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**Hot Money Flows, Commodity Price Cycles,  
and Financial Repression in the U.S. and China :  
The Consequences of Near Zero U.S. Interest Rates**

by

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December 2012



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Under near zero U.S. interest rates, the international dollar standard malfunctions. Emerging markets (EM) with naturally higher interest rates are a swamped with hot money inflows. EM central banks intervene to prevent their currencies from rising precipitately. They lose monetary control and begin inflating. Primary commodity prices rise worldwide unless interrupted by an international banking crisis. This cyclical inflation on the dollar's periphery only registers in the U.S. core CPI with a long lag.

The zero interest rate policy also fails to stimulate the US economy as domestic financial intermediation by banks and money market mutual funds is repressed. Because China is forced to keep its interest rates below market-clearing levels, it also suffers from financial repression—although in a form differing from that in the U.S.

**Keywords:** Hot money, inflation, zero interest rate, commodity price cycle, financial repression, China, U.S..

**JEL Classification No.:** F31, F32.

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## 1. Introduction

The international dollar standard is malfunctioning. The Fed's reduction of the interest rate on Federal Funds to virtually zero in December 2008 (a move that was followed by other industrial countries) exacerbated the wide interest rate differentials with emerging markets and provoked world monetary instability by inducing massive hot money outflows by carry traders into Asia and Latin America (McKinnon 2013). A "carry trader" is one who exploits interest rate differentials across countries by borrowing in low interest rate currencies to invest in currency domains with higher interest rates (Menkhoff et al. 2012).

Figure 1 shows the persistently wide gap between "policy" rates of interest in emerging markets, represented by the BRICS (Brazil, Russia, India, China and South Africa) compared to the advanced industrial countries. As the interest rates in advanced economies have approached zero during the recent wave of crises, also the interest rate level in the emerging world has declined. Whereas the interest cuts in the industrialized world aimed to stabilize the domestic economies during crisis events, the resulting rise of speculative capital inflows has contributed to rising inflationary pressure, speculation booms in local real estate markets and hikes in food and energy prices. The upshot is rising monetary, macroeconomic and political instability in the emerging world (Magud et. al. 2012).

(Figure 1 about here)

## **2. Hot money Flows and Inflation in Emerging Markets**

Over the past decade, speculative money flooding into higher interest rate emerging markets by carry traders has provoked domestic inflation as well as causing local currencies to be overvalued. When emerging market currency exchange rates are not tied down by official parities, their ongoing appreciation induces more hot money inflows, as one-way bets on currency appreciation are induced (McKinnon and Schnabl 2009). Neglecting the exchange risks involved, carry traders see a double benefit: the higher interest rates in emerging markets combined with the capital gain as their investment currencies appreciate against the dollar.

To prevent or limit emerging market currencies from appreciating, emerging market central banks sell their local currency and buy dollars. In the presence of ongoing carry trades, however, emerging market central banks need to keep intervening to prevent continuing appreciation. This foreign exchange pressure leads to the violation of the theorem that a floating exchange rate gives monetary independence to central banks. Each emerging market central bank feels forced to stabilize its exchange rate in order to prevent currency appreciation that would make its exports less competitive against its neighbors. (Löffler, Schnabl and Schobert 2012).

From 2001 to 2011, interventions by central banks in emerging markets were massive: emerging market foreign exchange reserves increased sixfold—from \$1 trillion to \$7 trillion during the period (Figure 2). Although the People's Republic of China (PRC)

accounted for about half of this huge buildup, the combined interventions of large emerging markets—Brazil, India, Indonesia, and Russia, and a host of smaller ones— were equally important.

(Figure 2 about here)

Notice that this large buildup of foreign exchange reserves in emerging markets since 2001 has not been smooth. Speculative carry traders are often highly leveraged, and depend heavily on banks for finance. So if an unexpected worldwide banking crisis erupts, banks stop lending to their most risky customers, i.e. carry traders. Figure 2 shows some decline in emerging market foreign exchange reserves first with the US subprime mortgage crisis in 2008-09, and second with the euro banking crisis since mid 2011.

These two interruptions of the carry trade are illustrated in Figure 3. If carry traders borrow in dollars to invest in emerging market currencies, and then a banking crisis cuts off their flow of dollar credit, they must sell off their foreign exchange assets to repay their dollar loans. This then induced the dollar to rise sharply in the foreign exchanges in 2009 and mid 2011 while inflationary pressure in EM (temporarily) abates. However, if the large interest differential remains, we would expect the carry trade (and weak dollar) to return once the euro banking crisis is over.

(Figure 3 about here)

The sharp buildup of emerging market foreign exchange reserves with concomitant increases in domestic base monies was too big to be fully offset by sterilizing domestic money issue by selling central bank bonds or raising reserve requirements on domestic commercial banks (Löffler, Schnabl and Schobert 2012). The resulting loss of monetary control in the emerging markets has led to headline inflation that is generally higher than headline, and much higher than core, inflation in developed market economies (Figure 4). This higher inflation occurred despite the fact that, since 2002, emerging market currencies on average appreciated against the currencies of developed countries.

Despite Federal Reserve's goal to stabilize domestic prices, U.S. headline inflation can hardly be insulated from the worldwide inflation because of international trade. Figure 4 also shows that U.S. headline inflation moves together with Emerging and Developing Countries' inflation and U.S. import prices.

(Figure 4 about here)

### **3. Price Bubbles in Primary Commodities and Political Instability**

However, the inflationary impact of these carry trades associated with the ebb and flow of "hot" money into emerging markets is most obvious in the volatile cyclical movements in primary commodity prices internationally. Because many emerging markets produce primary commodities and are relatively important consumers of basic foodstuffs, their collective losses of monetary control can create worldwide commodity price bubbles.

Figure 5, “The Greenspan-Bernanke Bubble Economy”, shows the sharp rise in primary commodity prices from 2003 through mid 2008—the first phase of the carry trade after the U.S. Fed had cut its interbank to just one percent in 2003-04. Primary commodity prices spiked in mid 2008 and then fell sharply into 2009—with the onset of the subprime mortgage banking crisis. Then, when the subprime banking crisis seemed to be contained by mid-2009, hot money flows into emerging markets (because of the interest differential) started up again. And commodity prices spiked again in early 2011—before beginning to fall in mid 2011 from the European banking and sovereign debt crisis. (Figure 5 also shows the 50 percent increase in land prices peaking in late 2006 before collapsing and creating the U.S. subprime mortgage credit crunch.)

(Figure 5 about here)

Are commodity price bubbles something to worry about? People in mature industrial countries are more insulated from their malign consequences than are those in developing countries. Food and energy make up larger parts of disposable income in developing countries, making the population more sensitive to inflationary pressure, particularly in food markets. Although both commodity price spikes created distress, Figure 6 shows that the sharp run up of agricultural prices in 2010 (when many basic food prices virtually doubled) corresponds to the food riots associated with the Arab Spring.

(Figure 6 about here)

In December 2010, it was a poor Tunisian food vendor that immolated himself—thus starting contagious riots throughout the Arab world. Unfortunately, the Arab Spring (as the name implies) was interpreted by Western diplomats as a sudden longing for democracy to



throw out corrupt dictatorships—and that the West should support the rebels. If the Arab Spring had been recognized as mainly a food riot, the response of Western governments would have been more measured in taking sides—while focusing more on (monetary) measures to dampen cycles in primary commodity prices.

The disruption in emerging markets and other developing countries could be partially justified if zero interest rates on short-term dollar assets had helped the United States recover from the 2008–2009 subprime mortgage crises. However, evidence suggests otherwise.

#### **4. Financial Repression in the United States**

Although the US low interest rate policy is claimed to stabilize US growth and therefore to have also positive spillover effects on the emerging world, the zero interest rate policy per se is unlikely to stimulate US growth. Conventional thinking has it that the lower the interest rate the more opportunities there are for credit to expand. But this is only true when interest rates—particularly interbank interest rates—are comfortably above zero. Banks with good retail lending opportunities typically lend by opening credit lines to non-bank customers. But these credit lines are open-ended in the sense that the commercial borrower can choose when—and by how much—to draw on the credit line (subject to some maximum limit of course). Open-ended credit creates uncertainty for the bank since it is difficult to know what its future cash positions will be. An illiquid bank could be in trouble if its customers simultaneously decided to draw down their credit lines.

However, if the “retail” bank has easy access to the “wholesale” interbank market, its liquidity is much improved. To cover unexpected liquidity shortfalls, it could borrow from banks with excess reserves with little or no credit checks. But if the prevailing interbank lending rate is close to zero (as it is now), then large banks with surplus reserves become loathe to part with their reserves for a derisory yield. In this case, smaller banks, which collectively are big lenders to small and medium-sized enterprises (SMEs), cannot easily bid for funds at an interest rate significantly above the prevailing interbank rate without inadvertently signaling that they might be in trouble, i.e., distressed borrowers. Indeed, counterparty risk in smaller banks remains substantial as about 100 failed in 2011 in the United States.

The U.S. system of bank intermediation is essentially broken. Figure 7 shows the sharp fall in interbank lending: Interbank loans outstanding in October 2012 were only one-quarter of their level in October 2008. The US recovery has been weak into 2012 with bank credit and employment languishing or increasing only slowly. Figure 7 shows that “Commercial and Industrial loans” were significantly less in 2012 than in 2008; and instead banks loaded up with “Treasury and Agency Securities” and “Cash Assets”, which are mainly excess reserves held with the Fed by large commercial banks.

(Figure 7 about here)

But the damage that near zero interest rates has done to financial intermediation in the United States is more general than that seen just in banking statistics.<sup>1</sup> Money market mutual funds attract “depositors” who believe they can withdraw their deposits to get virtually instant liquidity. But as the yields on the short-term liquid assets of these funds approach zero a small negative shock could cause any of them to “break the buck” if marked to market. That is, a customer trying to withdraw from his account might only get 99 cents on the dollar. Banks and other sponsors of money market mutual funds are paranoid about the reputational risks of breaking the buck. So they have closed, are closing, money market mutual funds both in Europe (in euro) and in the United States (in dollars).<sup>2</sup>

When short-term interest rates are kept close to zero indefinitely, this inevitably drags down long rates. A well-known principle of finance is that today’s long rates are just expected future short rates plus a liquidity premium. And when Fed Chairman Ben Bernanke drove short rates to zero in December 2008, the yield on the 10-year U.S. Treasury bond was 4 percent. By July 2012, the 10-year yield had fallen to 1.45 percent—and one can expect it to fall further if short rates remain frozen near zero.

In the medium and longer term, pension funds have been very important financial intermediaries. However, it is well known that defined benefit pension funds everywhere are in serious trouble. In California most public sector pension funds have assumed a nominal

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<sup>1</sup> The failure of low interest rate policies in Japan, see also Ueda (2012).

<sup>2</sup> A recent research from Boston Federal Reserve found that 78 money markets mutual funds would have broken the buck were there no non-contractual support (Brady et al, 2012).

yield of 7.5 percent on their assets. So default is in prospect as well as in the increasingly numerous California cities and towns that are being forced into bankruptcy because they cannot meet their pension fund obligations.

In effect, the United States is suffering from a modern form of “financial repression”. Financial intermediation between savers and investors is repressed because near zero “market” interest rates threaten the viability of financial intermediaries—as discussed above—even when general price inflation and burdensome bank regulation are not problems.

In the 1970s, the term financial repression originated with McKinnon (1973) and Shaw (1973) when inflation *was* a problem less developed countries (LDCs). In the 1960s and 1970s, governments in many LDCs intervened to put ceilings on nominal interest rates and impose high reserve requirements on their banks—and used other techniques to direct the flow of credit in the economy. This repressed the supply of investment finance and depositors wound up seeing negative real interest rates—and banking systems shrunk in size. Wanting to find a pejorative term (like political repression ) to describe this syndrome, McKinnon and Shaw in 1973 used the term *financial repression*.

Although the modern form of financial repression is somewhat different because depositing and lending takes place at market (near zero) rates of interest without bank regulatory distortions, perhaps it is more insidious because it is less obvious.

## 5. Financial Repression in China

On the Chinese side, the U. S. Federal Reserve's ultralow interest rates at the center of the world dollar standard also result in a form of *financial repression* (Lardy 2008). The PBC is forced to keep Chinese bank deposit and loan interest rates far below the natural rate of interest associated with a high-growth economy. Even so, because of the large interest differential between the United States and China (table 1), hot money flows in through somewhat porous capital controls so that the PBC is forced to buy U.S. dollars to keep the exchange rate stable. (The inflow of hot money can be accentuated by expected appreciation of the RMB.) Some of this excess money creation is sterilized, but potential inflationary pressure in China's CPI remains. How does the resulting financial repression distort China's economy?

< interest rate table 1 about here >

Households see a deposit interest rate below the rate of inflation—a form of taxation that reduces household income and consumption. Some enterprises receive a substantial subsidy in the forms of cheap credit (the standard bank loan rate in 2010 was 5.56 percent), creating great excess demand. At this centrally mandated low interest rate, the state-owned banks pick just the safest borrowers—which are large state-owned enterprises..

On the other side, because the official lending rate is significantly lower than the market clearing rate, there is an excess demand for bank credit in China's robust economy.

The heavily managed rate official loan rate band inevitably leads to distortions in the way that bank credit is allocated. At the low loan rate, the commercial banks prefer to lend to state-owned or state-held enterprises because of their relatively lower bankruptcy risk. In addition, there is evidence that state-owned or state-held enterprises also enjoy preferential loan rates. Andrew and Kyle (2011) listed a group of SOEs whose capital cost was significantly lower than the “official” maximum rate. Ferri and Liu (2010) did more systematic analysis on a 2001-2005 dataset from China’s NBS. They found that even after controlling for individual features, the cost of debt is significantly lower for SOEs..

(Of course, small and medium sized private enterprises get rationed out altogether when official loan rates are set at a low level. Because of their higher default rates and administrative costs per dollar lent, they typically need much higher loan rates—say between 10 and 20 percent—to equilibrate the supply and demand and demand for credit.)

With the credit and possibly other subsidies, the profitability of large state-owned enterprises (SOEs) has surged in recent years—and there is no policy of remitting these profits to households. Whence the high proclivity of SOEs to invest in fixed assets—at home and abroad<sup>3</sup>. Investment has grown to a remarkable 45 percent of GDP (figure 8). At near-zero real rates of interest, the quality of many of these investments cannot be high.

Moreover, the shares of personal income and private consumption are falling as profits surge.

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<sup>3</sup> As China’s financial reform deepens, we expect this phenomenon to be mitigated. Fixed capital formation of private sector is picking up quickly since 2000, and jumped nearly 20% GDP in 2011.

In 2011, Figure 8 shows that China's private consumption of 35 percent of GDP was only half of the U.S. level.

(Figure 8 about here)

Savers disappointed about the negative deposit returns, together with the lenders turned down by the formal banks, form the underground or “shadow” financial system.

Although there is no official figure, in 2005, the then deputy governor of PBoC, Ms. Wu Xiaoling, disclosed that the scale of informal financing was at the level of 950 billion RMB, 5.92% of total loans, according to their survey. It is not unexpected that interest rate is much higher in the underground financial system. For example, Li and Hsu found the national average to be 16.4% from 2004 to 2006 (Li and Hsu 2009).

By 2012, the shadow banking system in China seems to have expanded enormously—as described by Simon Rabinovitch in the *Financial Times* (Dec 6, 2012):.

Shadow banking in China assumes various guises. The most basic are the illegal loan sharks who operate mainly in wealthy coastal regions, providing high-interest loans to small businesses that are often ignored by mainstream banks.

But most of China's shadow banking is legal. The biggest of the non-bank institutions are trusts, companies akin to hedge funds. They cater to rich investors and promise high returns by lending to risky customers, especially property developers. A range of industrial companies, from shipbuilders to oil majors, also engage in shadow banking as a side business.

Estimates about the size of shadow banking vary widely depending on how it is defined. Tying together various threads of official data, UBS economist Wang Tao believes it is no smaller than Rmb13.6tn (\$2tn), or about one quarter of this year's gross domestic product, and could be as big as Rmb24.4tn, or nearly 50 per cent of GDP.

For all the difficulties of making a calculation, one thing is apparent: its rapid growth. Trusts, the backbone of the shadow sector, had Rmb6.3tn of assets under

management at the end of the third quarter, up 54 per cent from a year earlier and five-times more than at the start of 2009. KPMG says trusts could surpass insurance this year as the second-biggest institutional component of China's financial system, smaller only than banks.

With opaque market structure and information, the underground financial system is prone to crisis. A recent (2012) example is happening in Wenzhou, an underground entrepreneurial hub south of Shanghai. The underground debt panic caused enterprise bankruptcy and dozens of firm owners escape debts simply by fleeing. "Long chains of underground financing deals, often based on predatory lending rates, collapsed as exports weakened and property prices tumbled....The city's courts heard 10,269 economic disputes most related to loan defaults in the first half of 2012, almost twice as many as last year"

*(Financial Time Dec 6)s*

#### **(6) What is the solution?**

Zero interest rate policies in the US contribute to rising macroeconomic and political instability in developing countries and emerging market economies, while they are unlikely to stimulate US growth. Reform efforts should focus much more on international monetary harmonization that limits interest differentials while accepting the need for exchange rate buffers, such as capital controls, to limit hot money flows.

If interest differentials are too wide, capital controls will always fail. The first item on the G-20 agenda should be to abandon monetary policies by the mature industrial economies, led by the US, which set interest rates near zero. This would lessen the incentive



of central banks in emerging markets to keep their interest rates low despite the inflationary pressure that they face and despite the fact that their “natural” rates of interest are higher. The Fed must be the leader in raising interest rates in mature economies because, under the asymmetrical world dollar standard, it has the greatest autonomy in monetary policy.

US officials point to the stagnant US economy as the reason they want to keep domestic interest rates as low as possible—even zero. They must be convinced that this common view is mistaken, and that raising short-term interest rates on dollar assets from zero to modest levels—say 2 percent—jointly with their peer central banks in developed countries is in America’s own best interests, as well as that of the rest of the world. The longer the Fed’s zero interest rate policy stays in place, the more difficult it becomes to get out of the resulting liquidity trap and restore a more normal flow of financial intermediation within the United States—so as to avoid the perpetual stagnation we now see in Japan, sometimes called “Japanization” (Ueda 2012.)

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Profits of Chinese State-Owned Enterprises Real?\*" *Asian Economic Papers* 9, no.3 (2010):

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Figure 1: GDP Weighted Discount Rate of BRICS and G3

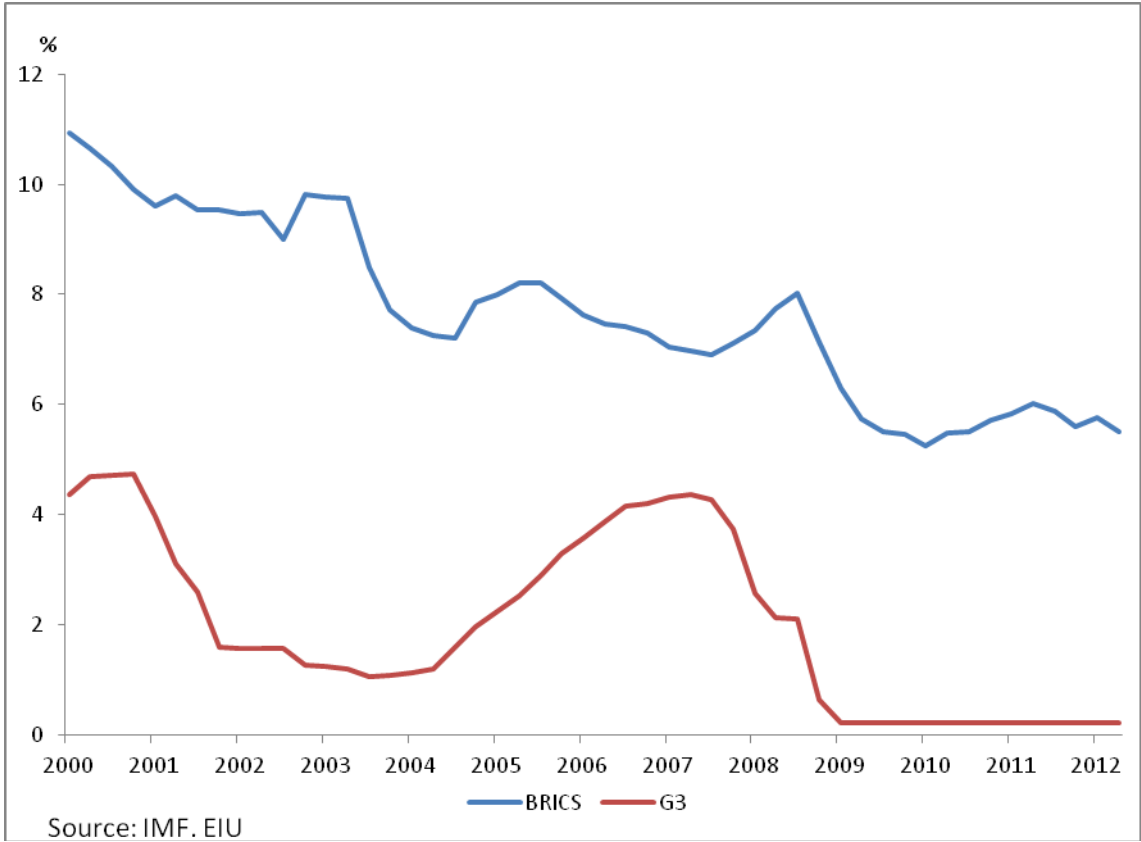
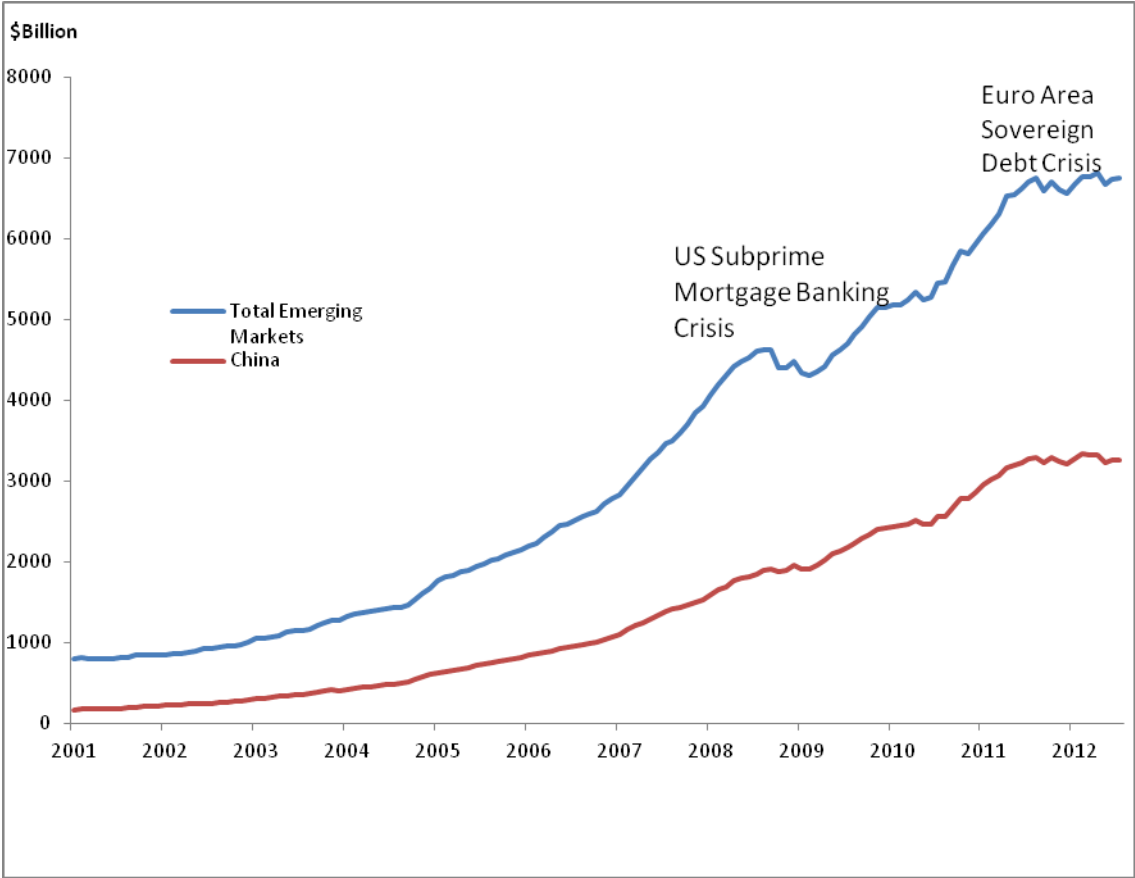


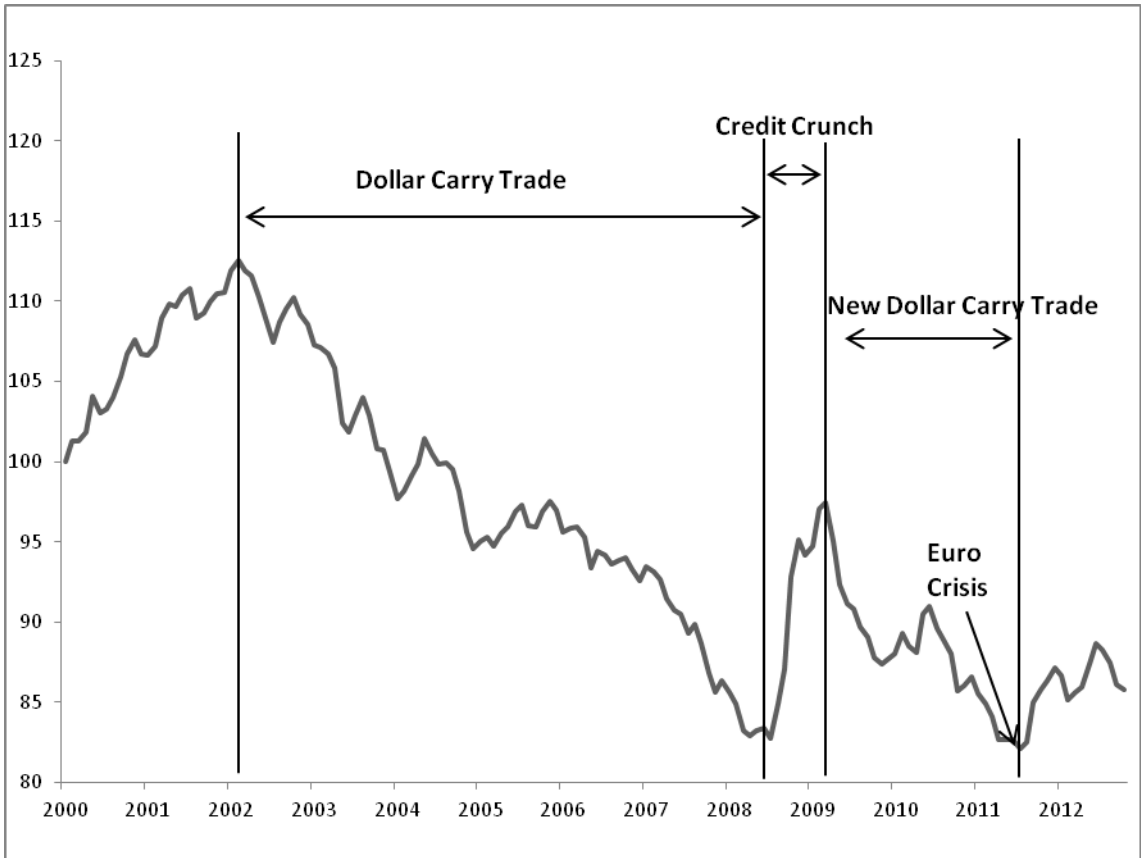
Figure 2: Emerging Markets and China, Foreign Exchange Reserves (Billion USD)



Source: IFS

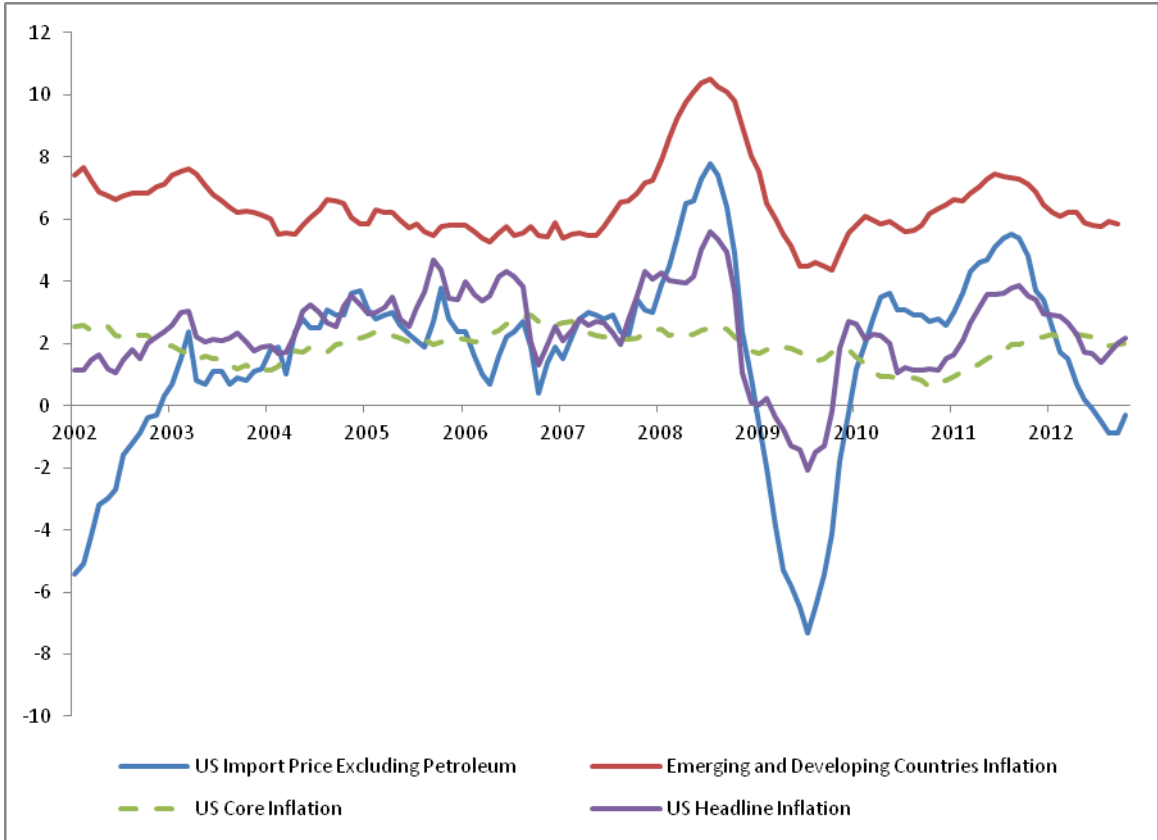
Emerging Markets (EM) include the following countries: Russia, Poland, Czech Republic, Hungary, Romania, Ukraine, Turkey, Israel, UAE, Saudi Arabia, South Africa, China, India, Hong Kong, Korea, Singapore, Indonesia, Malaysia, Thailand, Brazil, Mexico, Chile, Peru, Colombia, Argentina, Venezuela. For data missing on UAE in May to July 2012 and on China in July 2012, assuming no change in reserves in these months

Figure 3: The U.S. Dollar's Effective Exchange Rate Movements (Jan-2000=100)



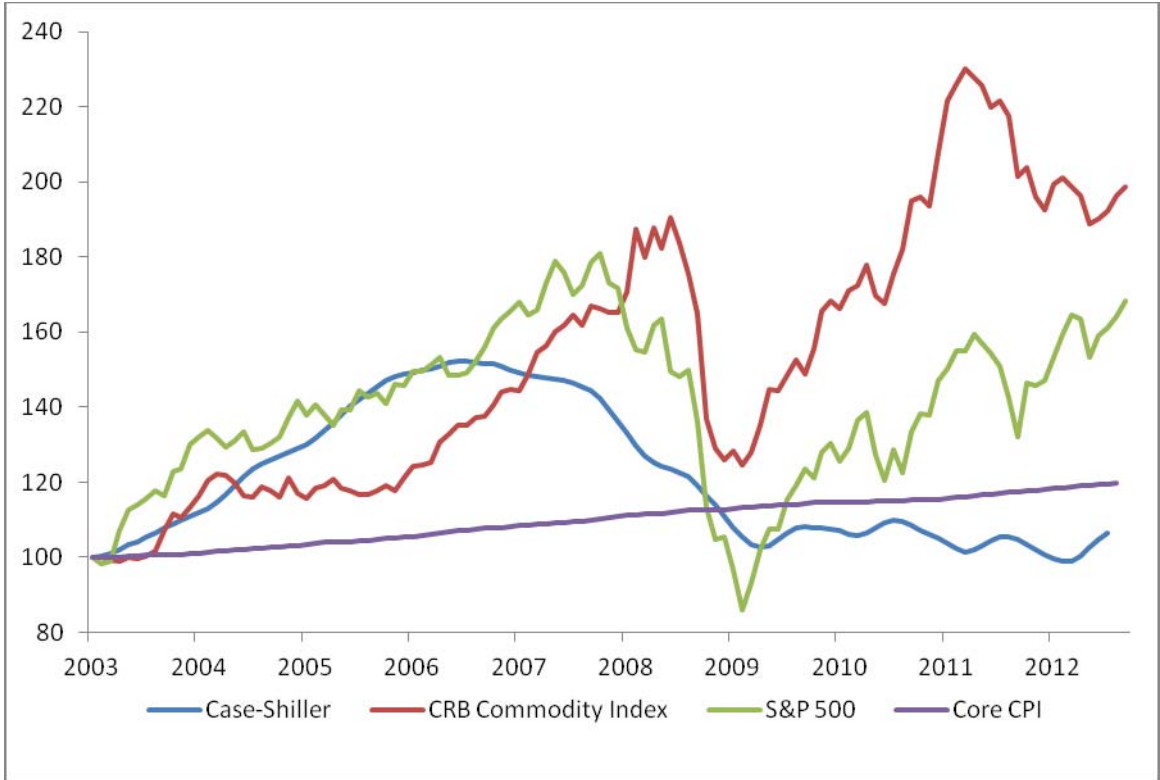
Source: Federal Reserves

Figure 4: US Inflation, EM Inflation, and US Import Price (YoY Percentage)



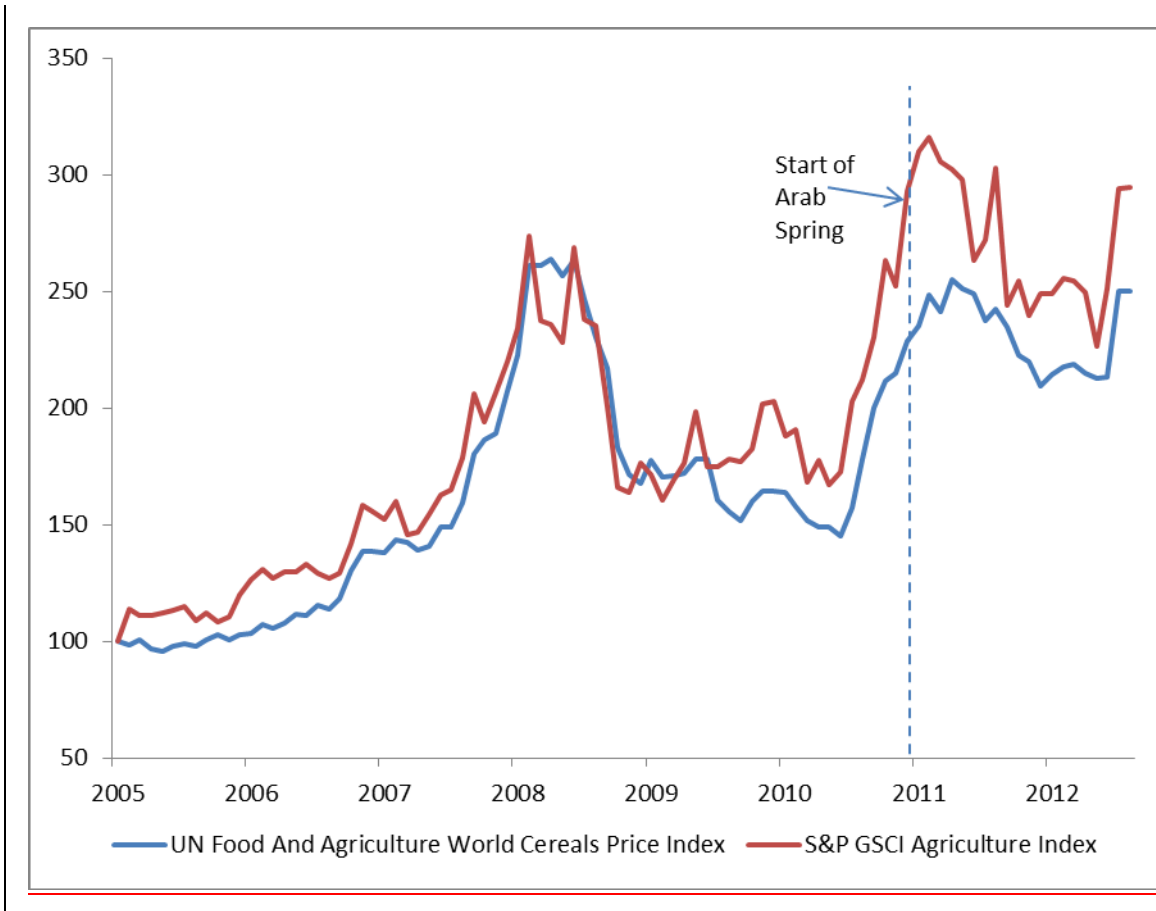
Source: IMF: IFS

Figure 5: The Greenspan-Bernanke Bubble Economy (2005=100)



Source: Bloomberg

Figure 6: Food/Agriculture Product Price (2005=100)



Source: Bloomberg.



Figure 7: Holdings of Commercial Bank Assets in the US (\$ trillion)



Source: Federal Reserve Economic Data

Figure 8. GDP Structure of China

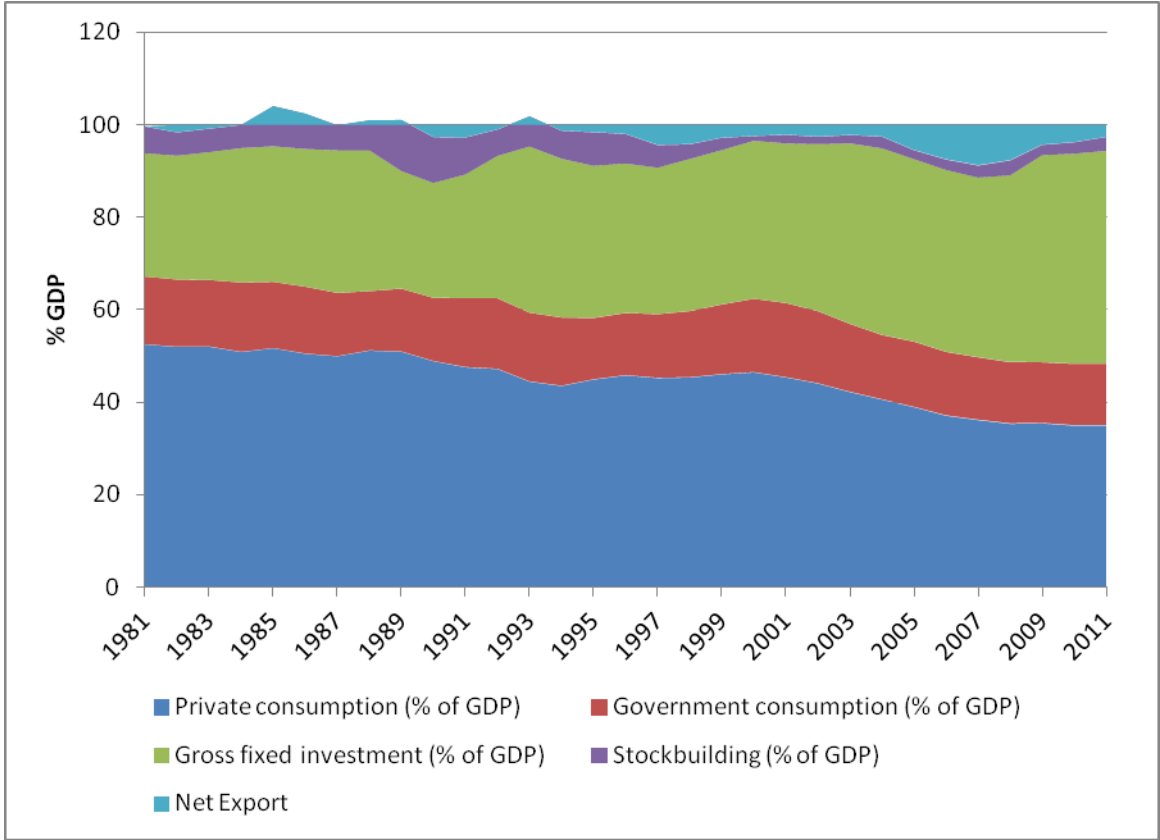


Table 1. Selected Interest Rate of China and US, Sep-2012

	China	US
Money Market Interest Rate	4.1	0.2
Deposit Rate	3	0.3
Lending Rate	6	3.25

Source: EIU