

NBER WORKING PAPER SERIES

WILL SUBPRIME BE A TWIN CRISIS FOR THE UNITED STATES?

Michael P. Dooley
David Folkerts-Landau
Peter M. Garber

Working Paper 13978
<http://www.nber.org/papers/w13978>

NATIONAL BUREAU OF ECONOMIC RESEARCH
1050 Massachusetts Avenue
Cambridge, MA 02138
May 2008

The views expressed herein are those of the author(s) and do not necessarily reflect the views of the National Bureau of Economic Research.

NBER working papers are circulated for discussion and comment purposes. They have not been peer-reviewed or been subject to the review by the NBER Board of Directors that accompanies official NBER publications.

© 2008 by Michael P. Dooley, David Folkerts-Landau, and Peter M. Garber. All rights reserved. Short sections of text, not to exceed two paragraphs, may be quoted without explicit permission provided that full credit, including © notice, is given to the source.

Will Subprime be a Twin Crisis for the United States?
Michael P. Dooley, David Folkerts-Landau, and Peter M. Garber
NBER Working Paper No. 13978
April 2008
JEL No. F02,F32,F33

ABSTRACT

We identify incentives generated by the Bretton Woods II system that may have contributed to the sub-prime liquidity crisis now working its way through the international monetary system. We then evaluate the persistent conjecture that the liquidity crisis is or will become a balance of payments crisis for the United States. Given that it happens, the additional costs associated with a sudden stop of net capital flows to the United States could be quite substantial. But we observe that emerging market governments have continued to acquire US assets even as yields have fallen, and the incentives for continuing to do so remain strong. Moreover, the Bretton Woods II system, which has clearly been the most resilient of the forces driving current markets, continues to generate low real interest rates in industrial countries and growth in emerging markets that will help limit the damage from the liquidity crisis.

Michael P. Dooley
Department of Economics
Engineering II
University of California, Santa Cruz
Santa Cruz, CA 95064
and NBER
mdooley@cabezoncapital.com

Peter M. Garber
Deutsche Bank
60 Wall Street
New York, NY 10005
and NBER
peter.garber@db.com

David Folkerts-Landau
Deutsche Bank AG London
1 Great Winchester Street
London EC2 2EQ
United Kingdom
david.folkerts-landau@db.com

**It has been reported that I was seriously ill--it was another man;
dying--it was another man; dead--the other man again
When you hear it, don't you believe it... And don't take the trouble to deny it.
Mark Twain 1897**

The US sub-prime mortgage collapse and the breakdown of related financial sector technologies currently working their way through world financial markets have been interpreted as the shock both that was caused by the system and that will finally bring the Bretton Woods II system to its end.¹ The Bretton Woods II system requires large and sustained investment in the US by foreign governments and individuals. It seems prudent to doubt that the required faith in the US economy and financial system can be maintained in the face of the dismal performance of US assets and institutions in recent months.

We agree that a general, sharp decline in the market value of US financial assets and a general failure of most valuation models in a widespread banking panic could indeed threaten the Bretton Woods II or any other international monetary system. But the bottom line for us is that the Bretton Woods II system will continue to generate low levels of interest rates in international capital markets and growth in emerging markets that make the spread of problems in one segment of the US market to a general collapse of asset prices much less likely.

If the sub-prime crisis were reinforced by a breakdown of the Bretton Woods II system, we would join those who expect a severe downturn in US and world economic activity in 2008. A “sudden stop” of private and official capital inflows into the United States would generate a large increase in US interest rates to force investment in the US down to match domestic savings. Moreover, experiences of other countries with similar adjustments suggest that the decline in economic activity could be quite severe.²

But we emphasize that this has not occurred to date and we do not see any material change in the incentives that have held the Bretton Woods II system together. We expect that the system will continue for at least five more years to follow the dynamics to its terminus that we laid out five years ago.

How the system set up the crisis.

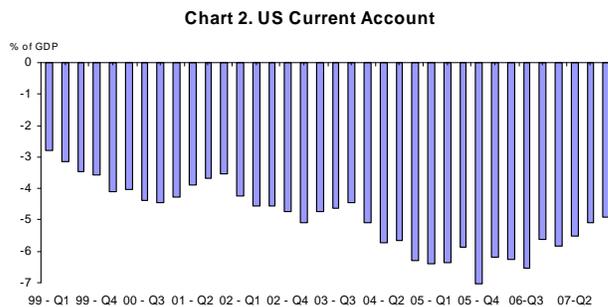
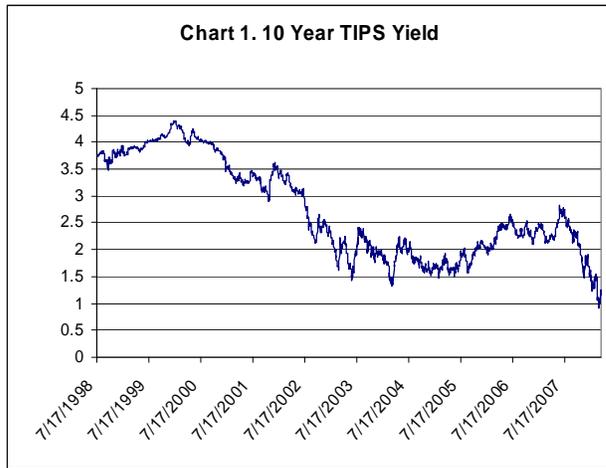
How did the current crisis develop and break out in the context of Bretton Woods II dynamics? This is not the sort of crisis that many economists have warned would trigger a collapse of the system. The potential crises that they have emphasized over the years were: an end to official intervention in exchange markets, reserve diversification away from US assets, a massive depreciation of the dollar against *managed* currencies, a general jump in real interest rates, an outburst of protectionism, a rise in oil prices, or a geopolitical event. In our view, the liquidity and credit crisis *has* been driven by some facets of the system as it interacts with industrial country financial systems. This has particularly raised doubts about the financial technologies that have in the past channelled private capital flows into the more marginal financial products.

First, we outline the financial market effects that the system created as background leading into the crisis. The advent of the system persistently lowered the long term real rate of interest at every stage of the business cycle because of the large scale supply of net savings that emerging market

¹ For example see Martin Wolf, “Why the credit squeeze is a turning point for the world”, <http://www.ft.com/cms/s/0/90126fca-a810-11dc-9485-0000779fd2ac.html>, December 11, 2007.

² See Carmen Reinhart and Kenneth Rogoff, 2008. “Is the 2007 U.S. Sub-Prime Financial Crisis So Different? An International Historical Comparison” NBER Working Papers 13761.

countries were pushing into the industrial countries.³ These effects are starkly visible in Chart 1, which depicts ten year TIPS rates, and Chart 2, which depicts the US current account deficit.⁴ Coupled with an ongoing boom, this raised the real values of the general array of asset prices.



This combination had the effect of lowering credit risk and credit spreads -- initially for good reason. At a given high real interest rate, the marginal projects on the marginal efficiency of investment curve are risky by their nature. If the long term interest rate suddenly and persistently drops simultaneously with an ongoing, non-inflationary economic upturn, an entire new range of projects become profitable. Moreover, risk spreads on previously undertaken projects would narrow. Eventually, working down the MEI curve, new profitable projects are exhausted, and a new crop of marginal risky projects are undertaken as risk spreads return to normal levels.⁵

The danger generated by this process was that a temporary compression of risk spreads was confused with a permanent change. The Bretton Woods II system has generated a lasting decline in the *level* of real interest rates, but it does not generate a permanently less risky world or reduce the demand for returns based on risk taking. Moreover, because of the institutional structure of

³ Our analysis does not depend on mechanical interpretations of changes in savings and investment in emerging markets but on the historically unusual decision of many EM governments to place a substantial share of national savings in international financial assets.

⁴ Charts in this paper except Charts 1, 2, and 6 are from *Global Economics Perspectives*, March 24, 2008, Global Markets Research, Deutsche Bank by Peter Hooper, Thomas Mayer, Torsten Slok, Theodor Schonebeck, and Mark Wall.

⁵ Of course, well-performing older projects can always be made riskier at lower rates by leveraging them up through buy outs.

finance in industrial countries, the appetite for risk did not decline to match the opportunities. In the public and private sector banks, investment houses, and hedge funds, the reward structure also encouraged a scramble for spread in proprietary and trading positions. In addition, state affiliated entities lacked a real business rationale and existed via a carry trade.

In the US, the tightening program of the Fed caused the yield curve to invert without significantly raising long term interest rates. This inversion lasted for the longest time in modern US history, with the exception of the Volcker disinflation, without triggering a recession of the kind that would normally end it.⁶ The boom persisted because the growing inflow of emerging market net savings kept the long term rate from responding to the pressure.

Since the premium available to investors as reward for risk associated with maturity transformation disappeared while the demand for spread persisted, the financial system was rewarded for supplying spread product in some other way. To manufacture spread for those financial institutions that needed it, the financial industry tapped into a new high risk class of borrowers.

The golden age of the sub-prime borrower emerged. The two year life of the inverted yield curve coincided exactly with the explosion of asset backed commercial paper structures. These provided the money market funds with the short term paper that their shareholders were demanding. Such funds themselves were fueled by the demands of savers for the higher yielding short term paper. The ABCP structures provided their sponsors with the spread they needed at the cost of implicitly guaranteeing a liquidity backup. But in the mortgage dimension, it is now evident that there were not enough legitimate sub-prime borrowers to satisfy this demand. Combined with weak US state regulators in the mortgage markets and theoretical rating models, this opened the door for fraud. The failure of the securitization technology in this dimension led to a general questioning of its safety in other applications and a generalized rolling run on the US and European financial system by the holders of short term claims.

It is easy to imagine an alternative scenario in which the industrial country financial systems were not populated by institutions that would become problematic in a low spread environment. Then the normal credit rationing of poor risks would still be in effect. The continuing influx of cheap savings from emerging markets would then flow to the better risks, and for them the cost of funds would be driven lower still.

We can see this kind of equilibrium in the distribution of credit right now. For example, in Chart 3, spreads over Treasuries in mortgage markets have clearly risen, but the *level* of interest rates for conventional mortgages has fallen sharply since the start of the crisis leading to a wave of refinancing to lock in low fixed rates. Once the disruption to the jumbo market has ended, this effect will spread there as well. This effect is also visible in Chart 4, where spreads of high grade credit products have risen to the extent that even municipals have moved to a positive spread over Treasuries. But again, the fall in Treasury yields has been dramatic enough that the *level* of yields paid by these borrowers has fallen since the crisis.

This is the opposite of the result that those claiming an end to Bretton Woods II have in mind.⁷ As the Bretton Woods II system continues rolling along its same dynamic path, it keeps throwing

⁶ In a more closed system, an inverted curve would cause savers to expand their demand for short term claims, reducing the flow of funds to long term claims and putting upward pressure on long term rates. Projects that had seemed profitable before would now sour; investment demand would contract and the economy would slow. Then the short rate could be brought down again, ending the inversion in a fairly short time, to complete the interest rate cycle.

⁷ While creditworthy borrowers have benefited from a reduced borrowing cost, the blowing out of spreads has been deadly for financial institutions that took large leveraged credit positions financed by shorting Treasuries. Their mark to market balance sheets have been devastated in exactly the same way that wiped out LTCM in 1998. Simultaneously, their business model for generating flow revenues via slicing, dicing and repackaging risks through several iterations has been shut down for a long time.

more savings into the industrial countries. But the riskier borrowers are now rationed, so the less risky borrowers get credit at even lower real rates than before the crisis.

Chart 3. Mortgage and Treasury Rates

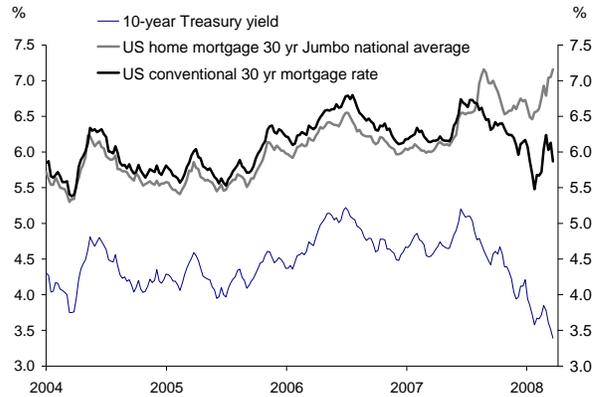
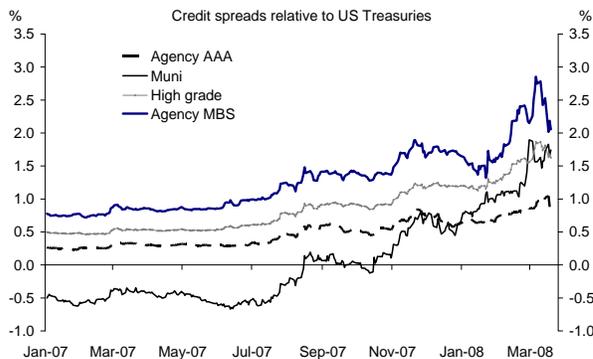


Chart 4. High Grade Credit Spreads



Does the crisis herald the end of the system?

It certainly is a severe crisis. Some assets are clearly less desirable today because either the integrity or capital of the institutions and the financial technologies that stand behind them have been called into doubt. But we do not believe this is a problem for US assets in general or of financial innovation per se. Lying about the qualifications of mortgage applicants or pumping up property appraisals are not financial innovations. There can be no doubt that the value of sub-prime mortgages issued after 2006 was lower than investors were led to believe and rating agencies accepted. But this does not suggest to us that fraud also broke out in other asset backed markets in 2006. Underwater lots in Florida, subdivisions in the deserts of Arizona, and major collapses of mortgage lenders were a feature of US economic history long before the CDO market and the Bretton Woods II system.

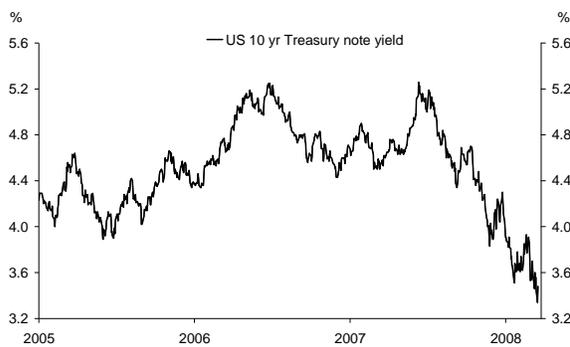
If on top of this problem it is assumed that the “act one” subprime crisis will generate an “act two” disintegration of the international system itself, it follows that asset values in the US will be further

depressed by a rise in the equilibrium risk free interest rate. Thus, housing prices in the United States will suffer both from increased risk spreads and from a general fall in asset values as risk free rates rise to equate savings and investment in the US. Observers who have long expected the crisis of the Bretton Woods II system even before the subprime problem burst onto the stage naturally fold the two negative events into one, with dire forecasts the result. In our view, “act two” remains just the same unfulfilled *forecast* that has been made for the last five years or more.

The key to the continuity of the international system is the relationship between the United States and the emerging market countries that manage their currencies. Observers who have predicted the collapse of this relationship now assume that it has occurred or will soon occur. But we see no material change in the outlook for the US current account deficit or for the net demand for US assets—a gradual reduction over the course of at least five more years as managed currencies gradually appreciate.

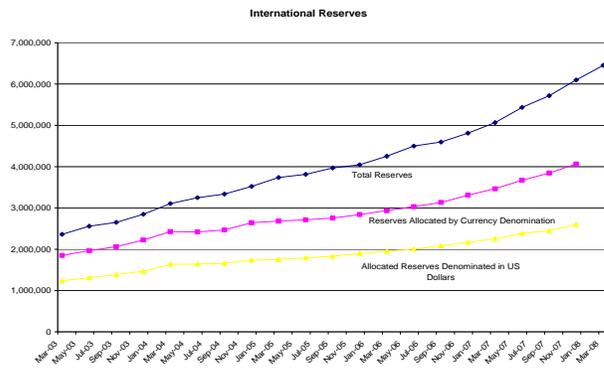
On the contrary, the foreign central banks and other non-resident investors continue to hold and rapidly accumulate US Treasury securities at even lower yields than before the subprime crisis appeared, as in Charts 5 and 6.

Chart 5. 10 Year Nominal Treasury Yield



Data on total reserve accumulation through the first quarter of 2008 clearly show no decline in the accumulation of international reserves. Data on the currency composition of reserves is much less comprehensive and is available through the fourth quarter of 2007 but, as shown in Chart 6, the dollar share of reserves did not change through year end. We know even less about the growth and composition of sovereign wealth funds although there has been some participation in recapitalizing US financial institutions. At a minimum it seems very likely to us that “official” investment decisions have been and will continue to be an important part of the solution to the liquidity crisis rather than a source of additional uncertainty.

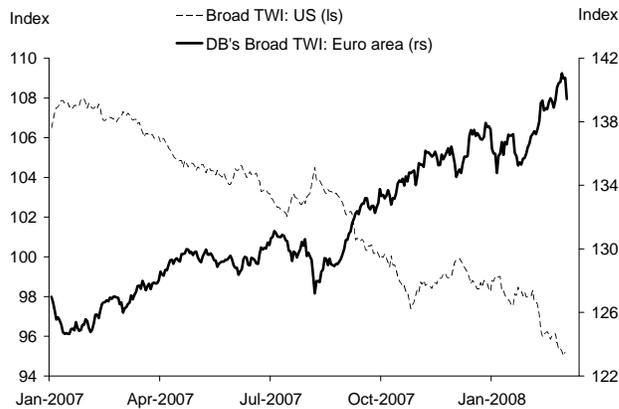
Chart 6. Dollar Reserve Accumulation



Source: IMF, Bloomberg

The dollar has weakened against the euro and other floating currencies (See Chart 7), but we argue below that this is consistent with a normal cyclical mismatch of short term interest rates in the US and other floating currencies. There has been an increase in the rate of appreciation of the renmimbi and other managed currencies vs. the dollar (though a depreciation vs. the euro), but this appreciation is not enough to generate a significant change in the pattern of current account imbalances or net capital flows. Moreover, a slowdown in the growth of Chinese exports associated with a slow down in the United States would reduce pressure for renmimbi appreciation.

Chart 7. Trade Weighted Dollar and Euro



Is the Dollar Doomed?

When we began to work on the revived Bretton Woods system in 2003, with the euro and the dollar at around parity, we argued that the euro and other industrial country floaters would face inexorable upward pressure.⁸ Our view was the conventional one that private sector investors,

⁸ Dooley, Michael, David Folkerts-Landau and Peter Garber, "An Essay on the Revived Bretton Woods System," NBER Working Paper no. 9971, September 2003.

seeing the cumulating US current account deficits, would insist on higher returns to match the higher risks of financing US entities in dollars.

We rethought our logic on the floating exchange rates in our 2005 paper.⁹ Our earlier analysis was based on a conventional view that US and other industrial country assets were not close substitutes. This meant that EU savings and any inflows into the EU, not being sent to the US because of the hesitation of its asset managers, would pool up in the EU and keep real interest rates below those in the US as well as appreciate the euro.

We noted, however, that real interest rates on long term financial assets were remarkably similar and moving together across the industrial countries. This was a strong indication that the financial markets were highly integrated, producing assets that were close substitutes. This leads to the key implication. Once the system became fully understood, the floating currencies like the euro would quickly appreciate in real terms against the dollar by the full amount of their long run expected appreciation, but then be trendless. The long run expected appreciation might shift if the system produced larger cumulative imbalances or lasted longer than expected. Moreover, over an asynchronous business cycle the exchange rate with the dollar would still fluctuate around this neutral trend as short term interest rates varied across national credit markets.

A contrarian implication is that neither the “first stop currency” for reserve accumulation nor reserve diversification away from the dollar makes a difference for exchange rates among the major currencies. We are still puzzled by experts who embrace the idea that sterilized intervention undertaken by the Federal Reserve and the ECB has no effect on dollar/euro exchange rates but exactly equivalent transactions undertaken by governments of emerging markets do have massive effects on the same variable. Does changing the name of an accounting identity from “sterilized intervention” to “reserve diversification” change the market impact?

So our analysis from 2005 was the following. Once the participants in the financial markets absorbed the full implications of the global system, the floating exchange rates would experience a one-off real appreciation vs. the dollar to reflect the relatively large net debt position that the US would have at the end-game of the system. In our view, this appreciation had already occurred by 2005. Following this adjustment to the new long run equilibrium real exchange rate, the exchange rates of the floating currencies vs. the dollar would be trendless as both gradually depreciated together against the renmimbi. The exception to this would be the result of asynchronous domestic interest rate cycles driven by the usual cyclical developments in the US and Europe or reassessments of the end-game US indebtedness.

This held very well until the August 2007 crisis. But since then the significant appreciation of the euro and other floaters vs. the dollar has led to talk about the end of the system and, even more, the end of the hegemony of the dollar.¹⁰

We are tempted to return to our assumption that US and EU financial assets are imperfect substitutes. That is, there might be a new reluctance among industrial country private investors to neutralize official sector purchases of euros.

But once more, the problem is that long term real interest rates on financial assets have not separated much in the US and other industrial countries.¹¹ If there were a blockage of flows from

⁹ Dooley, Michael, David Folkerts-Landau and Peter Garber, “Interest Rates, Exchange Rates and International Adjustment,” NBER Working Paper no. 11771, November 2005.

¹⁰ Wolfgang Munchau, “Dollar’s Last Lap”, *Financial Times*, November 25, 2007, <http://www.ft.com/cms/s/0/96754c52-9b7c-11dc-8aad-0000779fd2ac.html>. This seems a bold concept in the presence of central banks falling over themselves to accumulate record levels of dollar reserves.

¹¹ In mid-March 2008, the spread between USD and euro 10-year swap rates was about 20 basis points, while the one-year spread was about 200 basis points.

Europe, we would expect real rates in Europe to drop below those in the US. But in a wide range of markets, financial assets in the EU have performed similarly or worse than those in the US. These include equities, as in Chart 8, credit spreads, as in Charts 9 and 10, and money markets, as in Chart 11. In high yield bonds, US spreads over Treasuries have widened more than European spreads over governments, but the *level* of high yield interest rates has not risen quite as much because of the collapse of Treasury yields. This means that US and EU assets are still close substitutes. Indeed, the credit crisis has been as severe in the euro zone and the UK as in the US, so scepticism about asset quality is not limited to US assets. The US current account deficit is still being financed at low real risk-free rates.

So we are still in accord with our October 2005 view that the exchange rate movements are the result of an asynchronous cycle. As Europe moves into the same cyclical phase, we would expect the euro to depreciate back to its long-term range vs. the dollar.

Chart 8. Major Stock Indices in 2008

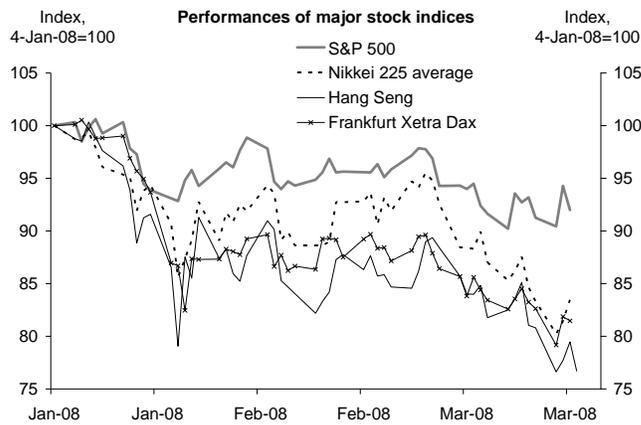


Chart 9. Credit Default Spreads in Europe

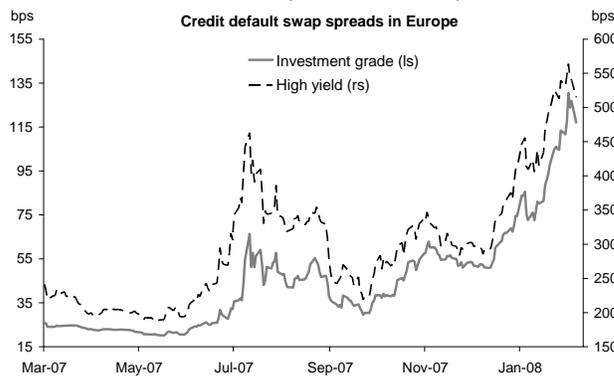


Chart 10. US High Yield Spread over Treasuries

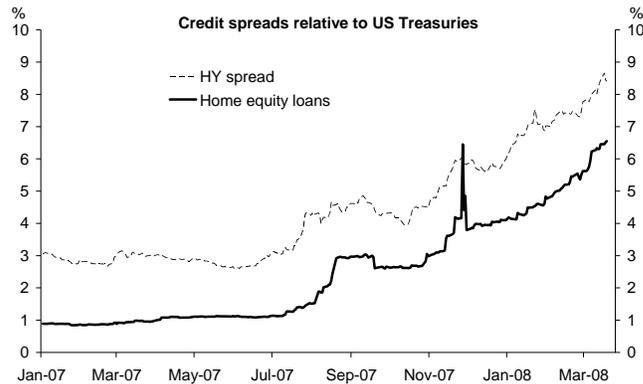
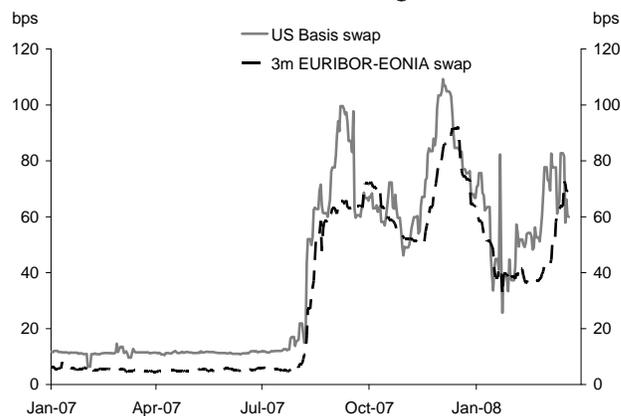


Chart 11. Euro and Dollar Overnight vs. 3 Month Bank Unsecured Bank Spreads



BW II will survive because it accommodates successful development strategies.

We expect the Bretton Woods II system to last through the natural course that we outlined long ago because the incentives that produced it are still operative. The key global imbalance is the massive excess supply of labor in Asia. From the perspective of an integrated industrial world, we have been living through the equivalent of a labor market Great Depression since China and now also India integrated with the global economy. The unemployed and underemployed labor is regionally concentrated outside the industrial countries, so the impact shows up most clearly in the international accounts.

The collection of uncoordinated but durable global economic policies that define the current international monetary system may or may not bring the system relatively painlessly out of this depression. The "depression" is in Asia with growth rates near ten percent not in the United States where the unemployment rate is 4.8 percent and growth in the first half of 2008 will be close to zero. The solution has been haphazard and jerry-built and is "second best." Hanging over this solution, the questions have always been: Can demand grow rapidly enough and be channelled properly to absorb the surpluses of labor before the destructive politics in China or the industrial countries take over? Can the labor be matched with the right physical capital and managed to produce those items that are actually wanted and where the demand is located?

There was the possible path, of course, on which this need not have been a problem for the international system at all. If there is unemployed labor and inefficient capital formation in emerging markets, why not reform their domestic institutions and rely on domestic markets to create employment and economic growth? A recurrent criticism of our approach is that we focus on growth in export industries and participation in international financial markets and neglect the contribution of development of domestic goods and financial markets. Clearly, domestic demand that supports the expansion of high productivity jobs and capital accumulation is as good as international demand. We do not know why inward looking development policies such as the import substitute industrialization popular in Latin America have been such dismal failures or why it has proven so difficult to reform domestic financial markets. We only point out that if we were responsible for the development strategy of a poor country we would not find many historical examples of successful inward looking strategies. We are sure, though, that we reject categorically assertions that current macroeconomic theory tells us much about what will and will not be a successful development strategy.

We have little faith in the ability of institutions within emerging markets to reform from within. It would be wonderful to reform the domestic financial systems in emerging markets because this would liberate domestic savings for efficient capital formation. But we observe that it is more effective to bypass the domestic financial system by allowing capital flight or some of the official savings flows from the country to return in the form of direct or equity investment. This replaces the distorted domestic allocation incentives. It also threatens the rents captured by domestic financial institutions as their business is lost to international markets. The domestic reaction, of course, is to tighten controls on capital flows. But at some point the threat of replacement sensed by domestic institutions will generate reform.

In the last ten years, the experiment implementing this prescription of rapid growth in two way flows but with net flows from poor to rich has been associated with unambiguous success from the perspective of many emerging market countries. This structure of capital flows promotes economic growth because savings intermediated by domestic financial markets in poor countries are often not transformed into productive capital. Hence the loss of domestic savings *intermediated by domestic institutions* involves little sacrifice in terms of economic growth. Financial intermediation in these markets is dominated by government owned or controlled institutions that transfer wealth from savers to preferred beneficiaries including, of course, the government. This is not a new or controversial observation. But it is perhaps a contribution to observe that the distorted domestic financial market might be circumvented by gross capital flows.

Capital flight from distorted emerging market financial markets can promote growth if that capital is returned by investors attracted by high return projects. But we should not expect to find any simple relationship between capital flows and growth. First, foreign investors must face different incentives as compared to resident investors. For example, foreign flows into domestic banking systems are likely to be invested in the same distorted manner as are domestic deposits and can increase the costs of moral hazard and other existing distortions. Second, efficient foreign investment must overcome the political risk faced by the foreign investor on the second leg of the round trip. In a recent paper we developed the idea that the welfare enhancing role of net capital flows lies mainly in their ability to “flow uphill” and collateralize gross flows.¹²

¹² Dooley, Michael, David Folkerts-Landau Peter Garber, “The Two Crises of International Economics,” NBER Working Paper 13197, June 2007.

Conclusions

Any open international monetary system would be challenged by what has been called a “huge blow to the credibility of the Anglo-Saxon model of transaction-oriented financial capitalism.”¹³ But an international monetary system that sustains low real interest rates in international capital markets and rapid growth in the periphery is well placed to withstand an outbreak of fraud in US financial markets, poor liability management in UK banks, hunger for yield in German state-affiliated banks or Swiss banks, or rogue traders in French banks. There is no doubt that a twin liquidity and balance of payments crisis would be very damaging to the US and the world economy. But this scenario remains a forecast that is no more credible today than it has been for the past several years.

¹³ Martin Wolf, “Why the credit squeeze is a turning point for the world”, <http://www.ft.com/cms/s/0/90126fca-a810-11dc-9485-0000779fd2ac.html>, December 11, 2007.

References

Dooley, Michael, David Folkerts-Landau, and Peter Garber, "An Essay on the Revived Bretton Woods System," NBER Working Paper no. 9971, September 2003.

Dooley, Michael, David Folkerts-Landau, and Peter Garber, "Interest Rates, Exchange Rates and International Adjustment," NBER Working Paper no. 11771, November 2005.

Dooley, Michael, David Folkerts-Landau, and Peter Garber, "The Two Crises of International Economics," NBER Working Paper 13197, June 2007.

Global Economics Perspectives, March 24, 2008, Global Markets Research, Deutsche Bank. Peter Hooper, Thomas Mayer, Torsten Slok, Theodor Schonebeck, and Mark Wall.

Munchau, Wolfgang, "Dollar's Last Lap", Financial Times, November 25, 2007, <http://www.ft.com/cms/s/0/96754c52-9b7c-11dc-8aad-0000779fd2ac.html>.

Reinhart, Carmen and Kenneth Rogoff, 2008. "Is the 2007 U.S. Sub-Prime Financial Crisis So Different? An International Historical Comparison" NBER Working Papers 13761.

Wolf, Martin, "Why the credit squeeze is a turning point for the world", <http://www.ft.com/cms/s/0/90126fca-a810-11dc-9485-0000779fd2ac.html>, December 11, 2007.