

say, in a year's time, \$200, it would be nice to have the option to buy it at that future date for, say, \$150. If I am right, I make a profit. If not, well, it was only an option, so forget about it. The only cost was the price of the option, which the seller pockets. The big question was what that price should be.

'Quants' – the mathematically skilled analysts with the PhDs – sometimes refer to the Black-Scholes model of options pricing as a black box. It is worth taking a look inside this particular box. The question, to repeat, is how to price an option to buy a particular stock on a particular date in the future, taking into account the unpredictable movement of the price of the stock in the intervening period. Work out that option price accurately, rather than just relying on guesswork, and you truly deserve the title 'rocket scientist'. Black and Scholes reasoned that the option's value depended on five variables: the current market price of the stock ( $S$ ), the agreed future price at which the option could be exercised ( $X$ ), the expiration date of the option ( $T$ ), the risk-free rate of return in the economy as a whole ( $r$ ) and – the crucial variable – the expected annual volatility of the stock, that is, the likely fluctuations of its price between the time of purchase and the expiration date ( $\sigma$  – the Greek letter sigma). With wonderful mathematical wizardry, Black and Scholes reduced the price of the option ( $C$ ) to this formula:

$$C = SN(d_1) - Xe^{-rT}N(d_2)$$

where

$$d_1 = \frac{\log\left(\frac{S}{X}\right) + \left(r + \frac{\sigma^2}{2}\right)T}{\sigma\sqrt{T}} \quad \text{and} \quad d_2 = d_1 - \sigma\sqrt{T}$$

Feeling a bit baffled? Can't follow the algebra? To be honest, I am baffled too. But that was just fine by the quants. To make

money from this insight, they needed markets to be full of people who didn't have a clue how to price options but relied instead on their (seldom accurate) gut instincts. They also needed a great deal of computing power, a force which had been transforming the financial markets since the early 1980s. All they required now was a partner with some market savvy and they could make the leap from the faculty club to the trading floor. Struck down by cancer, Fisher Black could not be that partner. Instead, Merton and Scholes turned to John Meriwether, the former head of the bond arbitrage group at Salomon Brothers, who had made his first fortune out of the Savings and Loans meltdown of the late 1980s. The firm they created in 1994 was called Long-Term Capital Management.

It seemed like the dream team: two of academia's hottest quants teaming up with the ex-Salomon superstar plus a former Federal Reserve vice-chairman, David Mullins, another ex-Harvard professor, Eric Rosenfeld, and a bevy of ex-Salomon traders (Victor Haghani, Larry Hilibrand and Hans Hufschmid). The investors LTCM attracted to its fund were mainly big banks, among them the New York investment bank Merrill Lynch and the Swiss private bank Julius Baer. A latecomer to the party was another Swiss bank, UBS.<sup>79</sup> The minimum investment was \$10 million. As compensation, the partners would take 2 per cent of the assets under management and 25 per cent of the profits (most hedge funds now charge 2 and 20, rather than 2 and 25).<sup>80</sup> Investors would be locked in for three years before they could exit. And another Wall Street firm, Bear Stearns, would stand ready to execute whatever trades Long-Term wanted to make.

In its first two years, the fund managed by LTCM made megabucks, posting returns (even after its hefty fees) of 43 and 41 per cent. If you had invested \$10 million in Long-Term in March 1994, it would have been worth just over \$40 million four

years later. By September 1997 the fund's net capital stood at \$6.7 billion. The partners' stakes had increased by a factor of more than ten. Admittedly, to generate these huge returns on an ever-growing pool of assets under management, Long-Term had to borrow, like George Soros. This additional leverage allowed them to bet more than just their own money. At the end of August 1997 the fund's capital was \$6.7 billion, but the debt-financed assets on its balance sheet amounted to \$126.4 billion, a ratio of assets to capital of 19 to 1.<sup>81</sup> By April 1998 the balance sheet had reached \$134 billion. When we talk about being highly geared, most academics are referring to their bicycles. But when Merton and Scholes did so, they meant Long-Term was borrowing most of the money it traded with. Not that this pile of debt scared them. Their mathematical models said there was next to no risk involved. For one thing, they were simultaneously pursuing multiple, uncorrelated trading strategies: around a hundred of them, with a total of 7,600 different positions.<sup>82</sup> One might go wrong, or even two. But all these different bets just could not go wrong simultaneously. That was the beauty of a diversified portfolio – another key insight of modern financial theory, which had been formalized by Harry M. Markowitz, a Chicago-trained economist at the Rand Corporation, in the early 1950s, and further developed in William Sharpe's Capital Asset Pricing Model (CAPM).<sup>83</sup>

Long-Term made money by exploiting price discrepancies in multiple markets: in the fixed-rate residential mortgage market; in the US, Japanese and European government bond markets; in the more complex market for interest rate swaps\* – anywhere, in

\* A swap is a kind of derivative: a contractual arrangement in which one party agrees to pay another a fixed interest rate, in exchange for a floating rate (usually the London interbank offered rate, or Libor), applied to a notional amount.

fact, where their models spotted a pricing anomaly, whereby two fundamentally identical assets or options had fractionally different prices. But the biggest bet the firm put on, and the one most obviously based on the Black-Scholes formula, was selling long-dated options on American and European stock markets; in other words giving other people options which they would exercise if there were big future stock price movements. The prices these options were fetching in 1998 implied, according to the Black-Scholes formula, an abnormally high future volatility of around 22 per cent per year. In the belief that volatility would actually move towards its recent average of 10-13 per cent, Long-Term piled these options high and sold them cheap. Banks wanting to protect themselves against higher volatility – for example, another 1987-style stock market sell-off – were happy buyers. Long-Term sold so many such options that some people started calling it the Central Bank of Volatility.<sup>84</sup> At peak, they had \$40 million riding on each percentage point change in US equity volatility.<sup>85</sup>

Sounds risky? The quants at Long-Term didn't think so. Among Long-Term's selling points was the claim that they were a market neutral fund – in other words they could not be hurt by a significant movement in any of the major stock, bond or currency markets. So-called dynamic hedging allowed them to sell options on a particular stock index while avoiding exposure to the index itself. What was more, the fund had virtually no exposure to emerging markets. It was as if Long-Term really was on another planet, far from the mundane ups and downs of terrestrial finance. Indeed, the partners started to worry that they weren't taking enough risks. Their target was a risk level corresponding to an annual variation (standard deviation) of 20 per cent of their assets. In practice, they were operating at closer to half that.<sup>86</sup>

It would take a ten-sigma (in other words, ten standard deviation) event to cause the firm to lose all its capital in a single year. But the probability of such an event was 1 in  $10^{24}$  – effectively zero.<sup>87</sup> According to the quant's 'Value at Risk' models, the firm was indestructible.

In October 1997, as if to prove that LTCM really was the ultimate Brains Trust, Merton and Scholes were awarded the Nobel Prize in economics. So self-confident were they and their partners that on 31 December 1997 they returned \$2.7 billion to outside investors (strongly implying that they would much rather focus on investing their own money).<sup>88</sup> It seemed as if intellect had triumphed over intuition, rocket science over risk-taking. Equipped with their magic black box, the partners at LTCM seemed poised to make fortunes beyond even George Soros's wildest dreams. And then, just five months later, something happened that threatened to blow the lid right off the Nobel winners' black box. For no immediately apparent reason, equity markets dipped, so that volatility went up instead of down. And the higher volatility went – it hit 27 in June, more than double the Long-Term projection – the more money was lost. May 1998 was Long-Term's worst month ever: the fund dropped by 6.7 per cent. But this was just the beginning. In June it was down 10.1 per cent. And the less the fund's assets were worth, the higher its leverage – the ratio of debt to capital – rose. In June it hit 3:1 to 1.<sup>89</sup>

In evolution, big extinctions tend to be caused by outside shocks, like an asteroid hitting the earth. A large meteor struck Greenwich in July 1998, when it emerged that Salomon Smith Barney (as Salomon Brothers had been renamed following its takeover by Travelers) was closing down its US bond arbitrage group, the place where Meriwether had made his Wall Street reputation, and an outfit that had been virtually replicating

LTCM's trading strategies. Clearly, the firm's new owners did not like the losses they had been seeing since May. Then, on Monday 17 August 1998, that was followed by a giant asteroid – not from outer space, but from one of earth's flakiest emerging markets as, weakened by political upheaval, declining oil revenues and a botched privatization, the ailing Russian financial system collapsed. A desperate Russian government was driven to default on its debts (including rouble-denominated domestic bonds), fueling the fires of volatility throughout the world's financial markets.<sup>90</sup> Coming in the wake of the Asian crisis of the previous year, the Russian default had a contagious effect on other emerging markets, and indeed some developed markets too. Credit spreads blew out.\* Stock markets plunged. Equity volatility hit 29 per cent. At peak it reached 45 per cent, which implied that the indices would move 3 per cent each day for the next five years.<sup>91</sup> Now, that just wasn't supposed to happen, not according to the Long-Term risk models. The quants had said that Long-Term was unlikely to lose more than \$45 million in a single day.<sup>92</sup> On Friday 21 August 1998, it lost \$550 million – 15 per cent of its entire capital, driving its leverage up to 42:1.<sup>93</sup> The traders in Greenwich stared, slack-jawed and glassy-eyed, at their screens. It couldn't be happening. But it was. Suddenly all the different markets where Long-Term had exposure were moving in sync, nullifying the protection offered by diversification. In quant-speak, the correlations had gone to one. By the end of the month, Long-Term was down 44 per cent: a total loss of over \$1.8 billion.<sup>94</sup>

August is usually a time of thin trading in financial markets. Most people are out of town. John Meriwether was on the other \* For example, the spread over US Treasuries of the JP Morgan emerging market bond index rose from 3.3 per cent in October 1997, to 6.6 per cent in July 1998, to 17.05 per cent on 10 September 1998.

side of the world, in Beijing. Dashing home, he and his partners desperately sought a white knight to rescue them. They tried Warren Buffett in Omaha, Nebraska – despite the fact that just months before LTCM had been aggressively shorting shares in Buffett's company Berkshire Hathaway. He declined. On 24 August they reluctantly sought a meeting with none other than George Soros.<sup>55</sup> It was the ultimate humiliation: the quants from Planet Finance begging for a bail-out from the earthing prophet of irrational, unquantifiable reflexivity. Soros recalls that he 'offered Meriwether \$500 million if he could find another \$500 million from someone else. It didn't seem likely...' JP Morgan offered \$200 million. Goldman Sachs also offered to help. But others held back. Their trading desks scented blood. If Long-Term was going bust, they just wanted their collateral, not to buy Long-Term's positions. And they didn't give a damn if volatility went through the roof. In the end, fearful that Long-Term's failure could trigger a generalized meltdown on Wall Street, the Federal Reserve Bank of New York hastily brokered a \$3.625 billion bail-out by fourteen Wall Street banks.<sup>56</sup> But the original investors – who included some of the self-same banks, but also some smaller players like the University of Pittsburgh – had meanwhile seen their holdings cut from \$4.9 billion to just \$400 million. The sixteen partners were left with \$30 million between them, a fraction of the fortune they had anticipated.

What had happened? Why was Soros so right and the giant brains at Long-Term so wrong? Part of the problem was precisely that LTCM's extraterrestrial founders had come back down to Planet Earth with a bang. Remember the assumptions underlying the Black-Scholes formula? Markets are efficient, meaning that the movement of stock prices cannot be predicted; they are continuous, frictionless and completely liquid; and returns on stocks follow the normal, bell-curve distribution. Arguably, the more

traders learned to employ the Black-Scholes formula, the more efficient financial markets would become.<sup>57</sup> But, as John Maynard Keynes once observed, in a crisis 'markets can remain irrational longer than you can remain solvent'. In the long term, it might be true that the world would become more like Planet Finance, always coolly logical. Short term, it was still dear old Planet Earth, inhabited by emotional human beings, capable of flipping suddenly from greed to fear. When losses began to mount, many participants simply withdrew from the market, leaving LTCM with a largely illiquid portfolio of assets that couldn't be sold at any price. Moreover, this was an ever more integrated Planet Earth, in which a default in Russia could cause volatility to spike all over the world. 'Maybe the error of Long Term', mused Myron Scholes in an interview, 'was . . . that of not realizing that the world is becoming more and more global over time.' Meriwether echoed this view: 'The nature of the world had changed, and we hadn't recognized it.'<sup>58</sup> In particular, because many other firms had begun trying to copy Long-Term's strategies, when things went wrong it was not just the Long-Term portfolio that was hit; it was as if an entire super-portfolio was haemorrhaging.<sup>59</sup> There was a herd-like stampede for the exits, with senior managers at the big banks insisting that positions be closed down at any price. Everything suddenly went down at once. As one leading London hedge fund manager later put it to Meriwether: 'John, you were the correlation.'

There was, however, another reason why LTCM failed. The firm's value at risk (VaR) models had implied that the loss Long-Term suffered in August was so unlikely that it ought never to have happened in the entire life of the universe. But that was because the models were working with just five years' worth of data. If the models had gone back even eleven years, they would have captured the 1987 stock market crash. If they had gone

back eighty years they would have captured the last great Russian default, after the 1917 Revolution. Meriwether himself, born in 1947, ruefully observed: 'If I had lived through the Depression, I would have been in a better position to understand events.'<sup>100</sup> To put it bluntly, the Nobel prize winners had known plenty of mathematics, but not enough history. They had understood the beautiful theory of Planet Finance, but overlooked the messy past of Planet Earth. And that, put very simply, was why Long-Term Capital Management ended up being Short-Term Capital Mismanagement.

It might be assumed that after the catastrophic failure of LTCM, quantitative hedge funds would have vanished from the financial scene. After all, the failure, though spectacular in scale, was far from anomalous. Of 1,308 hedge funds that were formed between 1989 and 1996, more than a third (36.7 per cent) had ceased to exist by the end of the period. In that period the average life span of a hedge fund was just forty months.<sup>101</sup> Yet the very reverse has happened. Far from declining, in the past ten years hedge funds of every type have exploded in number and in the volume of assets they manage. In 1990, according to Hedge Fund Research, there were just over 600 hedge funds managing some \$39 billion in assets. By 2000 there were 3,873 funds with \$490 billion in assets. The latest figures (for the first quarter of 2008) put the total at 7,601 funds with \$1.9 trillion in assets. Since 1998 there has been a veritable stampede to invest in hedge funds (and in the 'funds of funds' that aggregate the performance of multiple firms). Where once they were the preserve of 'high net worth' individuals and investment banks, hedge funds are now attracting growing numbers of pension funds and university endowments.<sup>102</sup> This trend is all the more striking given that the attrition rate remains high; only a quarter of the 600 funds

reporting in 1996 still existed at the end of 2004. In 2006, 717 ceased to trade; in the first nine months of 2007, 409.<sup>103</sup> It is not widely recognized that large numbers of hedge funds simply fizzle out, having failed to meet investors' expectations.

The obvious explanation for this hedge fund population explosion is that they perform relatively well as an asset class, with relatively low volatility and low correlation to other investment vehicles. But the returns on hedge funds, according to Hedge Fund Research, have been falling, from 18 per cent in the 1990s to just 7.5 per cent between 2000 and 2006. Moreover, there is increasing scepticism that hedge fund returns truly reflect 'alpha' (skill of asset management) as opposed to 'beta' (general market movements that could be captured with an appropriate mix of indices).<sup>104</sup> An alternative explanation is that, while they exist, hedge funds enrich their managers in a uniquely alluring way. In 2007 George Soros made \$2.9 billion, ahead of Ken Griffin of Citadel and James Simons of Renaissance, but behind John Paulson, who earned a staggering \$3.7 billion from his bets against subprime mortgages. As John Kay has pointed out, if Warren Buffett had charged investors in Berkshire Hathaway '2 and 20', he would have kept for himself \$57 billion of the \$62 billion his company has made for its shareholders over the past forty-two years.<sup>105</sup> Soros, Griffin and Simons are clearly exceptional fund managers (though surely not more so than Buffett). This explains why their funds, along with other superior performers, have grown enormously over the past decade. Today around 390 funds have assets under management in excess of \$1 billion. The top hundred now account for 75 per cent of all hedge fund assets; and the top ten alone manage \$324 billion.<sup>106</sup> But a quite mediocre conman could make a good deal of money by setting up a hedge fund, taking \$100 million off gullible investors and running the simplest possible strategy:

1. He parks the \$100 million in one-year Treasury bills yielding 4 per cent.
2. This then allows him to sell for 10 cents on the dollar 100 million covered options, which will pay out if the S&P 500 falls by more than 20 per cent in the coming year.
3. He takes the \$10 million from the sale of the options and buys some more Treasury bills, which enables him to sell another 10 million options, which nets him another \$1 million.
4. He then takes a long vacation.
5. At the end of the year the probability is 90 per cent that the S&P 500 has not fallen by 20 per cent, so he owes the option-holders nothing.
6. He adds up his earnings – \$11 million from the sale of the options plus 4 per cent on the \$110 million of T-bills – a handsome return of 15.4 per cent before expenses.
7. He pockets 2 per cent of the funds under management (\$2 million) and 20 per cent of the returns above, say, a 4 per cent benchmark, which comes to over \$4 million gross.
8. The chances are nearly 60 per cent that the fund will run smoothly on this basis for more than five years without the S&P 500 falling by 20 per cent, in which case he makes \$15 million even if no new money comes into his fund, and even without leveraging his positions.<sup>107</sup>

Could an LTCM-style crisis replay itself today, ten years on – only this time on such a scale, and involving so many such bogus hedge funds, that it would simply be too big to bail out? Are the banks of the Western world now even more exposed to hedge fund losses, and related counterparty risks, than they were in 1998?\*

\* It is surely no coincidence that it was reports of losses at hedge funds run by Bear Stearns and by Goldman Sachs that signalled the onset of the credit crunch in the summer of 2007.

And, if they are, then who will bail them out this time around? The answers to those questions lie not on another planet, but on the other side of this one.

### *Chimerica*

To many, financial history is just so much water under the bridge – ancient history, like the history of imperial China. Markets have short memories. Many young traders today did not even experience the Asian crisis of 1997–8. Those who went into finance after 2000 lived through seven heady years. Stock markets the world over boomed. So did bond markets, commodity markets and derivatives markets. In fact, so did all asset classes – not to mention those that benefit when bonuses are big, from vintage Bordeaux to luxury yachts. But these boom years were also mystery years, when markets soared at a time of rising short-term interest rates, glaring trade imbalances and soaring political risk, particularly in the economically crucial, oil-exporting regions of the world. The key to this seeming paradox lay in China.<sup>108</sup>

Chongqing, on the undulating banks of the mighty earth-brown River Yangtze, is deep in the heart of the Middle Kingdom, over a thousand miles from the coastal enterprise zones most Westerners visit. Yet the province's 32 million inhabitants are as much caught up in today's economic miracle as those in Hong Kong or Shanghai. At one level, the breakthrough industrialization and urbanization going on in Chongqing are the last and greatest feat of the Communist planned economy. The thirty bridges, the ten light railways, the countless towerblocks all appear through the smog like monuments to the power of the centralized one-party state. Yet the growth of Chongqing is also the result of

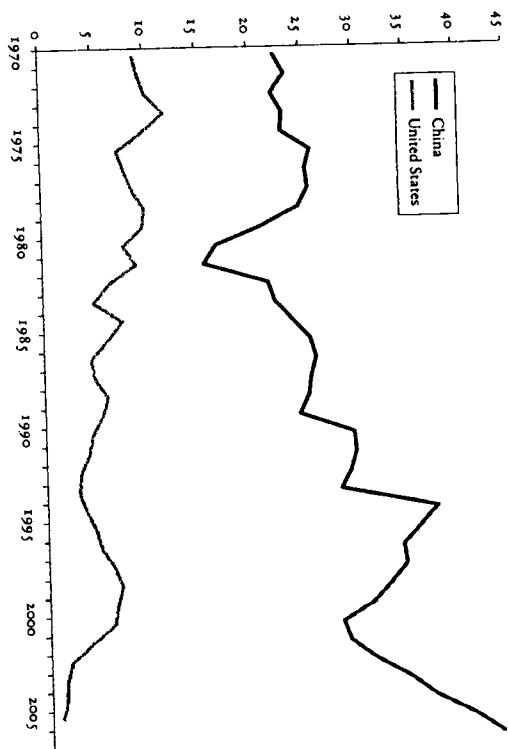
unfettered private enterprise. In many ways, Wu Yajun is the personification of China's newfound wealth. As one of Chongqing's leading property developers, she is among the wealthiest women in China, worth over \$9 billion – the living antithesis of those Scotsmen who made their fortunes in Hong Kong a century ago. Or take Yin Mingsha. Imprisoned during the Cultural Revolution, Mr Yin discovered his true vocation in the early 1990s, after the liberalization of the Chinese economy. In just fifteen years he has built up a \$900 million business. Last year his Lifan company sold more than 1.5 million motorcycle engines and bikes; now he is exporting to the United States and Europe. Wu and Yin are just two of more than 345,000 dollar millionaires who now live in China.

Not only has China left its imperial past far behind. So far, the fastest growing economy in the world has also managed to avoid the kind of crisis that has periodically blown up other emerging markets. Having already devalued the renminbi in 1994, and having retained capital controls throughout the period of economic reform, China suffered no currency crisis in 1997–8. When the Chinese wanted to attract foreign capital, they insisted that it take the form of direct investment. That meant that instead of borrowing from Western banks to finance their industrial development, as many other emerging markets did, they got foreigners to build factories in Chinese enterprise zones – large, lumpy assets that could not easily be withdrawn in a crisis. The crucial point, though, is that the bulk of Chinese investment has been financed from China's own savings (and from the overseas Chinese diaspora). Cautious after years of instability and unused to the panoply of credit facilities we have in the West, Chinese households save an unusually high proportion of their rising incomes, in marked contrast to Americans, who in recent years have saved almost none at all. Chinese corporations save an even larger

proportion of their soaring profits. So plentiful are savings that, for the first time in centuries, the direction of capital flow is now not from West to East, but from East to West. And it is a mighty flow. In 2007, the United States needed to borrow around \$800 billion from the rest of the world; more than \$4 billion every working day. China, by contrast, ran a current account surplus of \$262 billion, equivalent to more than a quarter of the US deficit. And a remarkably large proportion of that surplus has ended up being lent to the United States. In effect, the People's Republic of China has become banker to the United States of America.

At first sight, it may seem bizarre. Today the average American earns more than \$34,000 a year. Despite the wealth of people like Wu Yajun and Yin Mingsha, the average Chinese lives on less than \$2,000. Why would the latter want, in effect, to lend money to the former, who is twenty-two times richer? The answer is that, until recently, the best way for China to employ its vast population was through exporting manufactures to the insatiably spendthrift US consumer. To ensure that those exports were irresistibly cheap, China had to fight the tendency for the Chinese currency to strengthen against the dollar by buying literally billions of dollars on world markets – part of a system of Asian currency pegs that some commentators dubbed Bretton Woods II.<sup>109</sup> In 2006 Chinese holdings of dollars almost certainly passed the trillion dollar mark. (Significantly, the net increase of China's foreign exchange reserves almost exactly matched the net issuance of US Treasury and government agency bonds.) From America's point of view, meanwhile, the best way of keeping the good times rolling in recent years has been to import cheap Chinese goods. Moreover, by out-sourcing manufacturing to China, US corporations have been able to reap the benefits of cheap labour too. And, crucially, by selling billions of dollars of bonds to the People's Bank

Net national savings as a percentage of gross national income, 1970-2006



of China, the United States has been able to enjoy significantly lower interest rates than would otherwise have been the case.

Welcome to the wonderful dual country of 'Chimerica' – China plus America – which accounts for just over a tenth of the world's land surface, a quarter of its population, a third of its economic output and more than half of global economic growth in the past eight years. For a time it seemed like a marriage made in heaven. The East Chimericans did the saving. The West Chimericans did the spending. Chinese imports kept down US inflation. Chinese savings kept down US interest rates. Chinese labour kept down US wage costs. As a result, it was remarkably cheap to borrow money and remarkably profitable to run a corporation. Thanks to Chimerica, global real interest rates – the cost of borrowing, after inflation – sank by more than a third below their average over the past fifteen years. Thanks to Chimerica, US corporate profits in 2006 rose by about the same proportion above their

average share of GDP. But there was a catch. The more China was willing to lend to the United States, the more Americans were willing to borrow. Chimerica, in other words, was the underlying cause of the surge in bank lending, bond issuance and new derivative contracts that Planet Finance witnessed after 2000. It was the underlying cause of the hedge fund population explosion. It was the underlying reason why private equity partnerships were able to borrow money left, right and centre to finance leveraged buyouts. And Chimerica – or the Asian 'savings glut', as Ben Bernanke called it<sup>10</sup> – was the underlying reason why the US mortgage market was so awash with cash in 2006 that you could get a 100 per cent mortgage with no income, no job or assets.

The subprime mortgage crisis of 2007 was not so difficult to predict, as we have already seen. What was much harder to predict was the way a tremor caused by a spate of mortgage defaults in America's very own, home-grown emerging market would cause a financial earthquake right across the Western financial system. Not many people understood that defaults on subprime mortgages would destroy the value of exotic new asset-backed instruments like collateralized debt obligations. Not many people saw that, as the magnitude of these losses soared, interbank lending would simply seize up, and that the interest rates charged to issuers of short-term commercial paper and corporate bonds would leap upwards, leading to a painful squeeze for all kinds of private sector borrowers. Not many people foresaw that this credit crunch would cause a British bank to suffer the first run since 1866 and end up being nationalized. Back in July 2007, before the trouble started, one American hedge fund manager had bet me 7 to 1 that there would be no recession in the United States in the next five years. 'I bet that the world wasn't going to come to an end,' he admitted six months later. 'We lost.' Certainly, by the end of May 2008, a US



recession seemed already to have begun. But the end of the world?

True, it seemed unlikely in May 2008 that China (to say nothing of the other BRICs) would be left wholly unscathed by an American recession. The United States remains China's biggest trading partner, accounting for around a fifth of Chinese exports. On the other hand, the importance of net exports to Chinese growth has declined considerably in recent years.<sup>111</sup> Moreover, Chinese reserve accumulation has put Beijing in the powerful position of being able to offer capital injections to struggling American banks. The rise of the hedge funds was only a part of the story of the post-1998 reorientation of global finance. Even more important was the growth of sovereign wealth funds, entities created by countries running large trade surpluses to manage their accumulating wealth. By the end of 2007 sovereign wealth funds had around \$2.6 trillion under management, more than all the world's hedge funds, and not far behind government pension funds and central bank reserves. According to a forecast by Morgan Stanley, within fifteen years they could end up with assets of \$27 trillion – just over 9 per cent of total global financial assets. Already in 2007, Asian and Middle Eastern sovereign wealth funds had moved to invest in Western financial companies, including Barclays, Bear Stearns, Citigroup, Merrill Lynch, Morgan Stanley, UBS and the private equity firms Blackstone and Carlyle. For a time it seemed as if the sovereign wealth funds might orchestrate a global bail-out of Western finance; the ultimate role reversal in financial history. For the proponents of what George Soros has disparaged as 'market fundamentalism', here was a painful anomaly: among the biggest winners of the latest crisis were state-owned entities.\*

\* Some sovereign wealth funds in fact have a relatively long history. The Kuwait Investment Authority was set up in 1953; Singapore's Temasek in 1974; ADIA, the United Arab Emirates' fund, in 1976; Singapore's GIC in 1981.

And yet there are reasons why this seemingly elegant, and quintessentially Chimerican, resolution of the American crisis has failed to happen. Part of the reason is simply that the initial Chinese forays into US financial stocks have produced less than stellar results.\* There are justifiable fears in Beijing that the worst may be yet to come for Western banks, especially given the unknowable impact of a US recession on outstanding credit default swaps with a notional value of \$62 trillion. But there is also a serious political tension now detectable at the very heart of Chimerica. For some time, concern has been mounting in the US Congress about what is seen as unfair competition and currency manipulation by China, and the worse the recession gets in the United States, the louder the complaints are likely to grow. Yet US monetary loosening since August 2007 – the steep cuts in the federal funds rate to nearly zero, the various 'auction facilities' that have injected more than a trillion dollars into the banking system – has amounted to an American version of currency manipulation.<sup>112</sup> In the first phase of the crisis, the dollar depreciated roughly 25 per cent against the currencies of its major trading partners, including 9 per cent against the renminbi. Because this coincided with simultaneous demand and supply pressures in nearly all markets for commodities, the result was a significant spike in the prices of food, fuel and raw materials. Rising commodity prices, in turn, are intensified inflationary pressures in China, necessitating the imposition of price controls and export prohibitions, and encouraging an extraordinary scramble for

\* Having paid \$5 billion for a 9.9 per cent stake in Morgan Stanley in December 2007, the China Investment Corporation's chairman Lou Jiwei compared the opportunity to a rabbit appearing in front of a farmer. 'If we see a big fat rabbit,' he said, 'we will shoot at it.' But he added (referring to the subsequent decline in Morgan Stanley's share price), 'Some people may say we were shot by Morgan Stanley.'

natural resources in Africa and elsewhere which, to Western eyes, had an unnervingly imperial undertone.<sup>113</sup> The reversal of these trends in late 2008, when the dollar rallied and commodity prices collapsed, did not reduce the friction. Indeed, the US repeated the charge of 'currency manipulation' even as China's exports to America fell off a cliff. Maybe, as its name was always intended to hint, Chimera is nothing more than a chimera – the mythical beast of ancient legend that was part lion, part goat, part dragon.

Perhaps, on reflection, we have been here before. A hundred years ago, in the first age of globalization, many investors thought there was a similarly symbiotic relationship between the world's financial centre, Britain, and continental Europe's most dynamic industrial economy. That economy was Germany's. Then, as today, there was a fine line between symbiosis and rivalry.<sup>114</sup> Could anything trigger another breakdown of globalization like the one that happened in 1914? The obvious answer is a deterioration of political relations between the United States and China, whether over trade, Taiwan, Tibet or some other as yet subliminal issue.<sup>115</sup> The scenario may seem implausible. Yet it is easy to see how future historians could retrospectively construct plausible chains of causation to explain such a turn of events. The advocates of 'war guilt' would blame a more assertive China, leaving others to lament the sins of omission of a weary American titan. Scholars of international relations would no doubt identify the systemic origins of the war in the breakdown of free trade, the competition for natural resources or the clash of civilizations. Couchéd in the language of historical explanation, a major conflagration can start to seem unnervingly probable in our time, just as it turned out to be in 1914. Some may even be tempted to say that the surge of commodity prices in the period from 2003 until 2008 reflected some unconscious market anticipation of the coming conflict.

One important lesson of history is that major wars can arise even when economic globalization is very far advanced and the hegemonic position of an English-speaking empire seems fairly secure. A second important lesson is that the longer the world goes without a major conflict, the harder one becomes to imagine (and, perhaps, the easier one becomes to start). A third and final lesson is that when a crisis strikes complacent investors it causes much more disruption than when it strikes battle-scarred ones. As we have seen repeatedly, the really big crises come just seldom enough to be beyond the living memory of today's bank executives, fund managers and traders. The average career of a Wall Street CEO is just over twenty-five years,<sup>116</sup> which means that first-hand memories at the top of the US banking system do not extend back beyond 1983 – ten years after the beginning of the last great surge in oil and gold prices. That fact alone provides a powerful justification for the study of financial history.