RISK MANAGEMENT
Finance

FINANCIAL TIMES **SPECIAL REPORT** | Tuesday March 22 2011

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Satyajit Das explains the perils of trying to control the system
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Brave new world of uncertainty

Paul J Davies explains why there is now a greater understanding that there is little guidance to be found from the past when preparing for the future

The beginning of the end: when defaults on US mortgages started to increase in 2006, the risk framework in place was found wanting Getty

Financial risk management before the crisis was the goose that laid the golden eggs. But, to mix fables, in the cauldron of 2008, that goose was well and truly cooked.

The highly technical, quantitative side of financial risk management – and the financial theories that supported it – came to dominate the discipline and was backed in earnest by regulators and policymakers.

And no wonder. It seemed to bring the most efficient allocation of capital and turbocharged the returns on equity for banks. It also apparently dispersed credit and investment risks around the world, so that a little local difficulty ought never again lead to regional banks failing.

But when defaults on US mortgages started to increase in 2006, the elegance and efficiency of the risk framework in place was found wanting.

"Lots of financial business had what they thought was an effective risk management framework in place, but the crisis showed that it did not do what it said on the tin," says Clive Martin, an Ernst & Young partner focused on risk in financial services.

There were certainly problems with the underlying quantitative models themselves.

This was illustrated more than amply in August 2007 in the famous quote from David Viniar, Goldman Sachs's chief financial officer, about losses taken by one of the banks' equity-focused "quant" funds. It had suffered market moves with probabilities so infinitesimally small that millions of universes should not statistically contain them.

But there are three broad elements to financial risk management.

There is the technical, which governs all links in the chain from Value at Risk models for individual traders up to capital requirements for an industry. Then there is the judgmental, or qualitative, which should have made its presence felt in the decisions of individual traders, their immediate bosses and everyone else up to an institution's board of directors and its regulatory supervisors.

The third element is the systemic, which was entirely lacking in any formal sense before the crisis.

The technical side certainly became distorted and relied upon too heavily, but does that mean it was fundamentally wrong? The normal statistical distributions used in financial risk models have attracted heavy criticism for placing too much faith in a relatively stable world and playing down the chances of very bad events.

The stock market crash of 1987 and the influence of futures markets in those events led the Chicago-based Options Clearing Corporation to introduce a different statistical base – a Lévy distribution – to manage the collateral risks for companies trading derivatives, according to Donald MacKenzie, an academic. The move better enabled the clearing house to account for large, sudden market moves. While it made trading more costly, it meant extreme "tail events" would be less disruptive.

Nothing so radical appears to be happening in the worlds of banking, insurance or asset management. Rather, the focus is on trying to maintain a shift in the balance of power away from highly technical practices toward greater oversight and qualitative judgment. Or even more simply to just a much bigger cushion of safety.

Hugo Bänziger, chief risk officer at Deutsche Bank, says that banks can only be sure of being resilient with a significant shock absorber in the form of tier one capital of 10 per cent.

"Technical risk management works, but only to a certain degree," he says. "Bad risk management means you get wiped out at the beginning, but good risk management is not enough."

However, Mr Martin of Ernst & Young reckons that arguments for a large safety cushion are more about how to deal with a loss – not about the risk of a loss in the first place.

> 'Financial businesses had what they thought was an effective risk management framework in place but the crisis showed it did not do what it said on the tin'

Models are being improved through tweaks and changes to make them more reactive to operational controls and more integrated with decision-making. "Scenario analysis is being used a lot more alongside models to add a sense check to their outputs," he says. "There are also improvements in the quality of data and the assimilation of recent experience."

Finance may have something to learn from the pharmaceutical industry, according to Steven Culp, who leads the global risk management practice for Accenture. Drug companies learnt long ago about how to assess when to stop investing in a product at the research and development stage, he says. Financial services are now beginning to learn that they should think more about the future profitability of certain business lines than about modelling every single exposure and potential outcome.

"Rather than letting models lead the way, institutions are now looking to turn that quantitative talent to the task of validating certain questions," he says, adding that this is part of a broader conversation about risk.

"There is less of a view that risk assessment comes at the end of the chain to say yes – or no – to a trade or product line, but that it comes at the beginning to set the direction."

This is in line with the kind of recommendations made by policy reviews such as that conducted in the UK by Sir David Walker on governance and the role of risk managers. He recommended that the chief risk officer be a board-level position and a number of companies have already moved in that direction.

The new European capital rules for insurers due to come into force in 2013 also contain provisions about how company managements and boards must demonstrate that they properly understand their risk management frameworks and properly apply them in making business decisions.

This will be much more important in the future than it is now. At some point, markets and the economy will have recovered and be moving into another boom, which will very likely contain the seeds of its own downfall. Then, the pressure will be on to relax restrictions, trim capital bases and tighten up the parameters of models.

Paul Evans, chief executive of Axa UK, says the changes being bought about in insurance by the coming risk-focused capital rules are already leading companies to conduct proper risk analysis on their investments.

"One-in-200 year analysis is great, but if you think something is unthinkable, you won't include it in your analysis," he says.

And this is where the importance of maintaining the balance with the qualitative, judgmental side of risk oversight will be most crucial.

"It is the job of the board to ensure there is that robustness behind qualitative judgements," Mr Evans adds.

However, judgement cannot function welll if the financial infrastructure of clearing and settlement, or legal elements such as bankruptcy proceedures are not up to the task. Mr Bänziger, says these are areas that need investment and suggests that existing levies could be useful if they were ring-fenced for such investment.

"The principal reason we have train crashes is a lack of investment in rail infrastructure – and the reason we have systemic crises is a lack of investment in financial infrastructure."

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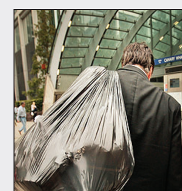

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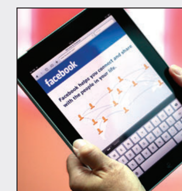

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Near-death experience has left deep scars

Banks

Sharlene Goff looks at how the industry has changed

Of all the changes that have swept through the financial industry since the crisis, it is perhaps the area of risk management where the shake-up has been most acute – and nowhere more so than at the world's biggest banks.

The alarming failure by banks to spot unsustainable credit risks building in the system in the years before the near-collapse of the sector triggered a thorough overhaul of the way institutions predict and analyse potential problems.

Consultants say that in the worst cases before the crisis, banks' boards treated risk management as something of an afterthought to a potential deal or product launch – a hindrance to their aggressive growth plans, rather than a primary consideration.

At HBOS, one of the bigger casualties of the financial crisis, for example, the former head of risk claimed he was sacked for expressing concerns over the problems brewing.

Now, risk management has been repositioned firmly at the forefront of banks' operations. Chief risk officers have a more prominent role, typically with a seat on the main board, and a stronger voice within their organisation.

Previously, these executives often reported to the finance director, which meant their observations may not have filtered through to the most senior executives. But they now tend to have a direct line to the chief executive and are involved in discussions about strategic decisions such as acquisitions or product developments from an early stage.

"There has definitely been a beefing up of the risk officer role," says Vishal Vedi, a partner of risk and regulation at Deloitte. "There has been a change in reporting lines, the kind of information they are expected to provide and who they provide it to."

The changes follow far-reaching recommendations from Sir David Walker, the City grandee, about the role of chief risk officers, which included establishing "total independence" from the business lines they monitor.

HSBC has a new risk officer

New financial regulation has to a certain extent forced banks to act: their riskier activities now carry greater constraints, such as tougher capital and liquidity requirements.

Consultants say regulators have also been pushing particularly hard on liquidity and stress testing.

"Boards are more focused on stress testing," says Patricia Jackson at Ernst & Young. "There has been significant improvement in this area but banks have quite a long way to go to make risk management

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The danger of relying too much on only one tool

Value at risk

Jane Croft analyses the use of a controversial measurement method

Since the near collapse of the banking system more than two years ago, the role played by value at risk (Var) – used by banks as a measurement too – has triggered fierce debate.

Supporters maintain Var was only ever intended to be used with measures such as scenario testing and stress testing.

Var was developed to show risks that are run on a daily basis by banks. The metric was developed, but not originated, at JPMorgan in the early 1990s in response to a demand from then chairman Dennis Weatherstone to be told at 4.15pm every day the bank's risk.

He was concerned trading desks and business units might be taking correlated bets without knowing it.

After the market crash of October 1987, value at risk became a management tool in financial firms and since then 200 books – almost one a month – have been published on the subject.

At the height of the boom, so much reliance was placed on it that banks trumpeted Var numbers. But the crisis badly shook confidence in it.

Indeed, Pablo Triana, formerly a derivatives trader and academic at the University of Madrid, argues in his book *Lecturing Birds on Flying* that financial models such as Var have done more harm than good.

"I blame mathematical model value at risk for the credit crisis," he wrote in 2009, arguing that as "a construct that borrows from past data and from improper probabilistic assumptions, Var can dangerously deliver numbers that are too low for comfort".

But three years after the crisis, Var is still being used – albeit with greater awareness of its limitations.

Simon Bray-Stacey, head of investment risk for Aviva Investors London, says: "When Var was promoted by JPMorgan all those years ago, I think the idea of having a single risk statistic was alluring for everyone, particularly senior management.

"Although the limitations and assumptions were always kept in mind by risk professionals, it became less obvious that Var was not a cure-all for risk problems.

"Var is still being used as a tool by institutions and it is still very useful for measuring exposures.

"But the assumptions around the way Var is produced and the concept that it is only a single point of the distribution of returns has to be borne in mind."

Certainly Var can provide useful data. Its figures can be produced very rapidly and monitored virtually real-time – crucial when managing complex positions in volatile markets.

> 'To say you can sum up the risk in a portfolio or an investment bank in one measure is quite daft'

Var is also seen as best suited to instruments, such as equities, that display daily changes in risk – although, at the height of the markets boom, Var was applied to other instruments such as credit.

Miles Kennedy, partner at PwC, says: "Var was a useful measure then and it's a useful measure now, but on its own it can be misleading. The industry got a host of things wrong and one was the over-reliance on a single measure or set of measures, including Var.

"The wrong response is to dispense with Var. The right response is to understand it for what it is and supplement it with other information, such as using stress testing or scenario analysis, to give a more complete picture of risk."

Part of the problem is that the Var model depends on the data fed into it: it assumes tomorrow will be broadly similar to today.

Benign economic data from before the crisis may have presented a rosier picture than was the case.

Mathematical sophistication of models may also have given executives a false sense of security about its accuracy.

Mr Kennedy of PwC points out: "A measure of risk driven by historical data assumes the future will follow the pattern of the past. You need to understand the limitations of that assumption. More importantly, you need to model scenarios in which that pattern breaks down.

"In financial services, there is a tendency to place greater confidence in risk information that is data-driven, in the belief that this confers objectivity and truth.

"Objectivity is fine, but it doesn't equate to truth. It has to be remembered that risk is about the future, and there are no facts about the future. Var gives a useful indication of what the future may hold, but no more."

Banks are now likely to look at stressed Var, which looks at how the position changes in extreme stress and improves transparency.

Mr Bray-Stacey at Aviva says that professionals now look at other measures to provide a much clearer picture of risk.

"To say you can sum up risk in a portfolio or an investment bank in one measure is quite daft," he said.

"Now people look at other measures besides Var, such as stress testing and this can bolster the understanding of the tails of the return distribution.

"Something else we use is looking at different historical periods as model inputs.

"From a risk management standpoint it is good that people are more wary of Var. It is not the be-all and end-all." Mr Bray-Stacey adds.

Stringent controls on losses and investment

Hedge funds

Sam Jones says that the sector has some of the most sophisticated and exacting practices

Box clever: the collapse of Lehman Brothers alerted investors to counterparty risks at the portfolio and business level AP

Try though they might – perhaps rarely very hard – hedge funds have never shaken the image of being high-rolling, high-octane, high-stakes market gamblers that they won after 1998, when the collapse of the fund LTCM came close to triggering a Wall Street-wide panic.

Since that debacle, there has been a hedge fund blow-up more or less every couple of years to keep that perception alive.

It is, however, a damaging one for an industry that prides itself, above all else, on risk management. Hedge funds – in theory at least – are low risk. They use trading strategies and instruments such as derivatives to hedge away the multitude of risks that playing the markets supposedly entails so they can make money with a minimal chance of losing it.

Estimations of hedge fund leverage – the money borrowed to juice up investment returns on client capital – vary, but most put it at between one and two times for the average hedge fund.

"If anything, leverage has fallen quite significantly," says Anthony Kirby, director of regulatory and risk management at Ernst & Young. Even at its peak in 2007, the average hedge fund probably used leverage of about three times, at most.

Hedge funds have perhaps unfairly been "clobbered with a high degree of regulatory oversight," says Mr Kirby. Although many hedge funds – thanks primarily to their typically small size – do not deploy the same gold-plated risk practices as banks and big asset managers – they are far from being freewheeling.

Indeed, big hedge funds have some of the most sophisticated and exacting risk management practices anywhere in asset management.

Brevan Howard, for example, Europe's largest hedge fund, is a byword for caution and savvy in investing, even if risk is apparent concentrated at the firm in the hands of a very small number of people. While Brevan employs hundreds, an estimated 60 per cent of the $36bn it manages is traded by Alan Howard, its founder, alone. Another 30 per cent of the assets under management are controlled by the small team of about seven top traders around him.

The fund has precise limits on acceptable loss levels, however. Anything more than 4 per cent results in a visit to the firm's chief risk officer, Aron Landy. An 8 per cent fall leads to a trader's money being cut. A 12 per cent fall is likely to lead to a timeout and them being shown the door. There are no exceptions.

> 'Institutional investors want to know we have rules and internal procedures, and people to police them'

The firm is not alone. Most large hedge fund managers employ similarly stringent risk limits and investment controls.

The reality for most is that they simply do not have the luxury of taking big risks – investors can, and do, pull money fast in the event of losses.

To boot, "founder syndrome" – where risk management is often a function of the top-trader or founder's own views – is rarely, if ever, an issue for big funds these days, says Mr Kirby. "The idea of the founder chasing alpha at the expense of risk compliance is very much fading," he says.

If anything, the events of 2008 have only led managers to have more conviction in the kind of risk management procedures that began to be put in place pre-crisis.

"We saw headcount in risk and compliance rise quite significantly in 2009," says Mr Kirby.

In many ways it is little wonder why. Fund managers have become increasingly institutionalised as they chase more institutional money.

Investments from pension funds or insurance companies are prized because they tend to be "stickier" and less prone to withdrawal in times of trouble, but they also come with greater demand for transparency and solid, risk management procedures.

"Institutional investors aren't necessarily interested in the specifics of the quantitative risk management models we use," says the chief risk officer of one large multibillion-dollar fund, "But they want to know that we have rules we follow and internal procedures, and people to police them."

Since 2008, investors have been digging much deeper into the operational side of the hedge fund business. Due diligence processes now involve questions about the prime brokerages that hedge funds use, the arrangements for custody of their assets, and the structures of the funds themselves.

The collapse of Lehman Brothers, the US investment bank, in particular alerted many investors – and hedge fund managers themselves – to counterparty risks at the portfolio and business level.

Even top-flight managers such as GLG Partners were forced to wait for years before they were able to claim back assets from the collapsed bank, thanks to a lack of understanding about the way Lehman sequestered assets from its prime brokerage unit in London back to New York on a nightly basis.

Testament to the changes in the industry is the growing seriousness with which the Hedge Fund Standards Board – a self-regulatory body set up in 2008 – is being taken. The standards, which cover everything from marketing to risk management, are increasingly coming to be seen as the industry's benchmark.

As money flows back and memories of 2008 fade and investors' appetite for high returns grows., it remains to be seen whether the rules stick.

Trauma leaves deep scars

Continued from Page 1

quicker and more integrated."

Although the overhaul of monitoring by banks has been driven by the regulatory agenda, the experience of losing billions of pounds by failing to spot the dangers of excessive risk has prompted them – particularly those bailed out by the state – to recognise the importance of restructuring this part of their business.

A recent survey by Hedley May, the executive search firm, showed nine FTSE-listed financial services companies, including HSBC and Prudential, appointed new chief risk officers in the past year.

The heightened importance of the role means banks are also looking to attract a higher calibre of individual.

Chief risk officers are expected to be more proactive – spotting problems in advance rather than dealing with them as they arise – as well as more involved in strategic decisions from an early stage and willing to challenge those responsible for making them.

Consultants say one big failing in risk management before the financial crisis was the quality of information collected and passed on to senior management.

Banks made sweeping assumptions based on data they collected about, for example, the ability of customers to repay debt, and were slow to react when problems, such as loan impairments, surfaced.

"Without exception, all banks have done some analysis of the quality of data and the integrity and accuracy of processing that data. All found to some degree a need for improvement," says Andrew Gray, UK banking leader at PwC.

While the problems did not tend to reflect a lack of information – in fact consultants say risk officers were frequently producing too much data – the quality and transparency was poor.

"It was difficult to navigate to where the problems were," adds Mr Gray. "Work has been done to improve the quality of data, to make it more accurate, granular and predictive."

Banks are now looking to compile more succinct but more useful data that better analyses exposure to risks.

In particular, bigger groups such as global investment banks have been examining how to price illiquid assets and manage the risks of individual businesses and markets rather than across the institution as a whole.

However, while progress has been made, consultants say banks have more work to do. Ms Jackson at E&Y says a significant cultural change is needed for banks to move away from the sales-driven environment that permeated organisations in the boom years.

"Now risk officers have a seat at the table when it comes to product development or strategy. But that doesn't stop it swinging back again in the next boom to a more sales-driven culture," she says.

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ALWAYS LEARNING PEARSON

Correlation remains crucial

Personal View
PAUL J DAVIES

A large solar flare erupts. Less than an hour later, in a busy, urban area, rail network controllers lose track of trains, while clocks and communications fail in automated signal boxes. Sat-navs in cars and lorries start giving erroneous positions, distracting drivers.

Most dangerous of all, though, is the interruption to dispatchers of the emergency services.

The flare has caused significant disruption to a single system: the satellite-based Global Positioning System. The Royal Academy of Engineering warned this month about the ubiquity of this system among a dizzying list of industries and applications. It is cheap and efficient and has solved a lot of co-ordination problems. But its very success means it is a single connection among otherwise unrelated activities. Its failure could be catastrophic.

This is a problem of correlation – and it is one of the key problems of an efficient, modern society.

Misjudgments about, or failures to spot, correlation in various forms were among the main causes of the recent financial crisis. The biggest miss was memorably summed up by Andy Haldane, the Bank of England's head of financial stability, who compared boom-era banks to Tolstoy's happy families: they were all alike.

Banks' individual quest for diversity of earnings made them ever more similar – and correlated. But expectations about correlation, however badly understood, are still crucial across financial risk management.

There are a number of lessons relevant to the financial system from the Royal Academy's GPS warning.

First, the problem of successful technologies. From railways to the internet, new technologies have inspired speculative bubbles and consequent crashes. The over-exploitation of the technology of securitisation was a primary cause of the most recent bubble. Both its pervasiveness and overblown ideas of its capabilities caused a huge build-up of poorly understood risk.

Second, the problem of lots of people doing the same sort of thing in the same sort of way. One response to the crisis has been a significant overhaul of regulations. This overhaul is not only about the amount of capital that institutions must hold. More importantly, the changes look to define more closely, and on a more global basis, the risks against which capital is held – and how those risks are assessed and managed.

In a competitive environment with a single targeted outcome – the best available return on capital – and where advantage is uncovered quickly, this seems likely to result in more similar behaviour among the big institutions that survived the crisis.

However, there are also lessons in the differences between GPS and finance. With GPS malfunctions, it can be easy to spot big errors, for example if a ship is shown to be many miles inland and travelling near the speed of sound.

> People doing the same sort of thing in the same sort of way is a problem

But are such errors so easy to detect in financial markets? The meaning contained in the words "ship", "inland" and "speed of sound", makes their conjunction absurd. However, the same cannot be said of terms such as "mortgage", "default" and "very high loss rates".

The reason it cannot be said is not because a mortgage never defaults (indeed, a ship can be inland – though it would not be performing a ship-like function), but because the financial terms are significantly vaguer and their meaning can shift in the short term.

Further, people react and adjust their behaviour to perceived changes in what these terms mean. Simplistically, a mortgage was not a high-risk investment before late 2006 – two years later, any mortgage seemed toxic.

The economist Hyman Minksy said ideas of "liquidity" change with new financial technologies. Innovation increases efficiency and apparently boosts liquidity – at times exponentially – without any gain in productivity or profit. But the liquidity illusion can vanish easily.

The differences between finance as a social activity and the physical sciences are intuitively obvious. The odds on a 100-year solar flare do not change just because people think such a flare is more likely.

Correlation among various systems connected by use of GPS is relatively straightforward to assess and counter once it has been identified – its riskiness is not affected by our awareness or lack of it. In finance, correlation is among the most slippery of risks and remains always just beyond our grasp.

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Follow the line of debt to spot a coming crisis

The next bubble

Richard Milne explains why large increases in government balance sheets are worrying

The Jianwai SOHO complex in Beijing: some fear China may be entering a bubble because spending on such infrastructure is a large part of its economic growth Reuters

Mark Thomas, a business strategy specialist at PA Consulting, has a single sheet of paper he shows to clients that could strike fear into any chief executive, investor or regulator.

It shows a radar screen with the dozen or so events he thinks could over the next decade potentially be the next landmine for the global economy.

Broken into four areas representing risks in the consumer, corporate, banking or government sector, the chart shows worries stretching from a commodity price shock to the health of financial institutions in the eurozone and China.

But many of the biggest "bubbles" on the radar screen are located in the government sector.

Few countries are spared from being a potential problem: alongside the usual suspects of the peripheral eurozone countries of Greece, Ireland, Portugal, Spain and Italy, Mr Thomas has placed Japan, the US, the UK and even China.

"There has been a huge transfer on to government balance sheets because of the crisis," he says.

As regulators and companies peer on to their own personal radar screens to see what the next bubble might be, the options can seem bewildering.

Even when it can be identified, working out when it will pop is almost impossible. The previous bubble was no different. While several economists warned of the dangers of subprime lending in the US or property prices in Spain, many of them did so for years before the event.

Only four years after the financial crisis first broke, the danger of complacency is already back.

Analysts at Citi noted in early March how deep out-of-the-money equity options – which would make large amounts of money only if stock markets fell precipitously – were at their cheapest since before the collapse of Lehman Brothers in 2008. Steven Englander, a currency strategist, noted signs of "Black Swan fatigue" – weariness with the idea that an extremely unlikely event could take place and cause havoc in the markets.

Difficult as it is to spot the next bubble, some strategists and investors say the answer should be relatively simple: follow the debt.

"It is very easy to tell where the next bubble is forming: it is whichever sector is taking on the most debt. You can get bubbles that are not associated with debt, but nobody really worries when they burst," says Matt King, head of credit research at Citi.

Under his analysis, debt helps explain why Japan went pop in the 1980s, companies at the end of the 1990s, and banks in the past decade.

Now the debt – as demonstrated by the eurozone crisis – is all at the government level.

> There are signs of 'Black Swan fatigue' – weariness with the idea that an extremely unlikely event could cause havoc

For some analysts, this represents potentially the final act in a decade-long drama that has seen companies, consumers and banks all have debt problems.

"If you think all the bubbles of the past 10-15 years were connected, then government bonds are the last shoe to drop," says Jim Reid, credit strategist at Deutsche Bank. "Governments are the last chain in the rolling supercycle of bubbles."

The peripheral eurozone countries look most immediately challenged, and their problems also fuel concerns about banks in France and Germany.

But as Mr Thomas' radar screen demonstrates, few countries can be excluded.

Some investors argue that Japan, the UK and the US should be excluded as they can start the printing presses, but the potential for intense concerns about the level of their debt in the coming years remains. "It is all a big confidence trick. It has worked in the US so far. But the debt is still there and that leverage creates much more downside risk and fragility than people think," says Mr King.

Mr Thomas even believes China could be at risk, joining some hedge fund managers in fretting about the fast-growing economy. His argument is that investment in infrastructure is such a big part of growth rates that, coupled with the difficulty in trusting economic data and a belief that it is a new era for China, makes a bubble a possibility.

So what should people do about potential bubbles? Ignore them or worry so much they do nothing?

Mr Thomas argues the first thing is simply to acknowledge they exist.

"Don't run your business on the basis that everything will be perfect. Some landmines will explode," he says.

But just because a bubble might be brewing in, say, China, it does not mean investors should shun the country.

He adds: "If China is a bubble you don't want to invest in Chinese real estate. But you might take a long-term view that unless something goes fundamentally wrong it should still be a good growth story, albeit not quite as good as in the recent past, for the next 20 years."

Central counterparties eye a wave of opportunities

Clearing

Reforms aim at OTC expansion, says **Jeremy Grant**

Hong Kong is not an obvious place to start if you are looking for evidence that the G20 reforms aimed at cleaning up the financial system, post-crisis, have prompted profound changes in the way the markets function.

But last month Hong Kong Exchanges and Clearing (HKEx) laid out ambitions for expanding into the provision of clearing services for over-the-counter (OTC) derivatives.

It plans to establish an OTC clearing house by the end of 2012 – possibly in conjunction with partners – "to support global regulatory initiatives and take advantage of business opportunities in OTC derivatives clearing".

The move showed that reforms enshrined in the Dodd-Frank act, passed last July by the US administration, are pushing clearing to the forefront of the agenda of many in the financial markets well beyond the US and Europe.

A clearing house stands between parties to a trade, taking on the financial risk if one party defaults. It uses funds posted by members of the clearing house – known as margin, or collateral – to ensure deals are completed in the event of default.

Clearing houses, also known as central counterparties (CCPs), are required under Dodd-Frank to accept for clearing swathes of over-the-counter (OTC) derivatives, such as the interest rate swaps that HKEx plans to clear.

These contracts used not to be cleared. The banks that bought and sold them from each other trusted each other's creditworthiness when it came to assessing whether the other side might default. The lack of a safeguard such as a CCP was starkly exposed when Lehman Brothers defaulted in September 2008, since many counterparties were left holding open positions with the failed bank.

The Dodd-Frank act and similar reforms in Europe known by the acronym "Emir" are set to change all that by trying to ensure that as many OTC derivatives go through clearing houses as possible.

That means not only that CCPs see a business opportunity in handling this new wave of derivatives. It has also raised concerns among regulators and central banks that pushing more activity into CCPs could be concentrating risks into these institutions, making them a single point of failure.

In its Emir proposal, the European Commission says: "In view of their systemically important role and in view of the proposed legislative requirement to clear all 'standardised' OTC derivatives through CCPs, the need to subject them to strict prudential regulation at EU-level cannot be overemphasised."

For central banks, the question is whether, and to what extent they should and can provide a backstop to CCPs, should any of them get into difficulty. No one yet has a clear answer.

Regulators and central bankers have been working to ensure that, at least, the standards under which CCPs are governed and run are as far as possible harmonised globally. The same applies to ensuring robust risk management, which is a clearing house's most important function.

The concern is to avoid a situation where clearers' commercial priorities in competing with each other over the spoils of OTC derivatives might tempt them into relaxing the financial requirements they have of their members in order to attract more business.

Regulators have tried twice before – in 2001 and 2004 – to put in place a set of harmonised standards for CCPs. But the G20 reforms, and the eagerness of markets in Asia – principally Hong Kong, Japan and Singapore – to build their own OTC clearing infrastructures, have made it more important that regulators succeed this time.

> 'Our members want CCPs to apply robust and sophisticated risk management policies'

The fear is that otherwise a patchwork of standards will emerge, making it hard for regulators to get a holistic view of risk at CCPs.

This month the Bank for International Settlements (BIS) proposed in a report "new and more demanding standards" for payment, clearing and settlement systems.

"A [clearing house] should maintain additional financial resources, such as additional collateral or a pre-funded default arrangement to cover credit exposures from participant defaults in extreme but plausible market conditions," it said.

The BIS report, compiled by the its Committee on Payment and Settlement Systems and the International Organisation of Securities Commissions, sets out a set of proposed principles for "financial market infrastructures (FMIs)".

It is the first attempt since the financial crisis to establish global standards for governance, funding and management of post-trade structures such as CCPs.

However, users of CCPs, such as banks, are anxious that there is not just a focus on making clearing houses financially more robust – not least because the cost of doing so will ultimately fall on users.

Stephen Burton, director at the Association for Financial Markets in Europe, says: "Our members want CCPs to continue to apply robust and sophisticated risk management policies rather than simply applying additional collateral or increasing default arrangements."

Simon Gleeson, UK partner at Clifford Chance, calls the BIS paper "a missed opportunity".

He notes it does not mention a separate December paper by the BIS about banks' exposures to CCPs. In that paper, banks are supposed to calculate their capital requirements for the exposures by first figuring out how much capital the clearing house would need if it were a bank.

But the Iosco paper uses an entirely different calculation. "There doesn't seem to have been a lot of joined-up thinking," he says.

Togetherness: HKEx plans to move into clearing Reuters

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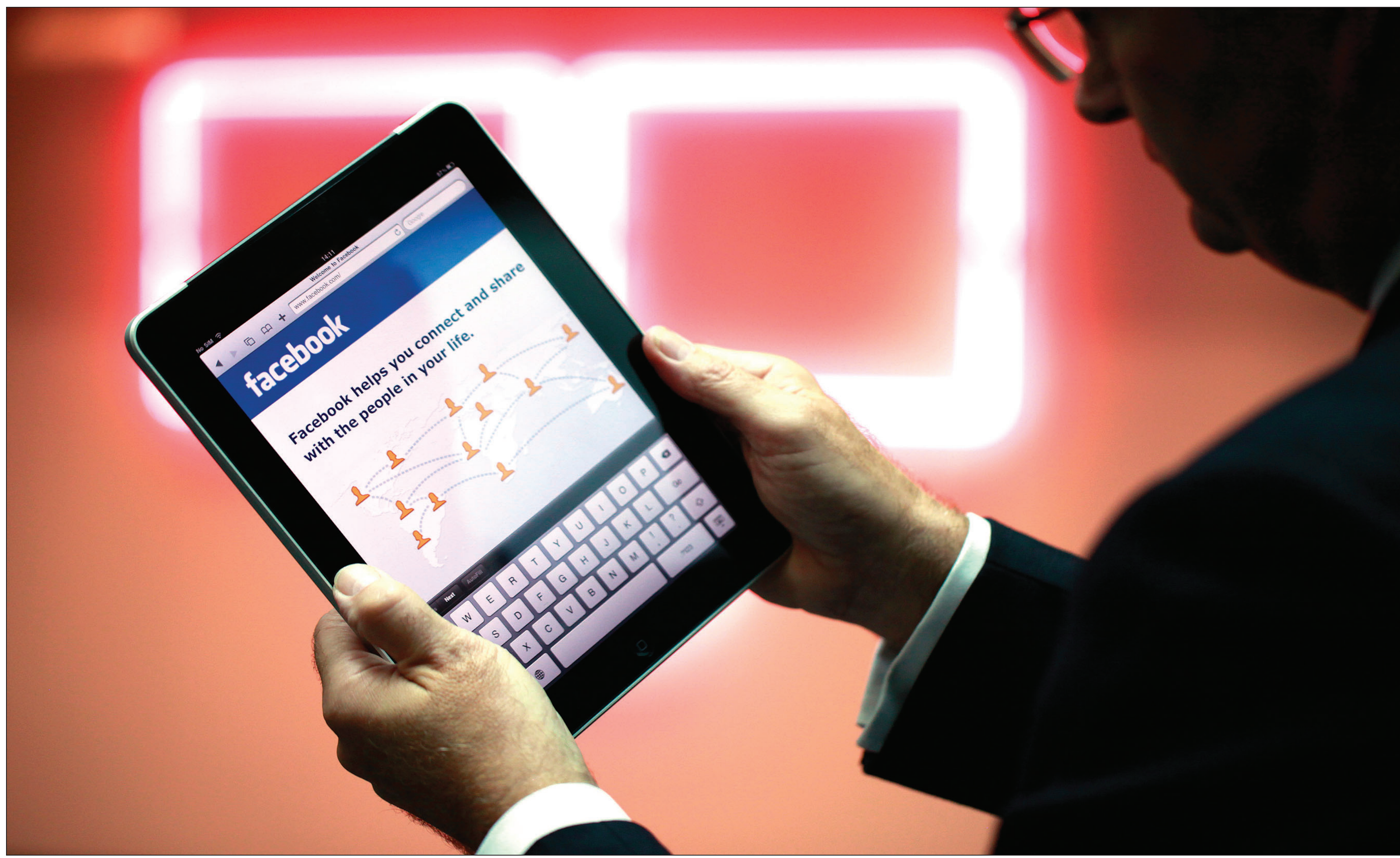

The world in your hands: as investors focus on growth prospects the suggested price for companies such as Facebook has reached very high levels Bloomberg

Tech firms to unveil key stroke

Dotcom sector

High valuations are ringing warning bells for some investors, even those with short memories, writes **Telis Demos**

Around of hot technology companies — names such as Facebook, Groupon and LinkedIn — set to go public makes some investors very happy. But it gives others a few bad flashbacks.

A study of the US initial public offering pipeline by Ernst & Young found 150 companies waiting to go public as of February, seeking to raise $42bn. Of those, 22 per cent were technology companies backed by venture capital firms.

Typically, those issues launch after the end of the first quarter, when auditors can thoroughly scrutinise the books of younger companies.

"Assuming markets are robust, we're about to enter a period of incredible activity on smaller deals," said Mark Hantho, global co-head of equity capital markets at Deutsche Bank.

In some respects, this is a very healthy sign: investors are confident in the long term, and are willing to take a chance on riskier companies that could deliver huge returns. The FTSE Renaissance IPO Composite index rose 20.3 per cent last year, versus 12.8 per cent for the S&P 500.

The FTSE Renaissance index holds companies for two years after they have gone public.

That is a significant turnround from 2008, when investors were dumping such groups. The index fell 50 per cent that year, versus a 23 per cent drop in the S&P.

"The bar for going public continues to come down. When this market first reopened, people asked, what's the price-to-earnings multiple – is it profitable?

"But right now, investors are willing to look further out, and are more concerned about growth than profitability," says Will Bowmer, head of technology equity capital markets at Barclays Capital.

"Fund manager who want to take more risk are going straight to the IPO market."

But it also raises the spectre of a technology bubble. Memories of the IPO-crazed late 1990s, when cab rides and backyard barbecue parties were filled with talk of "hot stocks", are still fresh for many investors.

"It's a Web 2.0 craze and bubble mania, no question," says Harold Bradley, chief investment officer at the Kauffman Foundation, which works to foster entrepreneurship.

"We've gone from the 'eyeballs' craze to the 'viral' craze. These companies are marginally profitable but are supported by huge valuations."

Certainly, one can be sceptical about the estimated valuations for the likes of Facebook, put at more than $70bn, if deals to sell its shares on private markets are reliable, or Twitter, valued at $4.5bn by a private JPMorgan Chase fund, or Groupon, said to be valued at $5bn by a takeover overture from Google.

Many people who frequently deal in such companies are a doubtful about those eye-popping numbers. "It's hard to know who's buying these shares, and for what reasons," says a senior Wall Street banker. Barry Diller, a seasoned technology investor, recently called those valuations "insane".

However, that is not diminishing bankers' enthusiasm for this group of companies. Many of them see a silver lining in the timing of the financial crisis for this group technology companies: they had more time to grow and mature.

"The average length of a company in our pipeline waiting to go public is seven to eight years. That's longer than the four or five years we were seeing earlier in this decade, and the incredibly short turnround during the dotcom boom," says Jackie Kelley, Americas IPO leader at Ernst & Young.

> 'We've gone from the 'eyeballs' craze to the 'viral' craze. These companies are marginally profitable but are supported by huge valuations'

In the past year, she says, a striking number of companies have come to her practice for pre-public training in how to talk to investors, deal with auditors and publish regular reports.

"These companies, as a group, are going to be unusually ready for their IPOs," she says. "These social networks may have become household names only a year or two ago, but they started a few years before that."

There are several themes that are said to be compelling to investors at the moment. Companies that sell "software as a service", or "cloud" software, are highly prized.

Cornerstone OnDemand, a software-as-a-service company, is expected to price its IPO this week, with more than the offered shares said to be in demand. Smart Technologies, based in Calgary, which creates digital whiteboards that can be shared remotely, last year was the largest venture-backed technology IPO to price in the US.

Social networking and other "web 2.0" services are also set to be a significant theme. LinkedIn, the business-centric network, and Skype, the web-based telephone service, have filed to go public this year.

Facebook, the world's largest social network, and Groupon, which offers discounts to groups of people, are expected to file in the next year or two, though they have been able to delay that filing by raising money through private offerings.

Mr Bowmer believes that those private valuations, even if not entirely reliable, are making it possible for investors to evaluate individual offerings rather than rely on a wave of competing IPOs — much like what happened in the 1990s — to support valuations.

"You don't have to wait to see how a similar company will trade, you can now speculate based on private valuations," he says.

A real problem for regulators

Shadow banks

Brooke Masters explains why the sector provides unique challenges

Now that regulators have moved to impose tougher capital and liquidity requirements on banks, attention is turning to other sources of systemic risk, especially fast-growing entities muscling in on bank business that have escaped the same level of scrutiny.

The $16,000bn "shadow banking" system includes everything from hedge funds and private equity to money market funds, clearing houses and special-purpose vehicles that hold complex securities. Though it has shrunk somewhat since the 2008 financial crisis, it is still larger than the $13bn banking system proper, according to research by the Federal Reserve Bank of New York.

These shadow banks have taken on part or all of the maturity transformation role of banks – matching short term depositor funds with long-term lending – and much of the attendant risk. But they do not have the same requirements to hold capital and liquid assets against losses or a rash of customer withdrawals or failures.

This spring, the Financial Stability Board, a group of global regulators and central bankers, is due to issue a report and come up with recommendations on how the world's largest economies can get a better handle on the risks shadow banking system poses. The US has a new Financial Stability Oversight Council charged with identifying and regulating shadow banks that have become dangerously important and the new UK Financial Policy Committee will have a similar mandate.

In one measure of the regulators' determination to get to grips with the shadow sector, the FSA started running a twice a year survey of hedge funds to assess the risks they pose to the broader system. The most recent found that they play relatively large roles in the convertible bond, interest rate and commodity derivatives markets but are otherwise relatively small forces that pose little risk.

The watchdog noted the vast majority of hedge fund borrowing is with five banks, suggesting concentration issues, but noted with approval those banks have tightened lending terms and are holding more capital.

Other parts of shadow banking are likely to receive similar demands for information; US and European money market funds are a likely target. Central counterparties – particularly clearing houses – are also potential targets for regulation because they are critical to day-to-day trading.

Michael Raffan, partner at Freshfields, says: "Central counterparties are the mother of too-big-to-fail problems, because, if one goes, it is likely to take the system down."

Global regulatory groups recently issued a report urging governments to set "new and more demanding standards" for payment, clearing and settlement systems – the post-trade infrastructure that underpins markets.

"A [clearing house] should maintain additional financial resources . . . to cover credit exposures from participant defaults in extreme but plausible market conditions," according to the report from the International Organisation of Securities Commissions and the Bank for International Settlements. That suggests banks would have to hold more collateral.

Analysts point out that moving risky activities such as proprietary trading and high-risk lending out of the banking sector proper is not such a bad thing, as long as regulators act to limit the impact of any failures on the larger system.

"In many ways, transferring higher risk activities into vehicles where depositors' money is not at risk is at the core of the current wave of banking regulation. However the real challenge will be . . . systemic risks that are detected too late. For example how many LTCM 'time bombs' will exist in the shadow banking system," says Bill Michael, UK head of financial services at KPMG

But some analysts doubt that global authorities will be able to regulate alternatives to banks. They say imposing tighter controls on banks and their near competitors will drive borrowers to less regulated sources.

'Central counterparties are the mother of too-big-to-fail problems' Michael Raffan, partner at Freshfields

Simon Gleeson, UK partner at Clifford Chance, the law firm, says: "Credit is like internet content. It can be created by anyone anywhere. Imposing restrictions on bank credit creation would be like trying to control the size of the internet by imposing word limits on newspaper websites.

"Not only would it be unsuccessful, it would result in less good content and more bad content."

He adds: "Since banks are required to cover the costs of financing plus capital requirements, while shadow providers only have to cover cost of financing, it is likely that the shadow banking system will provide credit at lower prices than banks – thus a policy aimed at reducing credit growth may end up stimulating it."

With financiers around the globe itching to exploit loopholes in regulation, analysts say, the best that regulators can hope for is to contain, rather than eliminate, the danger posed by the unregulated part of the financial sector

"You can move the risk around, but you can't get rid of it," says Mr Raffan. "Better to set the [regulatory] perimeter at a reasonable place and monitor it to protect what is inside.

"If you get it right, the failure of something outside it shouldn't have systemic implications."

Reuters

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The poverty of the entire idea of control

Guest Column
SATYAJIT DAS

The late Peter Bernstein in *Against The Gods: The Remarkable History of Risk*, argued that capitalism would be impossible without quantification and hedging of risk.

He wrote: "The revolutionary idea that defines the boundary between modern times and the past is the mastery of risk: the notion that the future is more than a whim of the gods and that men and women are not passive before nature."

Unfortunately, successive crises, beginning with the failure of portfolio insurance in the 1987 stock market crash and culminating in the global financial crisis of 2008, have illustrated the poverty of risk management technology.

The flawed empiricism underlying risk measurement was highlighted in August 2007 by David Viniar, Goldman Sachs's CFO: "We were seeing things that were 25-standard-deviation moves, several days in a row."

When in October 2008, the Dow Jones Industrial Average moved more than 10 per cent on two days, economists Paul De Grauwe, Leonardo Iania and Pablo Rovira Kaltwasser used a normal distribution to estimate that such moves should occur only every 73 to 603 trillion billion years – making this "a truly miraculous event".

Following the crisis, risk managers and regulators have recalibrated their abacuses. The changes are refinements of existing approaches rather than any fundamental shift. The reason offered is that there are no "real" alternatives.

Problems remain. All risk management starts with accurate valuations of positions. But there are disagreements about standard models for valuing even conventional derivatives, such as interest rate and currency swaps. For exotic products, these problems are greater.

Key changes in technology have entailed using higher volatility, more rigorous correlation assumptions and also stress tests to supplement risk measurement. But the *volatility* of volatility has also increased. Large shifts in correlations between different assets – or "regime changes" – are now an increasing factor in markets. All this makes risk measurement and management more difficult.

The problem is that methodologies still do not recognise that the real risk in markets is driven by both external events (government policy or oil price shocks for example) and, increasingly, the structure of markets and trading themselves.

The design of markets, flawed regulatory regimes and large, cross-border capital flows contribute greatly to risk. Tightly coupled markets with complex linkages between participants create complexity and interdependence.

Credit enhancement techniques, primarily the use of collateral, facilitate greater participation in trading and higher leverage. But their effects on the demands for cash and the need to liquidate positions can exacerbate price moves and volatility.

The arcane effects of highly technical documentation and operational risks are not adequately captured by risk systems.

Consolidation within the financial services industry has created higher concentration of trading and risk among a small group of large dealers.

> The problem is that methodologies still do not recognise the real risk in markets

In theory, participants, such as investors and hedge funds, provide liquidity and help disperse risk. In reality, trading strategies of key players are often poorly diversified. They involve large bets on the same event using different instruments, causing higher volatility under certain conditions.

The roles of large marquee hedge funds and prime brokers (who finance these hedge funds) also create significant risk concentrations.

'Risk managers and regulators recalibrated their abacuses'

The models used to price, risk-manage and value instruments frequently do not capture the underlying market dynamics. Assumptions about trading, liquidity and funding are unsustainable. The use of broadly similar risk models creates dangerous feedback loops.

Trading behaviour and trader interactions are also poorly understood. Moral hazards are prominent in compensation systems for traders. As some traders recognise, "there is a new risk factor – and it is us."

Many of the real risk elements do not lend themselves to fanciful mathematical modelling and the exactness beloved of risk mangers. In love with the beauty of their models, risk professionals are reluctant to admit the flaws in quantitative risk management. Recognition of the difference between risk and pure uncertainty and the need for more qualitative measures is largely rejected as Luddite.

The lack of progress is predictable. Financial markets, investors and traders have become wedded to increased risk-taking as an important source of profit.

Risk management continues to be the figleaf behind which senior managers, directors and regulators shelter.

Testifying before the US Financial Crisis Inquiry Commission, Sandy Weill, the former Citigroup chairman, provided insight into the practices of major banks. "If you look at . . . what happened on Wall Street, it became, 'well, this one's doing it, so how can I not do it – if I don't do it, then people are going to leave my place and go some place else'."

Risk management continues to provide imprecise and misleading comfort to financial institutions and regulators about risky activities and the true level of exposure.

Risk management increasingly exposes the firms and, ultimately the whole economy, to the sum of all our fears.

Satyajit Das is author of *Extreme Money: The Masters of the Universe and the Cult of Risk* (to appear in September) and *Traders, Guns & Money: Knowns and Unknowns in the Dazzling World of Derivatives*