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'Chimerica' and the Global Asset Market Boom*

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Abstract

Over the past five years the world has witnessed a spectacular boom in asset prices. This paper reviews different explanations for this phenomenon, and argues that future financial historians will point to the divergence between high returns on capital and the low cost of capital, not to excess liquidity or asset shortage, as the driving force in global asset markets. The integration of the massive Asian labour force into the world economy has significantly increased global returns on capital while the cost of capital as measured by long-term real interest rates has not increased, but has actually fallen. We label this two-sided phenomenon 'Chimerica' because it is in large measure consequence of the symbiotic economic relationship that has developed between the People's Republic of China and the United States of America. Not only has plentiful Chinese and Asian labour increased global returns to capital; Chinese excess savings have also depressed US and global interest rates. We show that the Chinese 'savings glut' was not primarily a function of precautionary household behaviour, but of surging corporate profits in China due to increasing exchange rate undervaluation.

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I. Introduction

Over the past five years the world has seen a spectacular boom in asset prices. From late 2002 until mid-2007, stock, credit and emerging markets all witnessed a synchronized surge. Less liquid and traditionally uncorrelated markets like art, real estate and precious, industrial and agricultural commodities (precious, industrial and agricultural) saw even more pronounced appreciation. Leveraged buyouts scaled unprecedented heights. In 2006 alone, at least fourteen different equity markets registered gains of 40% of more, with China in the lead on almost 100%. Emerging market bonds also enjoyed a four-year rally, driving down the spread of the J. P. Morgan Emerging Bond Index over US Treasuries to just 150 basis points – a level not seen since the heyday of imperial finance before World War I (Obstfeld and Taylor, 2004; Ferguson and Schularick, 2006).

In the summer of 2007, however, the apparent mispricing of risks in some non-transparent financial structures linked to the US housing market produced a credit crunch in American and European money and debt markets (Mishkin, 2007). Whether the asset market boom of recent years was, as some have argued, a bubble which is now being unwound, or a rational response by market actors to fundamental macroeconomic improvements, is an urgent question for policy-makers and market participants.

To be sure, the phenomenon of synchronously booming asset markets has already incited considerable interest from policy-makers, financial market participants and researchers (King 2006; Rajan 2006a; Rosenberg 2006; Jen 2007). Many observers were puzzled by the sustained buoyancy of global asset markets as monetary policy in the United States turned restrictive and growth fell below potential (Rosenberg 2006; Roubini 2006). The US yield curve became stubbornly inverted, once deemed the best indicator of an impeding recession. The US current account deficit widened from 3% of GDP to almost 7% between 1999 and 2006. Finally, the level of political risk also went up during this period. It seemed clear that the United States had failed to establish stable democracies in Afghanistan and Iraq. Iran continued brazenly to enrich uranium, while North Korea defiantly tested a small nuclear bomb. High energy prices transferred global purchasing power not only to Iran but also to Russia and Venezuela, countries increasingly hostile not only to the United States but also to multinational corporations.

One popular explanation for stubbornly booming asset markets has been that of 'excess liquidity' (Gouteron and Szpiro 2005; Polleit and Gerdesmeier 2005; Fels 2005; Jen 2006b; King 2006; Rueffer and Stracca 2006; OECD 2007). According to the excess liquidity view, steep interest rate cuts by the Federal Reserve in the wake of the dot.com bust and the 9/11 attacks drowned

the world in a flood of cheap money. An alternative explanation is that there has been a global asset shortage; a view advanced by, among others, the former chief economist of the International Monetary Fund (Rajan 2006a). Caballero (2006) and Caballero et al. (2007) have argued that such a shortage may reflect the limited ability of emerging markets to generate financial assets as a store of value at the same pace as their economies grow. Cooper (2007) has argued that the US current account deficit is merely a reflection of the attractiveness to foreigners of American securities.

Our paper aims to look back at the past half-decade and identify the driving factors behind the global asset market boom. We proceed in four steps. In the first section, we discuss the strengths and weaknesses of a number of hypotheses that have been put forward to account for the recent surge in asset prices. In the second and third sections, we develop our core argument, namely that the most important feature of the world economy in the past half-decade was a marked increase in the returns on capital (thanks to the integration of the large East Asian workforce into the global economy) coupled with a decline in the cost of capital. This unusual constellation had profound positive implications for virtually all asset markets and offers the best explanation for the synchronized asset surge.

In the fourth section, we introduce the term 'Chimerica' to characterize the symbiotic East–West relationship at the heart of this story. Not only has the integration of China into the world economy resulted in that doubling of the global labour force which has boosted returns on capital and corporate profitability; Chinese excess savings, largely channelled through official hands into US government securities, have also depressed global interest rates. Although labour has been provided by other Asian countries and capital has flowed from other Eastern economies and to other Western economies, the relationship between China and America seems to us the essential one.

In the fifth section, we take a closer look at the causes of the 'savings glut' from Asia that has depressed US long-term interest rates and contributed to the global asset market boom (Bernanke 2005). A closer analysis of Chinese savings shows that the surge in savings over this period has come from the corporate sector, not from households. We share the view that the principal cause of the savings–investment gap in China was an undervalued exchange rate in the context of an export-led development model and reserve accumulation as an insurance policy against future crisis (Dooley et al., 2003; 2005). However, we are able to confirm it with a new analysis of the unit-labour cost-based real exchange rate of the Chinese renminbi, which depreciated sharply over the period.

The last section concludes that booming asset markets in the 'Chimerican' constellation rested on the wedge between returns on capital and the cost of capital, and hence had a fundamental macroeconomic foundation. The credit

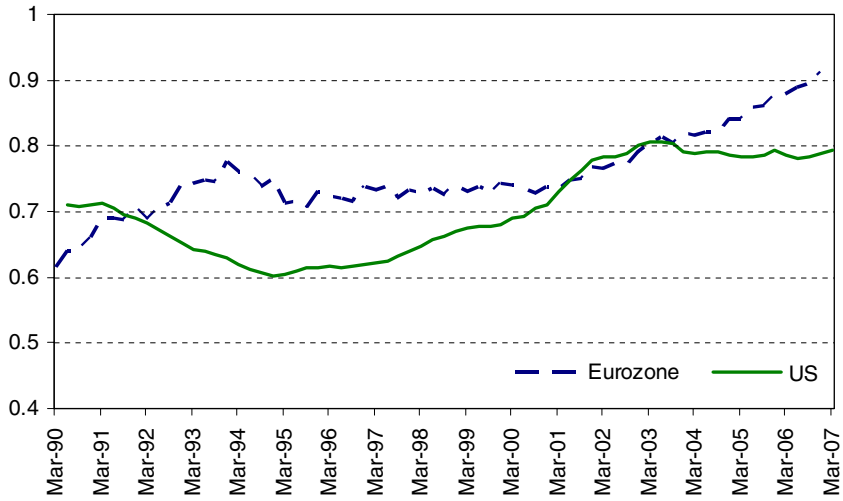
crisis of 2007 was a consequence of one key vulnerability in the Chimerican world: overcomplicated financial engineering and the mispricing of risk in an environment of depressed interest rates. In our view, it does not portend the implosion of an equity market bubble comparable with the dot-com era. Nonetheless, the implications for the US economy and Asia are unlikely to be trivial. Nor is this the only risk to the stability of Chimerica.

II. Excess Liquidity or a Shortage of Assets?

What was driving the global financial market boom in recent years? The idea that it has been excessive liquidity creation by central banks sounds superficially plausible. However, if excessive liquidity means plentiful money, then there is scant evidence to support this explanation. One plausible measure of excess liquidity would be a rapid increase of the so-called 'Marshallian k', that is the ratio of a narrow or broad monetary aggregate to nominal GDP. By relating the growth rate of money to the growth rate of the economy, it tracks potential discrepancies between money supply and money demand (Rueffer and Stracca 2006). We can rightly speak of a 'liquidity bubble' when the supply of money (such as M3 growth) outstrips the demand for money (nominal GDP growth) by a significant amount. Figure 1 tracks the 'Marshallian k' for the US and the Eurozone. It shows that the Fed cannot be accused of generating an excessive surge in the quantity of money. The M3–Marshallian k for the US has remained relatively stable at around 0.8 over the past five years. If anything, the bigger offender seems to be the professedly monetarist European Central Bank. A very similar picture emerges when we look at a narrower money aggregate.

Even extending the Marshallian k analysis to other parts of the world by including China, India and Latin America does not alter this picture substantially. This is because China has been surprisingly successful in sterilizing her huge foreign exchange inflows, keeping the growth of monetary aggregates close to the growth of nominal GDP. The same holds true for other emerging markets, especially if we control for their relatively gradual pace of financial deepening.

One remaining possibility is that the excess in liquidity has been made in Japan, in the form of the yen 'carry trade', whereby investors have borrowed in the Japanese currency to take advantage of that country's low interest rates, in order to invest in higher returning currencies inside and outside Asia. The available data, however, show a marked decrease in quantitative easing by the Bank of Japan over the past two years. Nor is the carry trade especially visible in the Japanese balance of payments statistics. 'Other capital outflows' from Japan, the broadest possible proxy for the carry trade, recorded a figure of $170 billion in 2006, a substantial amount but hardly



Source: OECD (2006).
Figure 1: Marshallian "*k*": money supply M3 to nominal GDP

overwhelming given the size of global fixed income and foreign exchange markets (IMF 2007a, b, c).

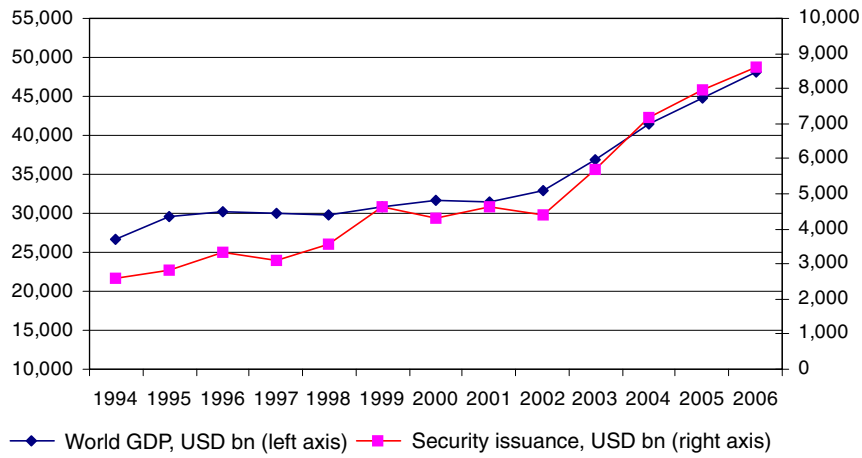
Another hypothesis states quite the opposite, namely that there is not an oversupply of liquidity but a shortage of financial assets. One version of this argument is that emerging markets have contributed significantly to global GDP growth and wealth creation, but have only a limited capacity to create financial assets as a store of value. In their search for financial assets, economic agents in emerging markets therefore turn to the Anglo-Saxon world, creating global imbalances and driving up asset prices (Caballero 2006). At the same time, many corporations have been buying back their own stock, while private equity partnerships have been taking under-performing companies out of the stock market (Rosenberg 2006). Once again, however, there are flaws in this explanation.

First, financial assets from emerging market assets have actually grown at a rapid pace in recent years. Between March 2005 and March 2007, according to the Bank for International Settlements, the issuance of debt securities by developing countries actually rose by 74% from $480 billion to $870 billion. Over the same period, equity issuance from emerging markets increased by 250%. It is true that sovereigns have been issuing less debt, but the private sector has readily stepped in. Second, thanks to financial innovation in the developed world, new financial instruments have seen rapid growth in recent years. Looking only at traditional asset classes may therefore be misleading. As is well known, asset-backed securities as well as synthetic collateralized debt obligations (CDO) in various forms have seen tremendous growth. The

market for collateralized loan obligations alone is worth $350 billion (Office of the Comptroller of the Currency 2006). According to the rating agency Moody's, asset-backed security issuance was $1.2 trillion in 2006, 15% higher than in 2005. The compound annual growth rate of global structured finance issues since 2002 was close to 30% with the market reaching $3 trillion in 2006 (Mason and Rosner 2007). Even if we confine our attention to traditional assets such as bonds, equities and syndicated loans, the most comprehensive data source does not exhibit a trend towards lower net issuance of assets. The world economy has not seen an unusual divergence between GDP and asset issuance (see Figure 2).

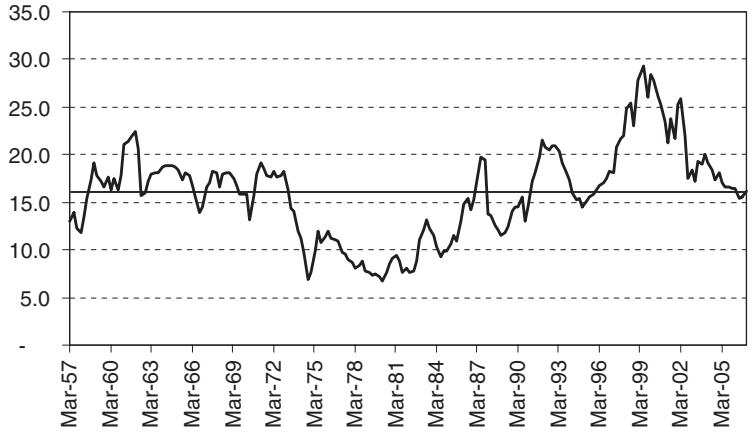
Second, and equally important, the theory of a global shortage of financial assets implies that investors have been paying scarcity premia above and beyond fair fundamental value (Caballero 2006). If this were true, we would expect to see a distorted pricing of financial assets relative to fundamentals such as earnings growth or creditworthiness. Yet this is not the story most valuation metrics tell us. By conventional measures, equity valuations remain reasonable not only relative to bond yields, but also in absolute terms. The price–earnings ratio of the S&P 500 is still at or below its 50-year average of around 16 (see Figure 3). In other asset classes, such as emerging market debt, spreads are undoubtedly tight, but this reflects at least partly major improvements in creditworthiness. Many emerging markets have turned into net external creditors over the past three years.

In our view, this last point is crucial. Both the liquidity glut and the asset shortage hypotheses understate the improvement in economic fundamentals that has taken place in the past years. The most obvious evidence for this is

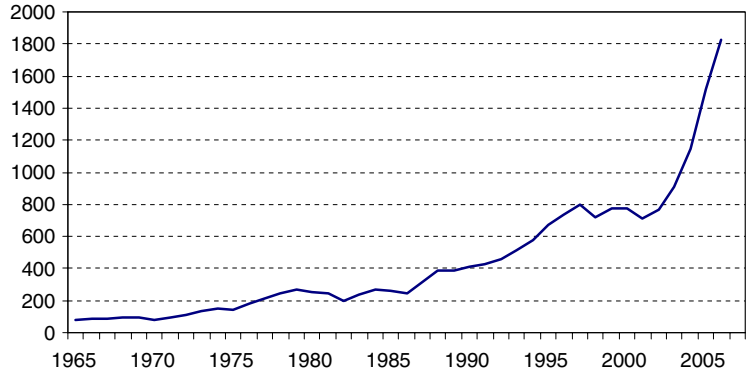


Sources: BIS (2007), IMF (2007).
Figure 2: Net issuance of securities and world GDP

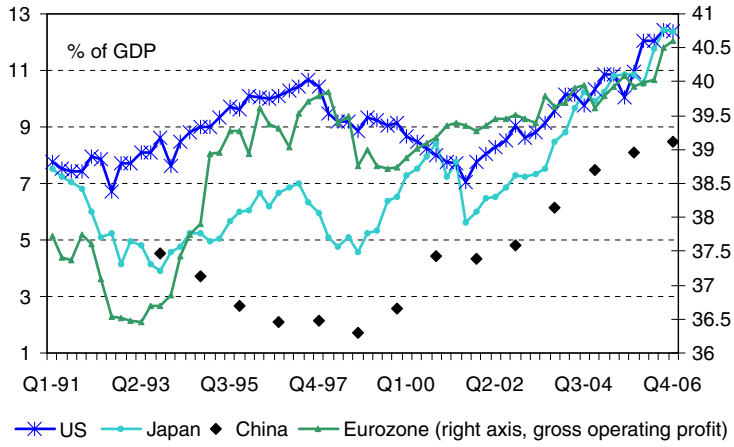
the staggering increase in company profits around the globe. Company profits in the United States, Euroland, Japan and China are all simultaneously at their highest level on record, both in absolute terms and relative to GDP (UBS 2007). Figure 4 shows the level of US corporate profits since 1965, using data from the Federal Reserve. As can clearly be seen, profits rose continuously over time, started to accelerate in the 1990s with the advent of globalization, and then skyrocketed between 2002 and 2006, with profits more than doubling from $760 billion to $1.8 trillion. At the current pace of earnings growth, 2007 is likely to see a figure in excess of $2 trillion. Nor is this a purely American phenomenon. According to figures from the



Source: Shiller (2007), UBS (2007).
Figure 3: S&P 500 P/E ratio over the past 50 years



Source: BEA (2007).
Figure 4: US corporate profits (USD, bn)



Source: UBS (2007), Eurostat (2007), BEA (2007), CEIC (2007).
Figure 5: Corporate profits to GDP (1990–2006)

investment bank UBS, which tracks the annual financials of 1147 global companies monitored by its equity research team, the aggregate annual profit before tax of 'World Inc.' roughly tripled between 2001 and 2006, rising from $680 billion to $1.9 trillion.

Profits have risen relatively as well as absolutely. Figure 5 tracks the development of corporate profits to GDP over the past 15 years. In the United States, profits to GDP increased by a remarkable five percentage points since 2000. Very much the same trend can be observed in Europe, Japan and China. We therefore view the rapid increase of leveraged buyouts and of stock buybacks as a symptom rather than a cause of buoyant asset markets – a reflection of an unprecedented profit boom around the world. We think this synchronous profit boom is a consequence of the rapid progress of globalization and its positive effects on the global returns on capital.

III. Globalization and Returns on Capital

By far the most obvious trend of the past decade has been the rapid integration of the biggest economies of East and South Asia into the global economy. It has had profound implications for the relative returns on the two main inputs of global production – capital and labour. According to World Bank data, the aggregate labour force of China, India, Vietnam, Indonesia and Pakistan, to name only the most populous Asian countries, plus the formerly socialist economies of Eastern Europe is well in excess of 1.5 billion people (World Bank 2006). If one compares that with the aggregate labour force of the OECD countries – slightly <500 million –

the magnitude of this development becomes clear, even under the conservative assumption that so far only a small part of the Asian labour force has effectively been integrated into the global economy. Estimates about the exact number of new labourers that have entered the global economy vary widely, but the relative shift remains substantial. Richard Freeman has called this process 'The Great Doubling', arguing that the size of the global labour pool has increased twofold since 1990 (Freeman 2006a, b). The IMF estimates that the 'effective supply of labour' (which is derived from weighing a country's labour force by its export-to-GDP ratio) has gone up by between 75% and 100% since 1990 (IMF 2007b).

The key point here is that, by comparison, the global capital stock has remained virtually unchanged, because the capital stock in the poor economies of China and India remains quite low. Such a huge structural change should have resulted in a massive shift in the returns to labour and capital. To put it very simply, the returns to capital should increase as the capital intensity of global production falls. Freeman (2006a) estimates that the integration of China, India and the former communist countries in Eastern Europe reduced the global capital labour ratio to roughly 60% of what it was before these economies joined global markets.

Consider the following neoclassical textbook model. We assume an economy in which markets are complete, there a no externalities and competition is perfect. The typical producer manufactures a homogeneous final output good employing the following constant returns to scale technology:

$$Y_1 = K_1^{\alpha} L_1^{1-\alpha}, \tag{1}$$

where $0<\alpha<1$, with K and L being the inputs of capital and labour. The competitive rate of return on capital (r) equals the marginal product of capital (in the absence of depreciation):

$$r_1 = \frac{\partial Y_1}{\partial K_1} = \alpha K_1^{\alpha-1} L_1^{1-\alpha}. \tag{2}$$

In view of constant returns to scale, we can also write:

$$r_1 = \alpha \left(\frac{K_1}{L_1}\right)^{\alpha-1} = \alpha k_1^{\alpha-1}. \tag{3}$$

Hence, the return on capital is exclusively determined, given α, by the capital intensity k_1. Think of this state of affairs as the 'old' world economy before the integration of Asia and Eastern Europe. If Asia and Eastern Europe join the world economy, the rate of return on capital in the 'new' integrated world economy can be calculated as

$$r = \alpha \left(\frac{K_1 + K_2}{L_1 + L_2}\right)^{\alpha-1} = \alpha k^{\alpha-1}. \tag{4}$$

In other words, what matters for the returns on capital in the newly integrated world economy is the extent to which the capital intensity k has fallen compared with the period before the integration of East Asia. The proportional rate of change is given by

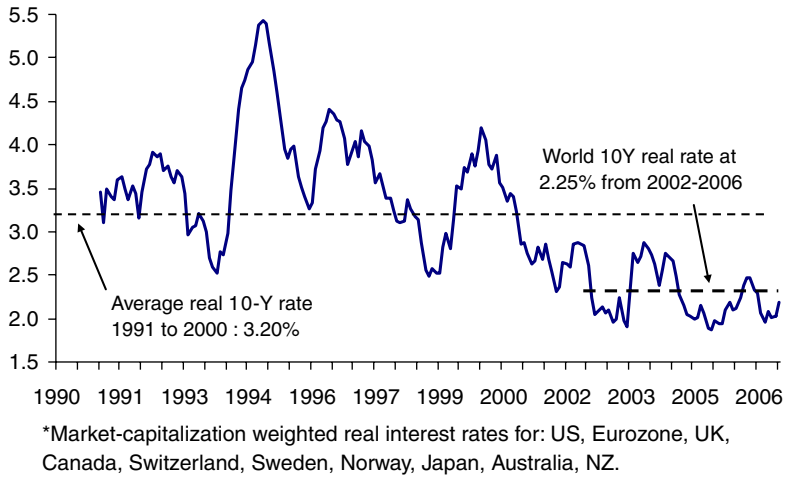
$$\hat{r} = (\alpha - 1)\hat{k}. \tag{5}$$

We follow the IMF (2007b) and assume that with the opening up of Asia the global workforce has roughly doubled, but the global capital stock has increased by only around 20%. In this back-of-the-envelope calculation, the capital intensity of production has hence fallen by 40% – very close to the figure Freeman arrived at earlier. If we assume that $\hat{r} = (0.35 - 1) \times -0.4 = 0.26$ and set α at a standard 0.35, then $\hat{k} = -0.4$. In other words, the returns on capital have increased by 26% compared with the 'old' Asia-less world economy. More generally, global returns on capital should increase by 6.5% for each 10% reduction in the capital intensity of global production. We should not therefore be surprised by the surge in corporate profitability detailed in the previous section. It is precisely what is predicted by a simple neoclassical model of an enlarged global economy.

IV. The Depressed Cost of Capital

The great puzzle of the past five years, however, is that higher returns on capital have not gone hand in hand with a higher cost of capital. In a standard neoclassical model, the rate of return on capital is equal to the marginal productivity of capital which, under perfect conditions, equals the cost of capital. It is true that the strict assumptions of the neoclassical model can be criticized as being unrealistic (or even mistaken), but it still provides a useful starting point for the analysis. For the world economy as a whole, real interest rates weighted by market capitalization provide the best approximation of the global cost of capital. More specifically, we use long-term nominal interest rates (assuming long-term rates equal the expected short-term rates over the time period) deflated by current consumer price inflation to proxy the cost of capital in the world economy.

This exercise yields a result that is not easily reconcilable with the earlier analysis of returns on capital. Instead of following returns on capital upwards, global real interest rates have actually fallen compared with earlier periods (Desroches and Michael 2006). Figure 6, based on calculations by Stephen Jen (2006a), demonstrates that the cost of capital is exceptionally low by historical standards. Global long-term real interest rates are about 100 basis points below their long-run average, at the same time that basic economic models and many data from the corporate world tell us that the returns on capital have markedly increased.



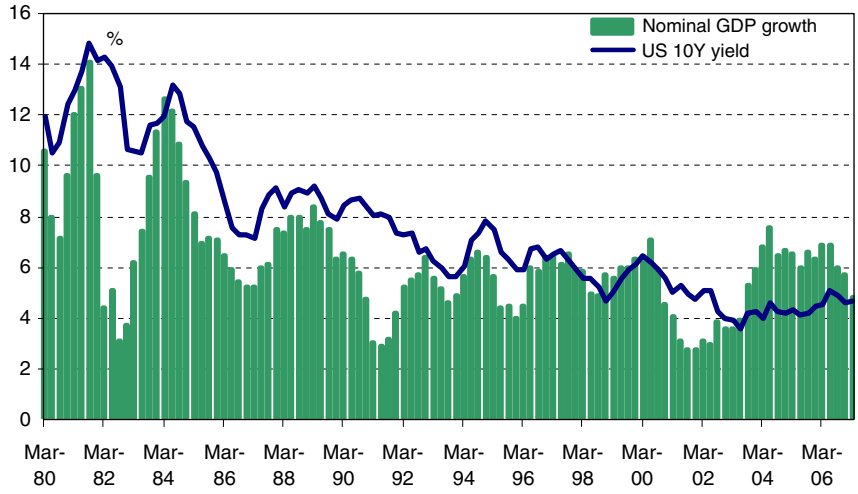
Source: Jen (2006a).
Figure 6: Global cost of capital: world real interest rate (10Y)*

Put differently, for some reason global real interest rates do not reflect the increase in the return on capital that has taken place as a result of globalization. We can even put a tentative number on this. Our calculations above yielded the ballpark result that, due to the integration of Asia into the world economy and the shifts in the global capital–labour ratio, returns on capital today are roughly 25% higher than in the past. The neoclassical standard model would suggest that the cost of capital should have risen by a similar magnitude. As a rough approximation, global real interest rates should be about 25% above their previous average of 3.20%, namely at around 4%. The actual global cost of capital currently stands at a low of 2.25%, a little more than half what it should be given the structural changes in the world economy.[1]

That the price and not the supply of money is the real conundrum of our times – in Alan Greenspan's famous phrase[2] – is also illustrated by the relationship between nominal US GDP growth and the yield of ten-year US bonds (Figure 7). This is one of the most surprising developments in international finance over the past decade. For more than three years, between 2003 and 2006, long-term nominal interest rates in the United States were considerably below nominal GDP growth. While the nominal economic

[1]The parallel increase in the returns on capital is one of the points overlooked by studies that argue that global interest rates are not exceptionally low in historical context (Catao and Mackenzie 2006). Another point is the financial repression of the pre-1970 area.

[2]The conundrum Greenspan had in mind was the non-responsiveness of the long end of the yield curve to the Fed's rate hikes: (Greenspan 2005).

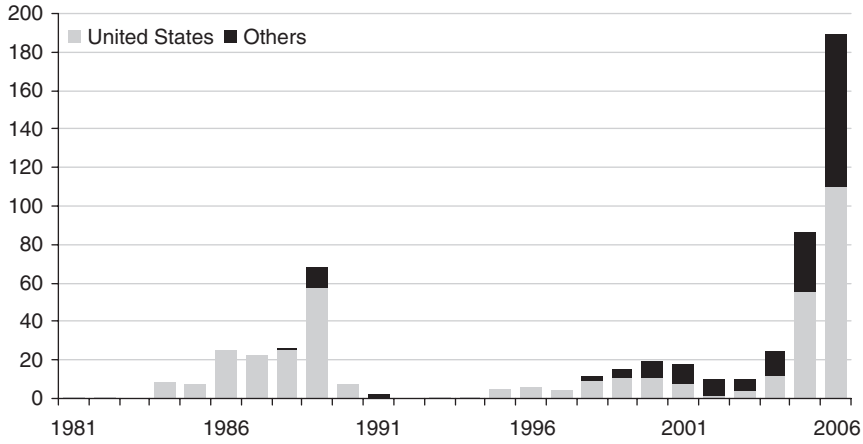


Source: BEA (2007), Bloomberg.
Figure 7: US 10 year government bond yield and nominal GDP growth

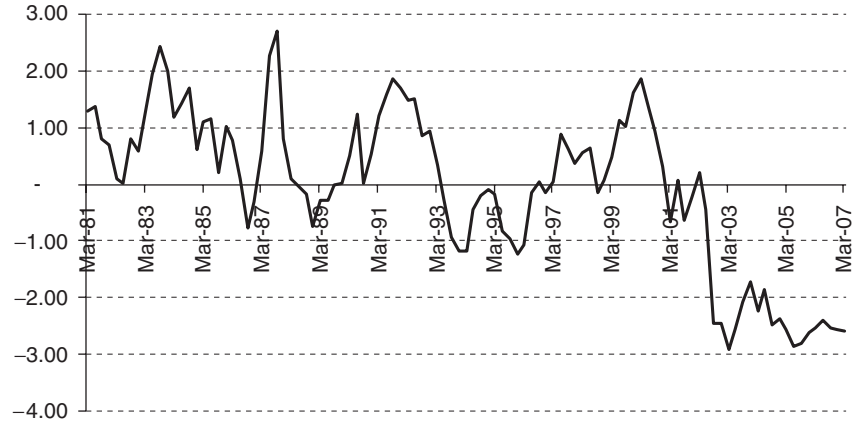
growth rate was roughly 6%, the risk-free long-term interest rate averaged a little above 4%.

In such an environment, it comes as no surprise that growth – and risk-sensitive assets have become highly attractive. For instance, record low spreads in the corporate bond market can be explained by the fact that company earnings grew by the rate of nominal GDP, which was 50% higher than the cost of debt, so that companies could rapidly improve their financial position. The combination of a depressed cost of capital and buoyant corporate profitability made it smart to borrow money and buy earnings streams. It is small wonder, then, that the world witnessed a golden age for private equity investment and leveraged buyouts in the past half-decade. Private equity investors were essentially exploiting the wedge between returns on capital and the cost of capital. And, as Figure 8 shows, they were doing it on an unprecedented scale.

Of course, low real interest rates and sky-high company profits are difficult to reconcile over the long term. Returns on capital and the cost of capital should sooner or later be equal if the neoclassical model bears any relation to the real world. From a more practical angle, this is also the central idea behind the 'Fed model' – the basic macroeconomic model the Federal Reserve is said to use to interpret the information conveyed by stock market valuations. The model compares the earnings yield of the S&P 500 (the inverse of the P/E ratio) with the nominal ten-year bond yield. Over longer time horizons, the model assumes, extreme divergences should be corrected. The Fed model correctly indicated stock market overvaluation ahead of the



Source: Will Darwin, UBS.
Figure 8: Total value of global LBO deals 1981–2006 (USD, bn)



Source: Shiller (2007), UBS (2007), Bloomberg.
Figure 9: The "Fed model": 10 year bond yield – S&P 500 earnings yield

crashes of 1987 and 2001. By contrast, what the Fed model has been telling investors since early 2003 was clear: buy stocks – they are too cheap compared with bonds (Figure 9) and sell bonds – they are too expensive compared with equities.

V. Chimerica

To understand why global asset markets in the past years were marked by a persistent disconnect between returns on capital and the cost of capital,

think of one economy called Chimerica: the sum of China, the world's most rapidly growing emerging market, and America, the world's most financially advanced developed economy. Chimerica accounts for only 13% of the world's land surface, but a quarter of its population and fully a third its GDP. What is more, it has accounted for over 60% of the cumulative growth in world GDP over the past five years.

West Chimericans are wealthy and hedonistic; East Chimericans are much poorer (even adjusting on the basis of purchasing power parity, their per capita income is around 16% of West Chimericans'). But the two halves of the country are complementary. West Chimericans are experts in business administration, marketing and finance. East Chimericans specialize in engineering and manufacturing. Profligate West Chimericans have an insatiable appetite for the gadgets mass produced in the East; they save not a penny of their income. Parsimonious East Chimericans live more cautiously. They would rather save a substantial share of their own income and lend it to the West Chimericans to fund their gadget habit and thereby keep East Chimericans in jobs. Under this arrangement, East Chimericans generate massive trade surpluses which they immediately lend back to West Chimerica. Moreover, by channelling all these surplus savings through government hands into US government paper, East Chimerica depress the key long-term interest rate in West Chimerica and hence, the benchmark rate for the world's financial markets.

The idea of a Chimerican symbiosis embodies the two critical features of the global economy that we identified above. First, the entry of China's massive labour force gave the single biggest boost to the returns on capital. Second, China's massive external surpluses, built up mainly over the past three years, were channelled through government hands to the US fixed income market, which had the effect of lowering the global risk-free interest rate just when the returns on capital rose. The two most remarkable trends of recent financial history have their origin in Chimerica: rapid advances in the globalization of production, and the emergence of massive foreign currency reserves in the vaults of (mostly Asian) central banks.

We are not the first people to notice the importance of the Sino-American symbiosis for the global economy. As noted above, other commentators have previously remarked on the 'savings glut' emanating from East Asia (Bernanke 2005, 2007). A number of alternative explanations have also been put forward for the emergence of what are frequently referred to as global imbalances. Some observers have pointed to demographic trends and declining home bias in international investment (Cooper 2006), others to low public and private savings in the United States (Obstfeld and Rogoff 2005, Krugman 2007). In addition, the attractiveness of US financial assets for foreign investors has been cited (Caballero et al. 2007), although this

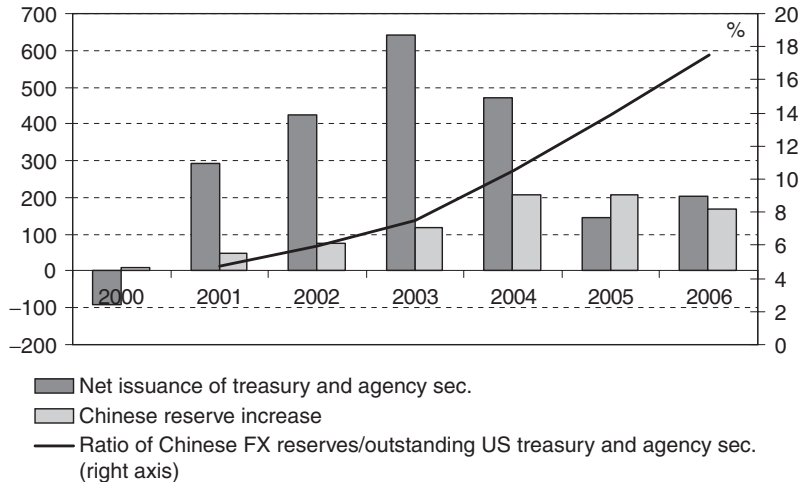
explanation cannot account for the accumulation of foreign reserves in the hands of governments and central banks.[3]

As China does not allow private individuals to invest abroad, a substantial part of her savings have been channelled by the State Administration for Foreign Exchange (SAFE) into US government debt. The exact composition of Chinese foreign currency reserves is not disclosed, but most studies assume a dollar share of 70% or more (European Central Bank 2006; Setser 2007). A large part of the US current account deficit in recent years was thus financed by 'official' as opposed to private capital inflows (though admittedly the distinction is not always easy to draw: Magnus 2006). In 2004, about 60% of the US deficit was funded by foreign governments; in 2005, the ratio dropped to 40%, before increasing again to 55% in 2006 (Orszag 2007). Over the past five years, China's currency reserves increased by almost $200 billion a year and by August 2007 were equivalent to more than 40% of the country's GDP. The figure of $200 billion also comes close to the amount of net new issuance of US treasury securities and agency debt: $220 billion in 2005 and $195 billion in 2006. Given that total outstanding US. Treasury and agency debt in public hands was about $6 trillion at the end of 2006, and assuming that Beijing has been holding about 70–80% of its currency reserve in dollar-denominated government and agency debt, China may already own more than 10% of the total stock of US government and agency paper. A similar picture emerges from the Treasury's International Capital System data. In August 2007, China held $400 billion worth of US. Treasury debt (Department of the Treasury 2007). This is equivalent to 11% of all outstanding Treasury debt and almost 20% of all foreign held US government debt. Figure 10 illustrates the recent dynamics of Chinese reserve additions and the net issuance of US government and agency debt. Seldom in history has one great power been so invested in the bonds of another – not since the days when Parisian rentiers accumulated boxes full of Tsarist Russian bonds.

Needless to say, Chimerica is an economic but not a monetary (much less political or cultural) unit: East Chimericans have the renminbi, West Chimericans the dollar. Nevertheless, the scale of the financial transactions between the two halves was comparable with the flows that traditionally have occurred within nation states rather than between them.

What exactly was the effect of Chinese reserve accumulation on American and hence global long-term interest rates? According to the most recent studies, the effect was anywhere between 50 and 200 basis points, with the most widely cited study estimating 80 basis points (Warnock and

[3]Private capital is actually flowing to developing countries on a net basis; see World Bank (2006).



Source: Stephen Jen and Charles St-Arnaud, Morgan Stanley (2007), CEIC (2007).
Figure 10: Chinese official reserve increase and issuance of US treasury and agency debt

Warnock 2005). However, these calculations were done before the explosion of the Chinese trade surplus in 2006 and the advent of the long-term interest rate 'conundrum'. The correct figure is surely higher.

VI. Where Do All the Savings Come From?

China's current account surplus increased from about 2% of GDP in 2000–2003 to about 10% in the first half of 2007. Ben Bernanke has argued that this large and growing savings–investment gap was due to a strong increase in desired savings relative to desired investment (despite an increase of Chinese investment rates from 35% to almost 45% of GDP in the past five years). This led to Asia's (and most prominently China's) massive excess savings, current account surpluses and net capital exports (Bernanke 2005, 2007).

The key question, however, is where the sudden surge in savings came from. A widespread view is that they were the result of consumption failing to catch-up with income growth, possibly due to credit market imperfections, the need for precautionary savings due to missing pension and health systems, or demographic trends (Cooper 2006). Conventional wisdom hence holds that Chinese households are the leading savers of Asia, and measures to increase their consumption have become a widely prescribed remedy for global imbalances (de Rato 2006). There is also a link to one of the most hotly debated issues in international economics – the question of renminbi undervaluation. If structural oversaving by Chinese consumers is the real cause for the savings glut, exchange rate appreciation would at best be a minor part of the solution for addressing global imbalances.

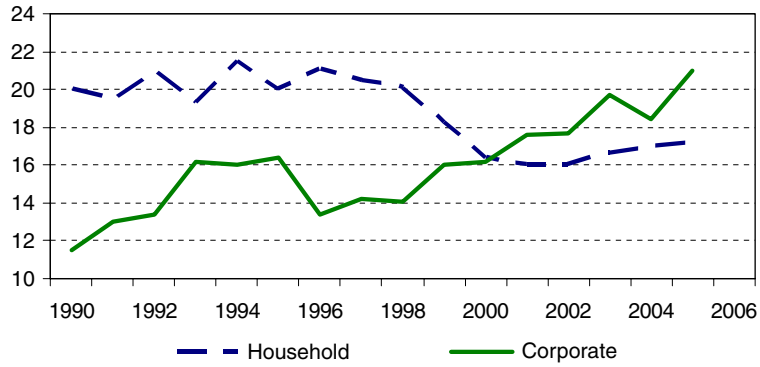
However, there could be a different story, namely that the commitment of Asian governments to fixed exchange rates has contributed to high savings by artificially stimulating exports and decreasing import demand. The close relationship between the United States and China has been compared by one group of authors with the Bretton Woods system after World War II, when it was Germany that played the role of China (Dooley et al. 2003, 2005). This so-called Bretton Woods II argument is actually similar to Bernanke's savings glut – with the difference that excess savings in the Bretton Woods II framework are mainly due to the mercantilist exchange rate policies of surplus countries. Reserve accumulation serves as an insurance policy against future crisis while currency undervaluation remains the cornerstone of an export-led development model, relying on foreign sales to boost employments.

What does recent data tell us about the causes of the rapid increase in Chinese savings? Interestingly, a closer look reveals that the Chinese household savings rate has already fallen quite significantly over the past decade. The rapid surge in savings from Asia has not come from households but from the Chinese corporate sector in the form of a massive profit surge. Between 2000 and 2005, gross corporate savings increased from 16 to 23% of Chinese GDP. They are now much higher than household savings, which remained roughly constant at 16% (Kuijs 2005; Barnett and Brooks 2006). In 2006, given the surge of earnings reported by Chinese companies, corporate savings may have come close to 25% of GDP (Figure 11).

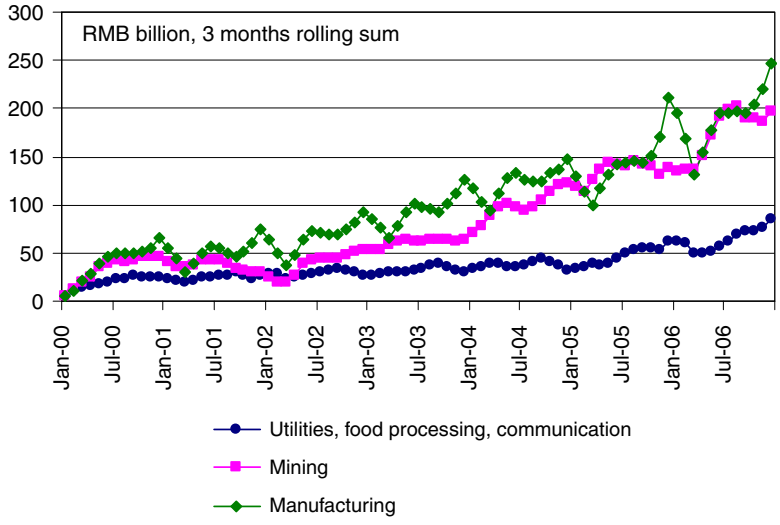
Figure 12 illustrates that the surge in corporate profits in China has mainly come from two industrial sectors: manufacturing and mining. Purely domestic-oriented industries have seen much less dramatic profit growth.[4] Yet the reason for the profit boom was not a widening of margins, which have been more or less stable (Anderson 2007). The reason was a dramatic increase in sales volumes and gains in market share both abroad and at home. Industrial sales volumes jumped from 90% of GDP in 2002 to 140% of GDP in 2005 (Anderson 2007; Ma 2007).

These extraordinary profits, not the savings of Chinese households, have been used to build-up China's foreign reserves as a cushion against any future financial crisis. The familiar story of extremely high precautionary savings by Chinese households thus needs significant modification. Chinese

[4]Using data from the National Statistical Office, we have aggregated the following industries: coal, gas and petroleum, ferrous and non-ferrous metals, metal minerals, chemical materials, metal products, smelting and pressing (mining); textile, garment, leather, timber, furniture, paper, medical, plastic, rubber, machinery, transport equipment, electric machinery, electronic and telecom equipment, office machinery, special purpose equipment (manufacturing); electricity, gas and water distribution, food processing, transport, food and beverage manufacturing, communication, education and culture (domestic industries).



Source: Kuijs (2005), Barnett and Brooks (2006).
Figure 11: Corporate vs. household savings in China (% of GDP)



Source: CEIC.
Figure 12: Chinese industrial profits

companies – many of them state owned – have taken over large parts of the domestic market from foreign competition, depressing imports and expanded their market share abroad, increasing exports. Profits have surged and the dollars have piled up at the People's Bank of China.

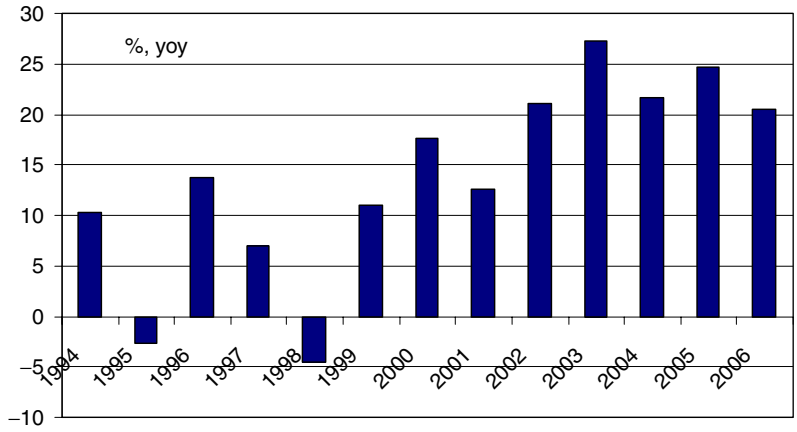
How can we explain the surge in corporate profits in China since 2002, which led to the rapidly widening savings–investment gap? This brings us to the vexed issue of political resistance to significant appreciation of the renminbi (Goldstein 2006, 2007), which is widely believed to be the cause of

China's rapid gains in market share, abroad and at home. Given that the export performance of Chinese companies was responsible for the massive increase in the Chinese current account surplus in recent years, the root cause of the profit and hence savings boom could actually be the exchange rate and its impact on the competitiveness of Chinese production. This would also be compatible with trends observed in Chinese foreign trade. Exports and imports of manufactured goods moved closely together until 2003. Since then export growth has stayed at around 30% annualized whereas import growth has declined, leading to a ballooning trade surplus.

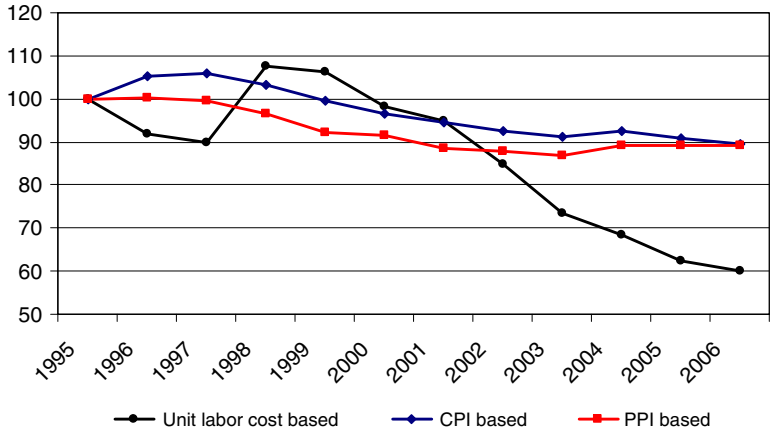
But do we actually have any data to support the notion that the renminbi has depreciated in real terms over the past half-decade so that Chinese producers have enjoyed an *increasing* cost advantage? We think we do. A large share of the profit surge has come from tradable manufactured goods. The most direct way of measuring Chinese price competitiveness therefore is to look at the real exchange rate as given by relative trends of labour costs in the manufacturing sector. While it is well known that wages in China have grown solidly at a 10% pace in recent years, data for industrial employment and output show that output per worker has increased even more rapidly over the same period, as Figure 13 shows. A recent World Bank study has also concluded that massive productivity gains have kept unit labour costs low despite substantial increases in wages and raw material costs (Kim and Kuijs 2007).

Substantial gains in productivity could outweigh the increase in wages and the slow nominal currency appreciation that have happened since July 2005. As Figure 13 shows, real-exchange rate indices based on relative consumer or producer price inflation trends tell only half the story. The real story is captured in productivity statistics: due to the investment boom that the mainland economy has witnessed since 2002, unit labour costs for Chinese producers have fallen rapidly over the period. Using data for wages, employment and output in the manufacturing sector, we find that, despite the incremental nominal currency appreciation, the renminbi became considerably cheaper against the dollar on a productivity-adjusted basis (Figure 14). A productivity-adjusted measure of the real exchange rate between the dollar and the renminbi shows a marked *depreciation* of the renminbi in the past years.[5] In short, East Chimerican manufacturers have enjoyed an increasing competitive advantage on world markets and at home – explaining the surge in firms' profits and the export of excess savings to the United States.

[5]There are a number of technical difficulties involved in estimating Chinese unit labour costs because of the poor quality of some of the inputs. However, we have a high degree of certainty that the general trend is correctly reflected.



Source: CEIC.
Figure 13: Output per worker in Chinese manufacturing



Source: CEIC, own calculations.
Figure 14: USD-RMB real exchange rate: various measures (1995 = 100)

VII. Conclusion

What will future financial historians write about the global asset market boom of the past five years? If our analysis is correct, they will point to the wedge between high returns on capital and the low cost of capital as the driving force behind booming global asset prices. Future historians may also cite the symbiotic relationship between China and the United States as the key to understanding this extraordinary constellation.

What are the risks to the stability of Chimerica? Sooner or later, both economics and history tell us, this constellation is likely to disappear. This could of course happen gradually, later rather than sooner. Labour should eventually stake a claim to a bigger share of income. More importantly, companies and governments should start to take greater advantage of the low cost of capital and start to invest, raising interest rates. It is worth noting that, despite the dual productivity shock of globalization and technology, the global investment rate has yet to reach the levels of the mid-1990s (Rajan 2006b).

It is also possible, on the other hand, that the present constellation could end with a sudden shock. For the sake of short-term political advantage, American legislators may transform rhetoric about protectionist measures against Chinese exports into reality (Roach 2007). There are risks on the other side of Chimerica, too, as China progressively liberalizes its financial system. So far, the People's Bank of China has been fairly successful in controlling the domestic money supply and inflation through a mix of administrative and market-based measures in a tightly regulated banking system. But we can already see the inflationary pressures in the system – though so far they are largely confined to asset prices, which by the third quarter of 2007 were clearly in a bubble. Finally, although China will continue to amass external surpluses, reserve diversification and allocation to other asset classes could reduce Chinese demand for US fixed income assets, leading (other things being equal) to higher nominal yields. The Chinese purchase in May 2007 of a 10% stake in the private equity firm Blackstone may well be the shape of things to come.

These direct risks to the stability of Chimerica have been predictable for some time. Yet the financial turmoil in summer 2007 has shown that there are indirect risks to the stability of Chimerica, too. As we write, global money and debt markets remain tense after a crisis of confidence emanating from the United States. America's ingenious financial engineers repackaged subprime mortgage loans that would probably never have been made, had it not been for the real estate boom, which was itself one of the unintended consequences of depressed US interest rates. US banks then sold these to yield-hungry international investors. American credit rating agencies certified that subprime mortgage-backed bonds and CDO were safe investments. Now, however, the original mortgage borrowers are defaulting on their obligations.

It is no accident that the first real threat to global financial stability has emerged in the United States. Depressed interest rates were a key feature of the Chimerican world. They supported not only leveraged buyouts, but led to lending booms, reckless borrowing and real-estate booms in the rate-sensitive economies in the Anglo-Saxon world. Mispricing of risk in fixed

income markets was a further consequence, one about which central banks have been warning for some time. It remains to be seen how severe the real economic effects of the credit crunch will be. However, if our analysis is correct, the asset price boom of the past half-decade was built not only on low capital costs, but also on high returns on capital. The latter could turn out to be a stronger support for the global economy and asset markets than many people think. It is still too early to dismiss Chimerica as a chimera.

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