard has strong predictions in terms of the composition of capital flows. It predicts they would tend to take the form most likely to be bailed out, such as loans to governments and banks. Moreover, since exchange rate commitments are less credible for longer horizons, it would predict that capital flows would be skewed towards shorter maturities. However, Eichengreen and Hausmann (1999) have demonstrated that BIS reporting banks do not show any of these symptoms in their lending to emerging markets.

What could that distortion be? Inability to commit to repay is a good candidate. If a lender distrusts a borrower's willingness to repay, he will only lend at an interest rate that will cover him for the risk of non-payment. But this obviously increases the incentives not to repay and causes an adverse selection problem: only those that are not planning to repay would be willing to borrow at those rates. This distortion affects both domestic and international lending. At the international level it is often called sovereign risk. It would explain why capital flows are small and why interest rates are high, which is closer to the actual stylised facts of capital flows to emerging markets.

My preferred story is based on a fundamental incompleteness of the financial market, related to sovereign risk, which I call *original sin*.² It is a situation in which the domestic currency cannot be used for international lending and it cannot be used even domestically for long-term lending. This incompleteness may be a form of sovereign risk in the sense that foreign creditors are unwilling to lend in a unit that the borrower can manipulate. To cover the risk of opportunistic devaluations, lenders may require an interest rate spread that increases the incentives to devalue and causes adverse selection. Hence, the market may disappear, be very small or be characterised by rationing.

2. See Hausmann (1999), Eichengreen and Hausmann (1999).

The point is that if this incompleteness exists, the financial system that can be built on it will be fragile and crisis-prone. All investments in this economy will either have to be financed in dollars or they will be financed with short-term loans. This will cause two types of mismatches: a currency mismatch, if a firm that generates pesos borrows in dollars or; a maturity mismatch, if the long-term project is financed with short-term loans.

These two mismatches interact, making the life of central bankers in countries suffering from original sin quite uncomfortable. If they react to pressure on the exchange rate by letting the currency depreciate, those with currency mismatches are likely to get into trouble. If instead they defend the currency by selling reserves, contracting liquidity and letting interest rates rise, it will make it hard for those with maturity mismatches to roll over their debts.

In this environment, central banks are permanently in fear of either banking or currency crises. In fact, when they get into trouble they often get both at the same time. When the demand for domestic deposits declines they cannot save both the currency and the stock of domestic credit.

It is often argued that borrowing in dollars without hedging the currency risk is an indication of moral hazard. People do not pay for the hedge because they feel protected by a fixed or pre-determined exchange rate. However, this argument assumes that people can hedge, but decide not to. It is like assuming that during the Great Depression people could have found work, but they decided not to take the market wage.

But if a country cannot borrow in its own currency, it cannot hedge the exposure of its foreign debt. To do so, foreigners would have to take a long position in pesos, and that is equivalent to assuming that the country can borrow abroad in pesos. In fact, if hedging were feasible one would not observe international bankers lending in dollars and expecting their corporate borrowers to do the hedging. They would lend in pesos and do the hedging themselves. After all, they are in the business of offering financial services and have been reorganising to be able to offer all services in a single shop. But we do not observe foreign borrowing in local currency in any emerging market.

Original sin can explain why the Thai central bank was reluctant to let the currency move and why the banking system collapsed after the depreciation. It can explain why Indonesia and Korea got in trouble when there was a sudden decline in capital flows. Original sin is what makes Australia different from emerging markets. Being able to borrow abroad in its own currency means that the powerful balance-sheet effects that dominate the transmission mechanism of devaluation in emerging markets is absent. In fact, by borrowing abroad in Australian dollars and letting the exchange rate move with the terms of trade, Australian bonds have equity-like characteristics. They yield higher returns in good times than in bad times, making them stabilising.

Why can Australia borrow abroad in its own currency while the emerging world cannot? That is a question for which we do not have good answers. But my preliminary belief is that foreigners will buy a small portion of plain vanilla loans

broadly held by domestic savers. If the median voter holds the domestic debt, governments will not opportunistically manage the exchange rate to reduce its debt service, because it would be expropriating the median voter. But if the public debt is in the hands of foreigners and a few rich nationals, the temptation to erode the real value of the debt will be much greater. In anticipation, lenders would require a large enough premium to make the market disappear.

In synthesis, I believe that moral hazard is unlikely to be the dominant story in east Asia or in emerging markets in general and the profession had better start looking at other explanations. It is important to get our stories straight because Latin America has already significantly upgraded its banking supervision and regulation and lengthened the maturity of its foreign debt. Moreover, with the exception of Argentina, it has moved towards floating rates. But this has not allowed it to avoid a terrible contraction in 1999 driven by a destabilising collapse in capital inflows in 1998 and 1999 just when it would have needed to finance the temporary decline in its terms of trade, as Australia is doing. Hence, the moral hazard agenda has not saved Latin America and is unlikely to save the world.

Rational beliefs

Woody Brock's paper is an interesting and refreshing approach to explaining some of the characteristics of financial markets. It is based on Mordecai Kurz's theory of rational beliefs. Any economist who has ever written down a rational expectations model must have felt the uncomfortable feeling that he was assuming people have always behaved according to the model that he just made up. Rational beliefs take seriously the idea that people do not really know which model describes the world. They have model uncertainty not just information uncertainty. Woody argues that today there is more rapid technological change and more rapid dissemination of information. This leads to more price volatility as people are less certain about what the underlying model is and are bombarded with similar information at the same time, causing a higher correlation of beliefs, and hence more price volatility.

While I find the approach very attractive, let me comment on some still unanswered points. First, why are capital flows smaller than a century ago? Would the new information technologies not predict more, rather than less, capital flows?

Second, there is much more information about developed country events than about developing countries. CNNfn, Bloomberg and Reuters cover developed markets in much more detail, causing more belief correlation. Why then is price volatility in emerging markets about 10 times larger than in developed markets? Woody would attribute it to greater model uncertainty, but that is not a testable statement.

Finally, belief correlation would explain high price volatility but with few trades. Everybody is on the same side of the market at the same time so prices move a lot but few transactions are made. Does that square with the facts?

Theories and facts

The increasing theoretical prowess in economics makes us increasingly able to make internally consistent theories. But we need to subject them to the facts about the world to see if they are empirically relevant. It is in this sense refreshing to see Stephen Grenville's and David Gruen's paper, a work that establishes so many stylised facts that it forces a rethinking of theories and policies.

Let me not repeat their findings, but instead stress some of the points they make. Let us think for a moment about Thailand. Here is a country that actively attempted to limit capital inflows. It opted to intervene in the exchange rate market in order to limit currency appreciation and it sterilised the purchase of international reserves in order to limit the expansion of domestic credit. Foreign savings equivalent to 9 per cent of GDP were insufficient to bring interest rates in line with foreign rates, generating an incentive for further capital inflows. One very wrongheaded conclusion of this experience, which unfortunately too many highly respected analysts have made, is that Thailand shows that large current account deficits and real appreciation are the cause of crises. Were it not for the government's prudent actions, the currency would have appreciated even more and the current account deficit would have widened further. In fact, a floating exchange rate would have generated even larger current account deficits while the authorities would have been left with fewer instruments to prevent the massive inflows. The sudden turnaround in capital inflows would have generated the same economic policy dilemmas that the government actually faced. A massive depreciation would have bankrupted those with foreign liabilities while the required tightening of domestic monetary conditions would have plunged the domestic financial system into serious trouble.

What caused the reversal? Is it the exhaustion of guarantees as in Michael Dooley's model? I doubt it. I think that Woody Brock's model uncertainty is probably closer to the mark. But whatever caused the reversal, the fireworks are probably related to original sin rather than to moral hazard. And this is unlikely to be addressed through floating exchange rates.

In this sense it is informative to look at the differences in the behaviour of two floating rate countries: one with original sin (Mexico) and one without (Australia). In Australia, the exchange rate and the interest rate seem to follow completely independent paths (see Figure 1). When the terms of trade declined, the currency started to depreciate and the authorities did not feel obligated to tighten monetary conditions. Instead, they lowered interest rates on several occasions in order to compensate for the contractionary effects of the decline in commodity prices. Here, floating obviously provides an additional degree of freedom that permits a countercyclical monetary policy.

The Mexican experience could not possibly be more contrasting (Figure 2). Here, the exchange rate and the interest rate move in the same direction instantaneously. Pressure on the exchange rate translates into a drastic reaction of interest rates, making the correlation between these two variables very strong and highly pro-cyclical: good external conditions translate into a stronger currency and lower interest rates while a bad external condition weakens the currency and raises interest rates

Figure 1: Australia

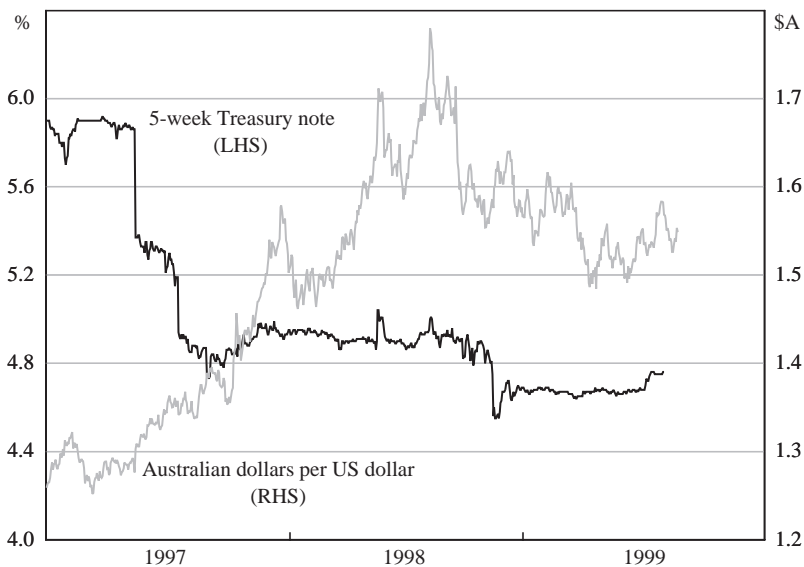
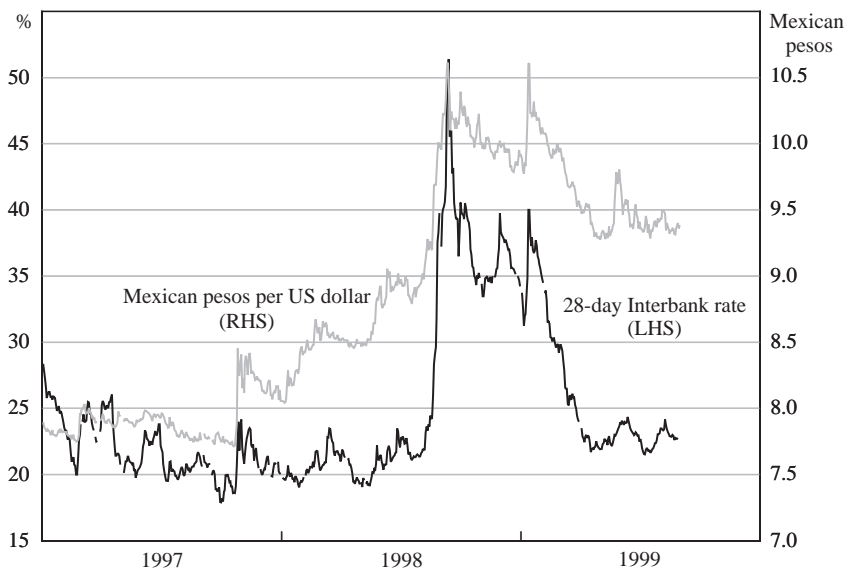


Figure 2: Mexico



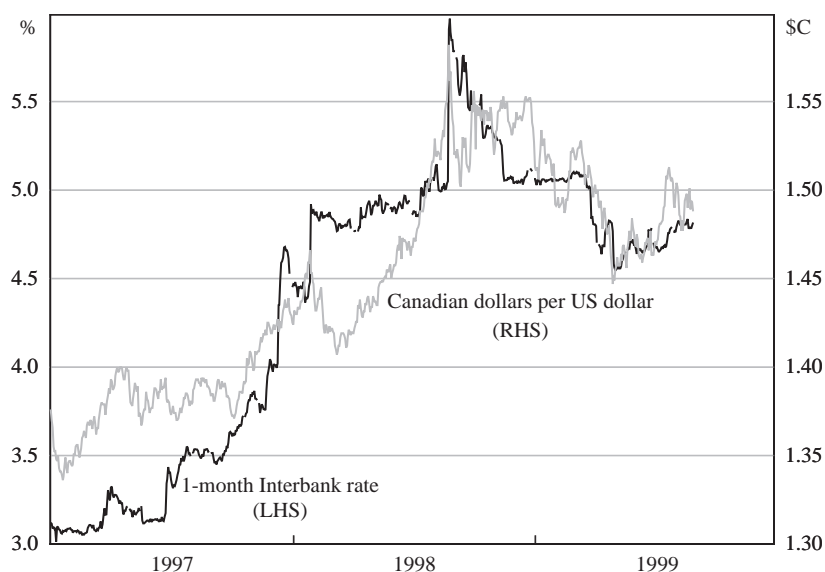
dramatically. Under these conditions, a depreciation is bound to be highly contractionary since it is accompanied by a rise in interest rates and a negative balance-sheet effect.

The Mexican reaction to the Russian crisis is a good example. As pressure mounted on the exchange rate, interest rates moved from less than 25 per cent to more than 45 per cent and stayed over 35 per cent until February 1999. In spite of this massively contractionary policy, the central bank missed its inflation target of 12 per cent by 6 percentage points. Such a massively contractionary and pro-cyclical reaction, with such an incredibly volatile domestic interest rate is probably what emerging markets with floating regimes are bound to experience.

That is why Grenville and Gruen are right to caution against excessive enthusiasm for floating regimes for emerging markets. Coming from authors that are so familiar with Australia's positive experience, it is a recommendation to be taken seriously. Without Australia's asset and liability structure and without its low exchange rate passthrough, the experience could be more like Mexico than like Australia. In fact, Canada's experience is more akin to Mexico's (see Figure 3) in terms of the high and pro-cyclical correlation between exchange rates and interest rates, even though interest rates move an order of magnitude less.

The economic profession's track record in learning from crises is quite dismal. The current consensus based on attacking moral hazard and promoting floating exchange rates is likely to be one more case of getting it wrong.

Figure 3: Canada



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2. General Discussion

Most of the discussion of the papers in this session concerned the extent to which foreign investors in east Asia had been rational and far-sighted.

Several participants agreed that the concept of correlated rational beliefs described by Brock is helpful in understanding aspects of investor behaviour during the east Asian crisis. For example, the collapse of the Thai baht in mid 1997, and the realisation that there was a huge overhang of unhedged foreign borrowing in the Thai economy, convinced foreign investors that there were vulnerabilities in this, and perhaps neighbouring, economies of which they had not previously taken sufficient notice.

Some participants argued that this could be thought of as the arrival of new information. Others agreed with Brock that it was fruitful to think instead in terms of investors' having learnt something new about how the world worked; that is, that the events led them to analyse the behaviour of these economies in terms of a different model.

There was similar argument about the overshooting of the rupiah exchange rate in Indonesia. Some participants claimed that this overshooting could be explained

by standard theories linking exchange rate depreciation with inflation and the observed sharp increase in growth of the monetary base. Others responded that the rapid money-base growth arose from a huge increase in demand for currency as funds were withdrawn from the banking system. They therefore reasoned that it did not signal rapid future inflation, and should not cause the currency to collapse. They argued instead that the outcome was a consequence of a market panic in an environment of profound uncertainty about the future.

Another way of explaining the volatility of asset and foreign exchange markets in east Asia is in terms of multiple equilibria. Dooley's and Walsh's paper had shown that this concept can explain why capital poured into east Asia and then fled rapidly, despite relatively little change in economic fundamentals. Even rational investors with a good sense of economic 'fundamentals' may be sensitive to the behaviour of other investors. Markets may therefore lurch between an equilibrium where foreign investors are happy to hold the assets of a country to one in which everyone wants to sell. Some participants argued that government guarantees could be a source of this instability. Other participants drew an analogy with bank runs, in which evidence that some investors are withdrawing funds leads others to do so, culminating in a liquidity crisis in a bank that is otherwise financially sound.

Finally, there was discussion about whether capital flows had been excessive prior to the crisis. Capital-labour ratios are much higher in developed than in developing economies, and international capital flows have narrowed these differences much more slowly than mainstream economic theory would predict. In other words, actual international capital flows are quite meagre by theoretical standards. This casts a shadow over the conventional belief that foreigners had genuinely 'over-invested' in east Asia prior to the crisis. Some participants countered that capital ought to flow to regions offering the highest returns, not necessarily from rich to poor countries. Judged by this metric, capital flows to east Asia may indeed have been excessive during the mid 1990s.