BEYOND THE FINANCIAL CRISIS

The Oxford Scenarios

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Contents **Beyond the Financial Crisis**

1 Introduction to the Project

Our 'Beyond the Financial Crisis' scenario project started life as a voluntary collaboration of a small group of participants from the second Oxford Futures Forum held in April 2008 (Oxford Futures Forum, April 2008)[1]. As we continued to exchange ideas about scenarios and sense-making, we began to use the unfolding financial crisis as a common point of reference. Although we represent different traditions in scholarship and different experiences in practice, our collective willingness to adopt a variety of starting points regarding the causes and nature of the crisis that was unfolding was critical to our own learning.

The initial variety of starting points adopted by the team:

Futures	Organisational studies	Complexity	Sense-making	Philosophy
Scenarios deployed to sustain rather than to challenge models and strategies	Failure to match strategy to context without taking systemic risk into account	Dominance of linear thinking in mainstream economics	Complicity in manufacturing the 'stupidity'* of the financial system	'Blind faith' in reason
		Confusion of systems thinking with complexity	Inability to make sense of imminent failure	Failure to heed whistle-blowers and early warning signals—no market for 'uncomfortable' knowledge

*'Stupidity' is a technical term in the field of sense-making.

We concluded that:

- Rather than an isolated 'financial crisis', there is an unfolding wider crisis as the ripples cascade into the social and political sphere, impacting the real economy and shaping notions of good governance.

- The financial crisis was not a one-off event, but the 'canary in the mind'* (or for those in the City of London, the 'Canary in the Wharf') that heralds the prospect of other systemic failures.

- There has been a serious misunderstanding both of systemic risk and of risk in general: how to identify it, measure it, manage it, mitigate it, eliminate it, and avoid it. The mainstream view that pervades the financial services sector assumes that uncertainty can be packaged into calculable and diversifiable risk and that all risks can be effectively priced in the market. Many new financial securitised products (such as mortgages) had prices that now seem unduly cheap and profitable, suggesting that not all costs had been allowed for. This became obvious as it grew clear that the sales proceeds banks and other financial institutions had made in the 2001-2006 growth period and the accumulated capital left within them were insufficient to carry the cost of the full market systemic risk.

- Early warning signals were overlooked.

- Embracing uncertainty as intrinsic, as more than a lack of knowledge, is not easy to put into operation. After all, how many bankers would have been willing to admit that they just didn't know the risk involved in many of the new financial instruments? And to what extent could organisations appreciate, let alone address, socially constructed ignorance?

We have also concluded that many of the actions and interactions within the financial sector lacked reflection about strategic assumptions and the true nature of the regulatory culture and the financial system itself, and reflected the dominance of certain forms of futures thinking and analysis--for example, the default in risk assessment to stress-testing individual components (i.e., banks) in the system in relation to specific future events as a way to ensure the resilience of the system as a whole. This lack of reflectiveness, combined with overconfidence in quantitative analysis, made the financial system 'blind'—most of the actors in the system chose not to see what was going on and not to question it. The resulting crisis has led to a widespread sense of outrage, especially in relation to the deceptions that have been uncovered and that have affected those most vulnerable.

Brutal re-perception, which the world is now experiencing, is like any electric shock: it can result in a lot of knee-jerk reactions. The rush of urgent actions ranges from national fiscal stimulus greater than at any time in modern history to calls for new regulations and reform of the so-called 'Bretton Woods' institutions that, if enacted, might significantly transform our world.

On closer inspection, we concluded that all these urgent reactions seemed to conform to a single-minded view: there is a problem to fix—and that it can be fixed. In contrast, we have attempted to 'stick with the problem' rather than rush to find a solution. We suggest that 'gentle re-perception' can be enabled by rehearsing current options and events in a couple of alternative futures—exemplified by scenarios.

* Psychologist, John Scott Haldane, pioneered the use of canaries in coal mines to detect the presence of carbon monoxide. His research led to the discovery that gas poisoning affected small birds and animals more quickly than men, due to their faster metabolism. By deploying canaries in cages in coal mines, his work established an 'early warning system' that enabled miners to take escape catastrophe. Similarly, we suggest the recent financial crisis as a 'canary in the mind' – an early warning of the inevitability of systemic failures.

Why Scenarios?

A scenario is a story of the future context of something and how it came about. To work with scenarios is to treat the future as a fiction—which, in any given present, it is.

Scenario thinking and planning emerged in military planning in the U.S. in the 1950s, in public policy-making in France in the 1960s, and in the corporate planning of Royal Dutch Shell in the 1970s. Scenarios encourage learning 'with' rather than 'about' the future and support decision-making by making explicit assumptions about the role of past and future in the present.

Scenarios always come in sets of two, three, or more, but usually two to three, because to use only one scenario is the equivalent of working with a prediction, or forecast, while to work with too many scenarios at once can be confusing (e.g., all the alternative assessments of global environmental change). While there are many different traditions in scenario practices, we chose a systemic but intuitive logics approach rather than a multi-variate type analysis, in order to keep the 'framing' of the future open.

Our two scenarios – *Growth* and *Health* – aim to encourage the world to remain open to a change of mind about the nature of the problems it faces and the range of decisions and actions that are available. We do not claim that these are the only possible scenarios or that they predict the future. We simply offer them as frames and platforms for longer-term reflection and discussion—as unfinished business in a still unfolding conversation about a messy and evolving situation that will shape the story of all our lives, for better or for worse.

With this in mind, we make these scenarios available under Creative Commons to not only allow, but encourage others to participate in this ongoing discussion.

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http://www.sbs.ox.ac.uk/centres/insis/research/Pages/futures.aspx

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2 Introduction to the Scenarios

“I made a mistake in presuming that the self-interests of organisations, specifically banks and others, were such that they were best capable of protecting their own shareholders and their equity in the firms. I found a flaw in the model that I perceived is the critical functioning structure that defines how the world works. That’s precisely the reason I was shocked.”

A crisis has rocked the foundations of the global financial system. Governments, banks, companies, regulators, communities, and citizens are scrambling to cope. Events are unfolding along the lines of a fictional thriller, forged in the twists and turns of a still unfolding story and raising questions about ‘who done what’ and what happens next.

The Dogs that Didn’t Bark

“It is hard for us, without being flippant, to even see a scenario within any kind of realm of reason that would see us losing one dollar in any of those transactions.”

(Joseph J. Cassano, a former A.I.G. executive, “‘No-Risk’ Insurance at F.D.I.C,” *New York Times*, April 7, 2009.)

‘The dog that didn’t bark’ refers to a Sherlock Holmes mystery in which a murder occurred without the guard dog barking. Holmes concluded that the dog didn’t bark because he knew the killer—the dog not barking, then, is the clue to the identity of the killer.

Many banks and regulators had scenarios of possible financial crises, but these scenarios didn’t ‘bark’—that is, they were not effective in preventing the crisis. Was that because the triggers to crisis were too familiar?

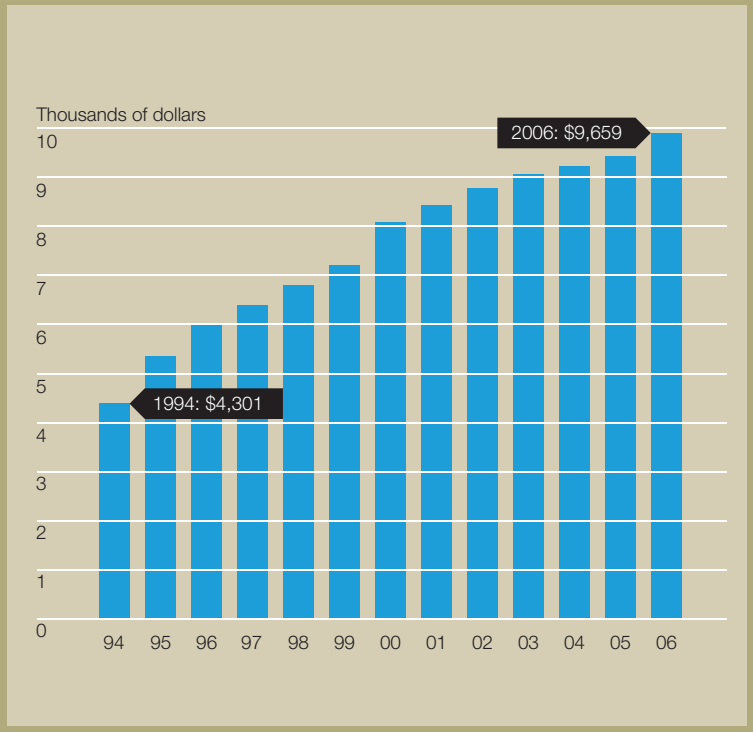
For many, the story begins with increasing debt and a housing bubble in the U.S., which became a credit crisis before evolving into a banking crisis. This banking crisis has since developed into an economic crisis and, in turn, is crystallising a crisis of values that has not yet worked its way through to the major governance challenges that are yet to be addressed.

For others, the story starts elsewhere, either in the commodities prices (in particular, energy) in the summer before the banking crisis emerged or even longer before, with an increasing dependence on a radical form of free-market capitalism as the primary mode of economic activity, with its un-regulated gaming of financial markets and exotic, highly leveraged derivatives.

With each unfolding page of the story, new areas of crisis are revealed, calling for urgent action as more and more ‘ordinary people’ are caught up in the ripples of the crisis. Rising unemployment, home repossessions, growing differences between rich and poor, bankruptcy for large corporations and small businesses, the lack of capital for new enterprises, the disappearance of retirement savings—these and many other critical issues face policymakers across the globe. Despite claims by some that the crisis is over, a global survey of 1,677 executives, representing all regions, industries, company sizes, and functional specialities, concluded that:

A year after the global economic system nearly collapsed, many companies are finally finding ways to increase profits under the new conditions. But almost as many expect profits to continue falling, and executives also indicate that their broader financial hopes remain fragile. Many expect more government involvement in economies and industries over the long term. Their anxiety is highlighted by the fact that a plurality—42 percent—of them still think “battered but resilient” is the best description of the economy

Average U.S. Credit Card Debt per Household



Source: CardTrak.com and CardData.com, The Washington Post*, May 27, 2007 (http://www.washingtonpost.com/wp-dyn/content/graphic/2007/05/27/GR2007052700089.html).*

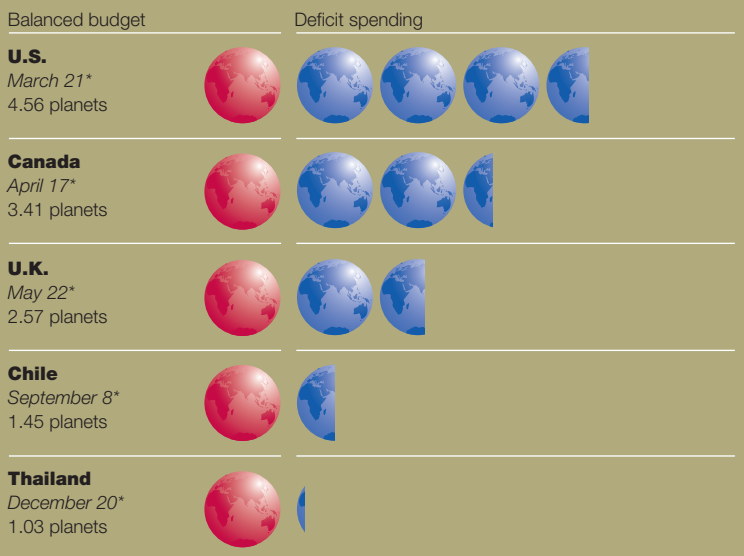
over the next several months (*McKinsey,* 2009).[2]

As with almost all human endeavours, our perceptions of and approaches to the global financial crisis are based on deep assumptions that are seldom made explicit. Expediency requires us to ignore the foundations of our opinions and simply act. But when a building collapses, we cannot avoid looking at how the foundations were laid, what materials were used, how the work was organised, and who was accountable for making decisions. This crisis is not just about finance or economics, but also about how we understand the world and about ethics in human affairs and leadership in society.

The Nine Pillars of Capitalism

1. In the economic system, what you can't count doesn't count.
2. The environment is an externality—it doesn't 'count'.
3. What can't be measured can't be reasoned about: it's either economics or irrationality.
4. In economic terms, sacrificing near-term gains for possible long-term benefits for posterity is irrational.
5. Probability and harm can be priced, and so every risk has its price.
6. Everything has its price.
7. By definition, profit maximisation is social responsibility.
8. By definition, markets are efficient and regulation inefficient.
9. We can use the past to model and predict the future.

How many planets we would need if everyone lived like a resident of the following



** When we would reach overshoot day if everyone lived like a resident of these countries*

Global Footprint Network 2008 National Footprint Accounts, www.footprintnetwork.org/

Before creating our scenarios, the scenario group explored three foundational assumptions that appeared to form the basis of our financial system as it existed before the crisis. So powerful are these assumptions that most of them continue to be accepted without serious reflection.

1
Assumption

The Standard Model of Economics

Physicists refer to the 'standard' model that they use—economists do not, although there is indeed such a model, which is known as the 'Efficient Market Hypothesis' (EMH). Although the economics literature contains many critical deviations from that orthodoxy, the EMH remains the backbone of the discipline. The EMH assumes that markets are in equilibrium, that is, that markets offer and demand balance through the combined action of economic agents, who use all information available in the marketplace to make rational decisions. In other words, the EMH assumes that prices observed in markets reflect all known information and provide the best possible estimate of value—and that investors make rational decisions.

Another assumption forms the basis of the EMH: linear causality. In the world of linear causality, small causes have small effects, and big causes have big effects. So the implication is that a big event, such as the recent credit crunch, must have had a big cause. This is typical of systems in equilibrium.

Whenever one describes a standard model, dissenting voices are usually ignored. In the lead-up to the current financial crisis, dissenting voices included Keynesian purists, econophysicists (who transposed methods from more recent physics to grasp the non-linearities in economics), and Warren Buffett, who described some of the structured financial products as 'weapons of mass destruction'. But it is precisely the fact that these dissenting voices were largely ignored in practice that defines a standard model.

2
Assumption

The Standard Toolset of Financial Markets

Establishing the value of an asset that is bought and sold is obviously the core function of financial markets. Pricing is done by estimating what returns and likely dividends this asset will generate in the future. The very act of trading and agreeing on a price then essentially becomes a structural dialogue that cements the agreement on the value of the asset.

However, when increasingly complex derivatives and packages of derivatives became popular, traders had no obvious ways of assessing their value, so the need arose for an objective model of valuation. In 1973 Robert Merton published a paper (Merton, Robert C. (1973).)[3] based on the Black-Scholes equation, which was to become the standard formula for pricing options and derivatives, work that was later awarded a Nobel Prize. The model based on the Black-Scholes equation is extremely useful in objectivising the value of options, but requires a set of key inputs by the user, most notably an ad hoc estimate of market volatility. In other words, the calculated value is valid for chosen market volatility—usually, equilibrium state of the market. But when the market dynamics change, the value of the options changes. Significantly, this key variable of market volatility was completely overlooked as the new industry of option trading grew to gargantuan proportions.

A first spectacular failure of the model occurred in 1998, when the hedge fund LTCM, which included Merton and Scholes on the board of directors, collapsed. LTCM had built up over a trillion dollars in positions, which needed to be unwound at losses of $4.6 billion. The company was balancing a likely probability of a small gain against a small probability of a very large loss—the financial equivalent of playing Russian roulette. The resulting collapse required a Federal Reserve Bank bail out and government intervention on a global scale to stabilise financial markets.

As a consequence of the wide adoption of these tools and an enormous upscaling of the volume of derivatives, a replay of the LTCM collapse was waiting to happen—but on a system-wide scale.

Unlike soldiers breaking step when marching over a bridge, lest they stimulate the eigen-frequency of the structure and send it into catastrophic resonance, the traders were all marching in lock step. They were all using similar models and tools, possessed similar points of view, and were profiting from the same speculative phenomenon, which few questioned. Given this state of affairs, it was not the sub-prime mortgage fiasco that 'caused' the credit crunch; rather, the mortgage crisis triggered an over-all system crisis because all the financial markets were built upon the same foundation as the subprime market. The root cause was the hollowing out of the systemic resilience of the financial system by outsourcing human intelligence to models and tools. Too few people remembered or even understood the critical assumptions and weaknesses in the mathematics underlying the tools that provided the cornerstone for all the financial markets—and thus, most were blind to warning signs.

3
Assumption

The Standard Moral Set of Financial Markets

In *The Fable of the Bees*, the 18th-century philosopher Bernard Mandeville, (Mandeville, 1705)[4] said, "Private Vices by the dextrous Management of a skilful Politician may be turned into Publick Benefits"—that is, that the cumulative effect of individual greed maximises the collective interest. This belief very much persists today.

In contrast, another pillar of our economic thought, Adam Smith, (Smith, 1759)[5] claims in *The Theory of Moral Sentiments*, which preceded the more celebrated *The Wealth of Nations*, (Smith, 1776)[6] that our morality is inborn and that our conscience tells us

what is right and wrong. Under this theory, social and economic organisation is the product of human action, not human design. When Adam Smith coined the term 'the invisible hand', he assumed that economic agents acted out of a strong set of moral behaviours – not solely out of personal greed.

The question of whether economic growth is an absolute good closely underpins the debate about the resolution of the financial crisis. Some ask whether we have now returned to 'normal' growth. Others point to the omission of externalities in the definition of growth in terms of traditional GDP numbers. It is this very concept of economic growth as a good apart from environmental health and as a necessary precursor to human progress that is worth examining more deeply.

The Failure of Academic Economists

"We trace the deeper roots of this failure to the profession's insistence on constructing models that, by design, disregard the key elements driving outcomes in real-world markets. The economics profession has failed in communicating the limitations, weaknesses, and even dangers of its preferred models to the public."

(Colander, D., *et al.*, "The Financial Crisis and the Systemic Failure of Academic Economics," *Kiel Working Paper* 1489, February 2009.)[7]

Essential assumptions such as postulating that economic actors act with perfect rationality are demonstrably unfounded in the real world. The standard theory of economics is based on the hypothesis that markets are always in equilibrium. Ironically this precludes in principle any understanding or anticipation of events such as the financial crisis.

In the same way that societies demand that medical researchers proposing a new treatment must also provide a clear warning about its applicability, will we require academic economists to provide similar caveats?

"It is tough to make predictions, especially about the future."

Attributed to Yogi Berra

3 Overview of the Scenarios

These two 'platforms for discussion' offer key characteristics of two different paths that are emerging in response to the current global financial crisis.

The first path *Growth* is characterised by familiar financial assumptions and tools but with a greater degree of oversight and transparency, accompanied by a shift in regulatory structures and culture.

The second path *Health* is based on a profound shift of emphasis from financial opportunities to the health of the financial system as a whole and its interdependency with other systems.

Growth sees the financial crisis as a unique problem. This scenario explores what might happen when the system is put back on track. In *Growth*, national governments focus on restoring capital liquidity and trust in the financial system and making the invisible hand more visible. In this story, systemic risks are anticipated, wider externalities are priced, and certain debts are managed. *Growth* explores whether a greener growth path and a more risk-controlled financial system might paradoxically lead to other systems becoming brittle.

Health sees the financial crisis as the 'canary in the mind' of twentieth-century approaches to risk and risk management. It explores what might happen if the financial system is managed as part of a wider ecology, or system. This story raises the prospects of greater systemic resilience and a slower growth world. *Health* highlights how coping with complexity in a more interdependent world requires rethinking and transformation—of systems, institutions, and many taken-for-granted concepts.

How our two scenarios differ in their approach

	Growth	Health
System Assumptions	Equilibrium—independent, stable systems	Dynamic complexity—interconnected, open, socio-ecological systems
System Objectives	Sustained Growth—increasing national returns, material welfare, efficiency	Vigorous Health--increasing systemic resilience, human wellbeing
Tools	Pro-active foresight, manage what you measure; GDP, stock price, CO2 emissions, real-time intervention	Reactive preparedness, anticipate what can't be controlled for or measured; feedback loops, adaptive capacity, redundancy
Approach to Environment	Issue-by-issue, based on optimising investments in eco-productivity	Recognition of socio-ecological systems and the need to maintain multi-functionality of eco-systems

Structure of the Two Scenarios

Each scenario is structured in five sections, indicated by subheadings. The first section describes the immediate response to the crisis. The second contains the major financial events. The third section describes the 'cure' in each scenario. The fourth outlines implications for change. The fifth describes the underlying value system that shapes the future. (See table below.)

	Growth	Health
Immediate Response to Crisis	National Scrambles for Financial Fixes	The Power of Feedback
Major Events	Rapid Deleveraging, Uneven Recovery	Recovery as Discovery
The 'Cure'	Fixing the System	Supporting Emergent Systems
Environmental Implications	The Environment— Managing Externalities	Sustainability as Opportunity
Underlying Value System	Opportunities for Growth	The Health of Connections

"In 1960, when asked for his assessment of the 1789 French Revolution, Zhou Enlai is remembered for saying, It is too early to say."

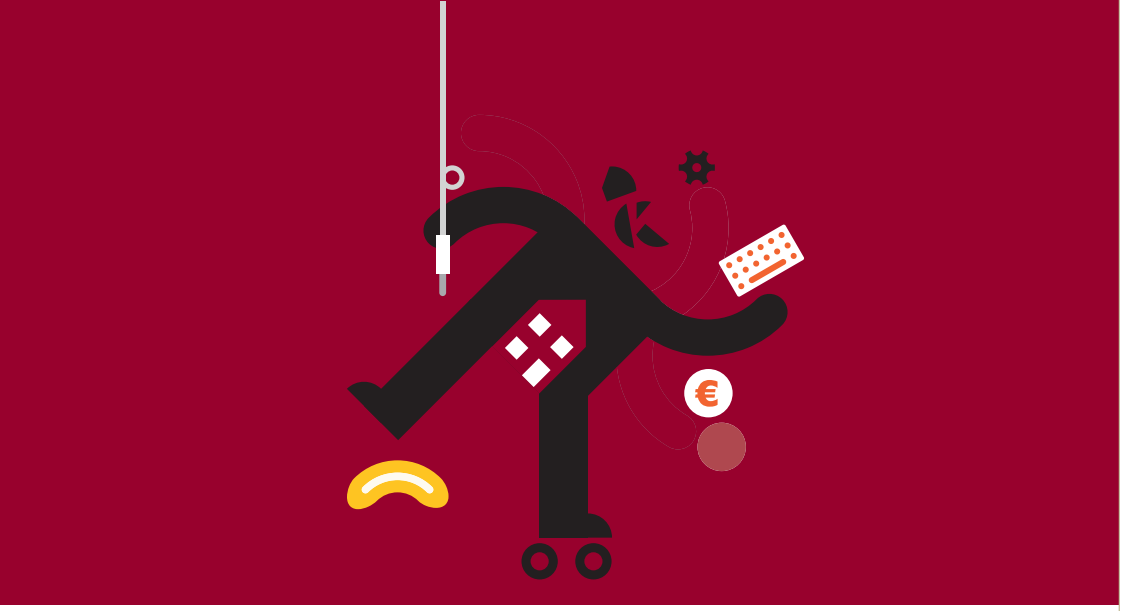
http://news.bbc.co.uk/1/shared/spl/hi/asia_pac/02/china_party_congress/china_ruling_party/key_people_events/html/zhou_enlai.stm

THE SCENARIOS

4 GROWTH

The action, process or manner of growing; both in material and immaterial senses; vegetative development; increase...

Oxford English Dictionary



4a

National Scramble for Financial Fixes

Shortly after the first effects of the crisis are felt, a consensus begins to form among economists and the public about the ten major causes of the global financial crisis:

1 A runaway housing bubble;
2 Substantial increase in U.S. sub-prime mortgages as basis of new market products;
3 A failure to regulate new financial instruments, such as derivatives;
4 Excessive consumer debt in the U.S.;
5 Lack of transparency and oversight throughout the financial system;
6 Inadequate enforcement of financial industry regulations, in part because of underfunding and in part because of a weak regulatory culture;
7 The decision by the U.S. SEC to allow banks to increase leverage from 10 to 1 to 30 to 1;
8 Over-dependence on mathematical modeling that held out false promises that risk could be managed automatically;
9 The repeal of the U.S. Glass-Stegall Act, which was designed to control speculation by banks;
10 Incentives, including executive bonuses, for taking risks even when those risks endangered the long-term health of a company, industry, or financial system as a whole.

After the cacophony of blame has died down and the somewhat haphazard and disconnected investigations have lost momentum, a more general kind of narrative emerges that both explains the past in an overall way and also projects a path forward for regaining the trajectory of economic growth that the world was following before the global financial crisis erupted. The consensus narrative explains that greater leverage enables a greater return, which enables more people to enjoy the tangible fruits of economic development. By using technology and financial innovation and by taking advantage of globalisation, we can decrease risk through distributing it more broadly so that no one will ever get really hurt when things go bad—everyone will have just a little pain.

Financial Speculation

Speculation has a bad name with the public– but financial speculation can serve a useful purpose when it helps make markets more efficient by matching supply and demand, or by helping people make decisions about upcoming shortages or plenitude. Speculation helps allocate capital to where it does best. But when speculation is based on knowledge or technology not available to the public, it is overwhelmingly parasitical. This is the case with insider trading as well as with high-frequency trading, where the source of value is based on having a faster computer than others. In these cases, speculation in no way contributes to the efficiency of markets on which capitalism is based.

In retrospect, many argue that while some of the objectives were noble—letting the poor buy homes, encouraging economic prosperity in the emerging world, etc.—the tools that were used to achieve these objectives were subject to abuse. Key economic actors ignored the new global linkages of risk they created. The new financial instruments that spread risk for individuals increased risk for the financial system as a whole.

The solution is for governments to provide more discipline—for example, once again decoupling banking functions from riskier investment functions, as the U.S. government did after the stock market crash of 1929 and the Great Depression that followed. Such discipline would help restrain firms from earning larger profits from structured products than markets, such as the home mortgage market, traditionally can sustain. Under urgent financial and political pressures, national leaders scramble to find fixes for their own banking and financial systems. Within two years, the U.S. and other countries pour trillions of dollars into the effort to shore up key banks, preferring to leave management of these struggling firms to the professionals who, some complain, had gotten us into the current crisis in the first place. Despite claims by some of signs of recovery, investors and the public—especially the unemployed—begin to sense that these efforts are having very little real effect. Economic conditions stagnate, and the impulse to pay off debt rather than consume or invest in more growth creates a world of excess capacity, especially in China.

Unintended consequences result from the narrowness of national efforts to fix the problems. Capital movement is slowed and in some countries even restricted, and global trade decreases. Different national recovery rates in Europe strain EU solidarity. Seeing the buildup of U.S. debt and fearing inflation, China threatens to move some of its dollars into euros and begins issuing increasing amounts of its own debt in Yuan in an effort to create a third currency alternative for financial transactions.

4b

Rapid Deleveraging, Uneven Recovery

In *Growth*, following a period of rapid deleveraging and economic chaos, richer countries begin to emerge from the crisis. In some countries, an intense focus on internal markets has helped this movement, in spite of the backlash. In the U.S., the bail-out of the banks has bought time, allowing some of the banks to grow out of the crisis and others to amass enough capital to take over failing banks in the second round of bank failures.

In Europe, progress towards recovery is slower, in part because the social safety net slows growth. The U.S., with its 10% unemployment rate and much more fragile safety net, feels much more intense pressure to take steps towards recovery.

While richer nations appear to recover, however unevenly, the economy of poorer countries, especially those that had switched to monocultures to compete in the world market, begin to spiral slowly downward. It is unclear whether the global financial system can be 'fixed' in time or in such a way as to ensure any stability at all for rapidly growing and aspiring populations.

Meanwhile, as the economies of a number of the richer nations appear to be on a long, uneven road to recovery, investors begin

to emerge again, turning their attention to the lower-valued debt of corporations and depressed real estate. In addition, investment flows to nanotech, photonics, genomics, software applications, and a host of innovations in the field of alternative energy. Companies spring up, and venture capital comes back out from hiding to support them. Innovation seems to be shifting back to technology and out of the realm of exotic financial instruments.

> **". . . no leading political figure in the western world has really articulated a coherent alternative to the free-market principles inherited from Thatcherism."**

Lionel Barber, "World Counts True Cost of the Rescue," Financial Times *Special Report, December 15, 2009.*

> **"in 1949, only Socialism could save China. In 1989, only China could save Socialism. In 2009, only China can save Capitalism."**

The People's Daily, *http://chinanewswrap.com/2009/06/25/in-2009-can-china-alone-save-capitalism/*

4c

Fixing the System

The 'fixes' proposed by a number of governments as well as the G20 appear to help calm markets even though these remedies are slow to be adopted by national legislatures. Investors call for more clarity of securitised products and transparency of derivatives markets. In response, a number of software companies offer solutions that analyse various derivatives and allow potential purchasers to better estimate their risks. If, for example, a potential real estate buyer suspects the real estate market of having a bubble, a simple press of a button can show trends in underlying indicators in local and national real estate markets and reveal varying outcomes in relation to the target of purchase, depending on the percentage of possible market decline. With this new information and with new market dynamics, innovative derivative-based tools are created to measure credit risk.

Rating agencies cannot compete directly with these new instruments, but several form a distributed organisation that adds value, first by checking real assets and then by aggregating the new market-based measures. Google creates a system that keeps track of what appears to be absolutely everything, including likely emerging speculative bubbles. It becomes trivial to estimate who is exposed to

what, and those banks that are still in private hands adapt by learning to restrict their exposure a great deal better than before.

The Paradox of Transparency

Complex systems like financial markets can adapt quickly only if there is trust among agents in the system. This trust can arise from two sources: faith and fact.

Faith usually arises from knowledge of individual actors: we learn from experience whom to trust, and settle transactions through a handshake or a conversation. But in a larger system, with many global actors, establishing this kind of faith is impossible. In such situations, we seek transparency so that we can see whether agents in the system are living up to the rules, roles, responsibilities, and expectations agreed upon within the larger system.

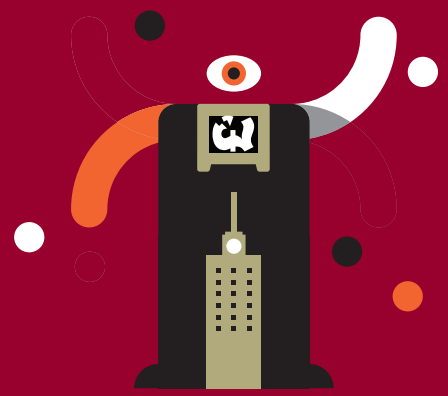
Transparency, however, isn't free. In fact, the costs can be prohibitive and lead to maladaptive consequences within a system. For example, readily available information via the Internet represents a form of permanent, transparent 'memory'. This open-source memory not only destroys privacy but can make past misdeeds impossible to forgive or forget. Transparency can then become counterproductive. When transparency fails, or is maladaptive, we must return to faith, which is based upon having a belief in the invisible. This is the 'paradox of transparency': sometimes, when others disappoint or don't abide by the norms that govern behaviour, we must forgive them and have trust, based upon faith that they will act more appropriately in the future.

Business education also responds to the aftermath of the crisis. While students in business schools are taught exactly the same financial innovation classes as before the crisis, many of them also take classes under ex-traders who have become professors of behavioural finance and neuro-economics.

In addition to the greater degree of transparency available to individual investors, there is also an intense increase in government monitoring. Many national regulatory systems and cultures are strengthened, with more oversight being shifted to government and away from rating agencies in the private sector. The U.S. and U.K. develop highly standardised systems for all derivatives, requiring concrete assets to remain visible and increasing margin requirements on all derivative trading.

The financial system fixes are tested in 2014 when a lithium bubble, caused by the high demand for batteries for electric cars, starts to form. Even though the computerised warning system makes it clear that a potential bubble is forming, speculators tend to ignore the evidence, arguing that a more significant influence on the lithium market is the changing political situation in lithium-rich Bolivia.

Other fixes include tougher regulations regarding borrower incomes and debt. U.S. banks that are considered 'too big to fail' are under closer scrutiny and tighter capital requirements. These and other new oversight protocols in the U.S. and Europe, including the increasingly effective oversight from the European Office of Systemic Risk Management, seem to be effective in warding off a repeat of a general crisis. The threats looming in 2014 do not grow into a full-fledged global financial crisis. Somehow, the system appears to be muddling through—although unemployment seems to be an intractable problem. In both the U.S. and Europe, it continues to hover around 10%, even as GDP figures slowly rise.



4d

The Environment—Managing Externalities

While nations focus attention on the financial crisis, progress on global environmental challenges slows. Environmental scientists warn of disastrous consequences to come, but the crisis of the day takes precedence over the complex, tedious job of creating global consensus on difficult issues. The large, recently industrialised nations are especially clear about where their priorities lie—recovery and growth, not expensive investments in sustainable industries that pay off, if at all, only in the long run.

Natural Capital

"The services of ecological systems and the natural capital stocks that produce them are critical to the functioning of the Earth's life-support system. For the entire biosphere, the value (most of which is outside the market) is estimated to be in the range of US$16-54 trillion per year, with an average of US$33 trillion per year."

(Costanza *et al.*, "The Value of the World's Ecosystem Services and Natural Capital," *Nature* 387, May 1997.)

Nature doesn't invoice us for her services. Perhaps it would be better if she did. If she charged for depreciation as well, then all sorts of prices – the price of fish, for example – would increase sharply.

To remind us of how much we are costing the planet, some economists have tried to calculate how much a 'natural market' would charge for particular goods and services. Of course, the exercise is artificial, and it ignores the differences between marketable commodities and irreplaceable natural 'goods'. But it does give us an estimate of the extent to which we are free-riding on nature. And this estimate can be translated into an estimate of the ecological debt we are running up.

We have just spent vast sums on building the banks' balance sheets. We did not wait until the economists had produced precise accounts for costs and benefits. The situation was urgent, and so the money was found. Is it any less urgent to rebuild nature's balance sheet?

Some hopeful steps are taken, however, as policymakers attempt to send the right price signals by taxing carbon and moving forward on cap-and-trade systems. Even though most of these initiatives are ineffective in addressing the source of the problem, funding for research and development of green technology increases, and possible new 'techno-fixes' for environmental problems receive a great deal of attention, especially in the wake of the stimulus money set aside for 'green solutions and jobs'.

Greening Growth

As a core part of stimulating the U.S. economy and climbing out of the crater of the financial crisis, presidential candidate Barack Obama promised, "We'll invest $15 billion a year over the next decade in renewable energy, creating five million new green jobs that pay well, can't be outsourced and help end our dependence on foreign oil" ("Obama's Green Jobs Revolution," http://www.truthout. org/110308N).

These 'green-collar' jobs are intended to foster competitive leadership for the U.S. in a new sector in the economy in emerging industries such as wind turbines, photovoltaic solar panels, electric cars, and second generation biofuels – and ultimately to get the economy back on a growth path.

One of the most significant consequences of the technology focus in the carbon market is the innovation it unleashes: the global development of engineering options, especially wind power, and alternative forms of transportation, such as electric bicycles and micro-cars. Fuel stations in Europe and the U.S. upgrade to support hydrogen-based cars. After that, a taxation regime that favours electric cars allows the Netherlands to be the first country to drop the percentage of gasoline-based cars to under 50%. While the use of second- and third-generation bio-fuels results in unintended consequences from time to time —the price of corn and corn-based products initially soars in response to diversion of corn crops to ethanol production—the over-all effects appear to be positive, and OECD economies gradually reduce oil imports for transport uses. Carbon costs are gradually included in the price of energy and start to influence industrial usage first, with consumer choices largely directed by regulation.

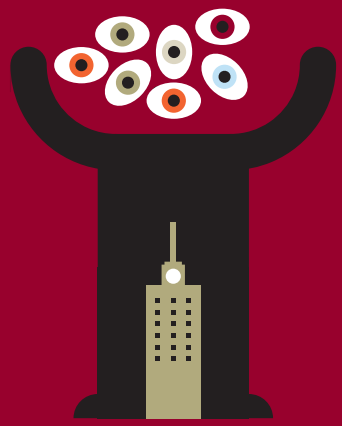
Dimensions of Sustainability

The term 'sustainability' has been taken up by many in business ever since the UN's World Commission on Environment and Development introduced 'sustainable development' in its 1987 report, *Our Common Future*. When applied to a whole system, 'sustainability' is generally defined as having three interlinked dimensions: *economic, ecological,* and *social*.

Sustaining the global economic system means enabling ongoing economic growth by lubricating the flywheel of the system– leverage-charged global capital flows and liquidity. Challenges to economic sustainability include targeting capital flows to the best prospects for growth, determining how much debt is manageable, and finding acceptable ways to manage that debt.

But if we put economic sustainability in the wider context of sustainability as a whole, then a different set of challenges emerges. What innovations in the *economic* system would enable the *ecological* and *social* dimensions of sustainability?

("Our Common Future" [also known as "The Brundtland Report"], United Nations World Commission on Environment and Development, 1987 [http://www.un-documents.net/wced-ocf.htm].)



4e

Opportunities for Growth

Throughout the recovery, national economic leaders take great care not to 'throw out the baby with the bath water'. Leverage levels of 30:1, supported by the SEC, are a source of growth in the financial sector, but result in vastly increased risk levels. However, too much squeezing of the allowed level of leverage would slow down the economic engine, the regulators reason, so best to put things back on track rather than to change the system entirely. The great engine of capitalism is the quest to increase opportunities—and there are often significant incentives for inventing new financial instruments. While greater transparency appears to limit the potential riskiness of some of these new instruments, it cannot entirely protect the economy against future bubbles. Bubbles will happen, and, in fact, enable shakeouts of the system—a kind of 'creative destruction'. The key is to ensure that the growth of bubbles is observed closely enough so as to minimise the destruction of their inevitable bursting. A privately financed think-tank is created in which economists try to 'game' new financial instruments as a way of exposing potentially dangerous unintended consequences.

Turbulence and the Cost of Capital

Turbulence leads to increasing uncertainty and requires organisations to assume greater risk to realise their growth and innovation objectives. When organisations attempt to harness increasing turbulence through traditional hierarchical and bureaucratic structures, they find that they perpetuate and sustain failures for far too long, further increasing their cost of capital by over-investing in failure.

Research by McKinsey, the international consulting firm, has estimated that drug companies could cut their cost of capital in half by promoting fast, frequent failure. But to do so organisations must simplify their structures, which is why the CEO of Pfizer has embarked upon a radical simplification of Pfizer's structure to decrease the cost of drug development and commercialisation. As turbulence increases complexity, the organisation's response must be to simplify in order to decrease the cost of capital by promoting fast, frequent, failure.

(Gordian, M. *et al*., "Why Drugs Fall Short in Late-Stage Trials," *The McKinsey Quarterly*, November 2006)

By 2020, concerned observers are pointing out that a certain degree of irrational exuberance is forming around the new game-changing industries. Synthetic biology, for example, seems poised to take off—but a growing number of observers urge caution until unintended consequences to health and the environment of these new forms of life as well as of possibly invasive micro-devices can be studied further. In protest, investors argue that to delay undermines economic productivity and competitiveness and threatens financial opportunity. While the EU agrees to put on the brakes, other countries allow companies to go forward. Once again, capital flows to growing economies while new and complex financial instruments allow investors to spread the risk. Ironically, given the global emphasis on climate change, the carbon trading market seems in danger of growing the biggest bubble of all.

In *Growth*, fixing the global financial system is largely market driven and consists primarily of new and better oversight mechanisms and more transparent risks. The largest banks earn record profits for the five consecutive years following the government bailouts while investors experience strong returns with limited volatility.

Guns vs. Butter

Governments have frequently declared 'war' on drugs, cancer, poverty, and other social ills, but no one has proclaimed victory. The 'war' on drugs, for example, has failed spectacularly, gobbling up to half of law enforcement capacity in some countries and entirely skewing the economies of others.

Rather than declare war, governments might instead try a market solution. For example, governments could buy the entire Afghan poppy crop and turn it into biofuels. This would drive up the price of the raw material, which, in stark contrast to the case of corn, is a desired effect. Converting even half the current poppy harvest into fuel would meet Afghanistan's total oil consumption needs.

(http://snrecmitigation.wordpress.com/2009/03/31/fighting-global-warming-and-the-war-on-drugs-the-potential-to-use-opium-poppies-as-biofuel-feedstock-in-afghanistan)

But questions remain: Are the new national oversight systems and greater transparency enough to protect the global financial system from dangerous surprises, emerging systemic risks, irrational exuberance, and greed? Or will the increasingly powerful incentives in the global marketplace lead to clever new ways of 'gaming' these systems? With more and better information and communications technologies, are we harnessing the wisdom of the crowd? Or are we succumbing to the hubris of the herd? Are we in for yet another and even more intense cycle of boom and bust? Or have we at last learned from the past?

'NY-Lon' vs. 'Shang-Kong': Who Sets the Global Rules?

The end of the Cold War briefly saw a mono-polar world, centered on U.S. interests and values. But taking world GDP share as a proxy, American power peaked in relative terms in 1945. Burdened by disproportionate defence expenditure and the emergence of the BRICs, the relative decline is inescapable. Emerging economies represented 80% of world GDP in 1500, declining to 40% in 1950, and now rising again above 50%. So the BRICs increasingly have the opportunity to set the rules, but only if they own a shared agenda. Since that is unlikely, the question is: will it be a multi-polar or a multi-partner world?

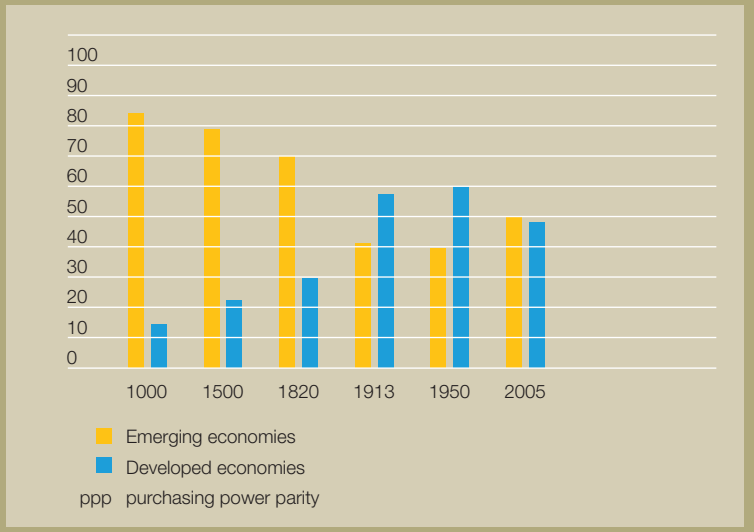
". . . we cannot let our ability to innovate exceed our capacity to manage. . . ."

"Do not destroy the essential catalyst of risk", Lloyd Blankfein (CEO Goldman Sachs), Financial Times, *February 8, 2009*

China's leaders, mostly engineers, wasted little time debating global warming. They know the Tibetan glaciers that feed their major rivers are melting. But they also know that even if climate change were a hoax, the demand for clean, renewable power is going to soar..."

"The new Sputnik", Thomas Friedman, New York Times, *September 27, 2009*

Share of Global GDP (ppp)



Angus Maddison, "The World Economy: Historical Statistics", OECD, Development Centre Studies, Paris 2003.

The end of the Soviet era felled an ideology. This financial crisis will not."

"Cold war victory was a start and an end", Martin Wolf (Chief Economist Commentator), Financial Times, *December 15, 2009.*

5 HEALTH

helthe, from Old English *hælth*, from *hãl*, “hale” or “whole”

Merriam-Webster Dictionary

5a

The Power of Feedback

The first responders to the global financial crisis are national leaders who offer various uncoordinated attempts to fix their own economies while maintaining political viability. Confusion abounds as signs that the recession is over are accompanied by contradictory signals, especially higher levels of unemployment and growing concerns about how public debts incurred in fiscal stimulus can possibly be paid off. A second wave of bank failures and revelations about the way stimulus funds have been spent create what appears to be a second crisis.

The public is both incredulous and outraged. The oversight and regulatory reforms that have followed the crisis appear ill-designed to anticipate or address new forms of systemic risk emerging in an era of commodity price volatility, ongoing environmental degradation, and rising income inequality. It's becoming very clear that the benefits of increased global trade have not trickled down to the poorest third of the global population. Indeed, the growth in GDP that policymakers have pursued appears to have resulted in threats to the Earth's natural life support systems. The financial system itself is beginning to

be seen as a kind of collective pyramid scheme with financial managers rewarding themselves for irresponsibly reckless investments that, like all Ponzi schemes, offer disproportionate pay-off in the short term but ruin in the end.

Social calls for retroactive retribution increase, but are judged to be legally impractical and with unintended negative consequences. Social tensions ripple throughout the world as the renewed crisis impacts other challenges--public health, pensions, climate change, ecosystem collapse, and the security of food, water, and energy.

In response to these tensions, an ad hoc group of sponsors films a series of open dialogues between financial players and randomly chosen members of the public from both Europe and the U.S., which are placed on YouTube. The financial managers who participate hope that such a 'truth and reconciliation' process might help educate the public to see that some blame should be placed on the structure of the system rather than on individual actors.

Viewers of these riveting dialogues learn that there was plenty of data and that many people warned about the risks of greatly expanded leverage, complex derivatives, and dangerous expansion of the money supply—but there were no rewards and no processes in the global financial system for taking these emergent and systemic risks into account and, for reasons both of self-interest and cognitive adherence to particular mental models, no willingness to see these data in terms of a looming crisis. Those who wanted to operate with integrity found it difficult. They were constrained by a culture of calculable risk, a lack of motivation to consider possible errors in judgment, and a corporate design that reinforced the need to 'make the numbers' by any means possible — a design that bestowed the greatest governance power on short-term shareholders with a trading

mentality, the stakeholders with the least interest in long-term performance or the external community.

In the end, the highly rated and much-discussed dialogues succeed to some extent in raising the level of conversation from a focus on individual wrongdoers to a growing awareness of flaws in the financial system itself. The challenge is not one of a fresh infusion of capital or better regulations, but rather the need for a new operating model. This new-found awareness focuses attention on a plethora of 'niche' activities that had existed before the crisis but that had been largely overlooked: new forms of community (*e.g.*, open source, virtual), new approaches to enterprise (*e.g.*, social entrepreneurship), ecology of business models (*e.g.*, conglomerates, SME, SOE/parastatals), and calls for new approaches to public policy, regulation, and global governance (*e.g.*, anticipatory governance, adaptive policy).

The *Financial Times* reports a 'quiet revolution' with a long history. Increasingly, the public begins to see the inadequacy of GDP growth as the major indicator of economic health. In addition, the confidence that all uncertainties can be converted to calculable risks and all risks managed by spread through markets appears to have been misplaced. There is widespread doubt that systemic risk in the financial system has been properly addressed.

Policymakers begin to be affected by a growing consensus that the financial system, like other socio-technical systems (*e.g.*, energy, food, water, health), is truly and inextricably interconnected. Like other large ecosystems, when economies thrive, they do so not just through growth, but also through overall health.

This growing awareness catalyses the search for more effective, anticipatory approaches to policy and governance – approaches that respect the connections between different scales (local, urban, national, global), that avoid the trap of focusing on single issues, that bridge the silos of disciplinary expertise, and

that rebalance the power between economic and other policy domains. Alternative models of capitalism are put forward, each reflecting a more integrated economic-ecological-social framework.

Inevitable Transformations

Transformation happens in many ways, but everything in us conspires to expect incremental change. Tomorrow will be only a little bit different from today, a continuation of the past, more or less. Yet when we look back, we see rare, but very significant and sudden changes.

In the 1970s few could imagine:

- the break-up of the Soviet Union
- the fall of the Berlin wall
- a female prime minister in the U.K.

In the 1990s, few could imagine:

- an African-American as president in the U.S.
- Wikipedia
- the worldwide collapse of the bee population

As we look forward from 2010, future 'discontinuities' that will impact the health of the global financial system include:

- prospects of eco-system stress and collapse, triggering massive migrations
- a still growing and rapidly ageing global population
- a more rapid transition to a low-carbon energy path

Weak signals are there for many of these previously unthinkable events, but often, we can only make sense of them after the event. Will those within the financial system develop the capacity to monitor and track weak signals of potential crisis and wider transitions? Or will horizon scanning still result in the tendency of late lessons from early warnings.

Most observers conclude that attempts to 'fix' the unfolding wave of the financial crisis are not only not enough, but, in the long run, might prove dangerous. The world cannot go back to business as usual, with its emphasis on unbridled short-term economic growth at the expense of overall global health. Nor can the higher-level challenges of a globally interconnected economy or oversight of the taken-for-granted boundaries of the natural life support systems of the earth be met simply at the local, national, or regional level.

Planetary Boundaries

"Many subsystems of the Earth react in a nonlinear, often abrupt, way, and are particularly sensitive around threshold levels of key variables. …We do not have the luxury of concentrating our efforts on any one of them in isolation from the others. If one boundary is transgressed, then other boundaries are also under serious risk. For instance, significant land-use changes in the Amazon could influence water resources as far away as Tibet. The climate-change boundary depends on staying on the safe side of the freshwater, land, aerosol, nitrogen–phosphorus, ocean and stratospheric boundaries. Transgressing the nitrogen–phosphorus boundary can erode the resilience of some marine ecosystems, potentially reducing their capacity to absorb CO2 and thus affecting the climate boundary."

(Rockström, J. *et al.*, "A Safe Operating Space for Humanity," *Nature* 461, September 2009.)[8]

Planetary boundaries Earth system process

Earth system process	Proposed boundary	Current status
Climate change parts per million by volume	350	387
Rate of biodiversity loss number of species per million species per year	10	>100
Nitrogen million tonnes per year	35	121
Phosphorous million tonnes per year	11	8.5-9.5
Strat. ozone Dobson unit	276	283
Ocean acidification global mean saturation state of aragonite in surface sea water	2.75	2.90
Global freshwater use km3 per year	4000	2600
Land use change percentage global land cover converted to cropland	15	11.7

(Rockström, J. *et al.*, "A Safe Operating Space for Humanity," *Nature* 461, September 2009.)[8]

5b

Recovery as Discovery

With new models that emphasize the single, global economic-ecological-social system, many status-quo economic theories and the practices derived from them begin to change. Some of the earliest new economic models emerge from collaborations of economists with evolutionary biologists and other network theorists.

Amidst calls for a 'new Bretton Woods' agreement, G20 policymakers meet at frequent intervals to hammer out solutions. Although by 2011 no such over-arching agreement has been created, the G20 agrees to support the WTO in expanding its mandate to include the development of supra-regional regulatory powers over financial markets. In order to increase market transparency, the WTO begins to publish and verify financial information from multinational companies.

As policymakers struggle to come up with ways to prevent abuses, they begin to realise that conventional methods, such as creating new regulations and criminalising egregious behavior, are only partially effective. In the long run, the best way to get to the root of the problem is for corporate ownership and governance design itself to be transformed.

A number of parallel, uncoordinated, sometimes open source, mostly multi-stakeholder 'redesign' initiatives emerge in different parts of the world (*e.g.*, WEF GRI, EU Vision 2050, C40, Kalundborg). These initiatives begin to reveal the foundations of other 'silent evolutions' in financial and banking systems: more diverse sources of funding (cloud capital and SWFs); alternative models of banking (Islamic, Grameen micro-finance); and proliferation of over 2,500 local currencies (*e.g.*, totnes pound, kekfrank).

Cloud Capital

Capital requirements for growth and innovation are not only declining rapidly but are also becoming increasingly available from individual to individual. People who have an idea no longer need to raise substantial capital to create a supporting infrastructure for their enterprise because much of what they need for financial, administrative, development, marketing, and sales can be found in the cloud and rented on a per-use basis.

In the Apple Apps marketplace, for example, an entrepreneur with an idea can join a development community and create a new application. Through its free services and tools, Apple provides most of the capital necessary for development, vetting, sales, and marketing of the software application. In turn, Apple then shares in the rewards through a commission.

This same concept is being exploited for social development. Kiva.org, for example, is an open network for providing capital on a peer-to-peer basis to the poor. Other organisations provide personal credit on a peer-to-peer basis. By enabling individuals to perform the functions that had traditionally been reserved for larger organisations, these approaches have removed substantial barriers to capital.

Despite their many differences, these redesign initiatives share some characteristics. Each is orientated to recovery as a form of discovery. Most propose alternatives to privatisation as the best way to manage common goods. Many suggest that knowledge alone is not enough, and new, as well as reformed, institutions are needed. Some even go so far as to note that the institution of the nation state, which has helped improve the well being of many (but not most) individuals, has also contributed to undermining global resilience.

Each redesign initiative encourages more reflexive and self-reflective practices and greater experimentation in making real a better, or at least different, future. And each initiative also calls attention to the limits of predictability in a more connected, turbulent world in which future surprises are inevitable.

An international public-private partnership establishes a new Global Economic Research Institute ('GERI') modeled on the concept of an open-source, global Manhattan Project. The goal of the project is extremely ambitious: to come up with a new 'constitution' for the management of the global economic system in relation to the other global systems of which it is a part. Such a constitution would set forth fundamental principles for global health and would create a system of 'health' monitoring in many different kinds of institutions.

INET George Soros, Chairman of the Open Society Institute and Soros Fund Management, who is ranked as the 29th richest person in the world, has pledged $5 million per year for ten years to establish the Institute of New Economic Thinking (INET). As a response to the crisis of 2007-08, INET will convene representatives from the government, the private sector, and academia to explore the reasons why prevailing economic theory failed to predict the financial and economic crisis, and the implications of regulatory reform that reflect the logic of the economic paradigm that recently failed in guiding society.

(http://www.ineteconomics.org/)

Even as the global economy begins to recover, many remain concerned that it is not poised for robust growth, in large part because a return to 'business as usual' does not produce the sort of trust in the system as a whole that the public now insists on; nor do ordinary citizens want to support incentives for new industries and ways of doing things until they get a clearer sense that the future will not simply be a repetition of the past. Just as the Great Depression changed the investment and operating paradigm for that generation, the 2009-10 financial crisis has unleashed a new paradigm based upon a rejection of the one that led to the bubble and crisis.

5c

Supporting Emergent Systems

While attempts to create a new framework that will guide the global financial and other systems seem to fragment over disagreements about what works, a new 'minimalist' consensus begins to emerge. This consensus rests on four basic principles:

1 New approaches to policy need to be developed that take complexity into account in the anticipation of both the downsides and the upsides of innovation in a more interconnected world.

2 Risk and reward need to be coupled and to reflect notions of forward value creation rather than a focus on immediate gains from historical actions alone.

3 A new approach to international cooperation needs to be developed that recognises that transnational institutions provide, at best, only partial solutions to issues such as watershed management, in large part because implementation of these solutions is often undermined by national self-interest.

4 The best course is to limit the macro rules to the few that matter and let new multi-scale, multi-issue, multi-partner systems emerge naturally.

Calls for the establishment of more and better early warning systems, which enable greater vigilance and real-time intervention, are paralleled by the growing appreciation that surprise is inevitable—not all feedback loops can be anticipated, and not all bubbles can be seen until after they burst. Given the acceptance of that inevitability, new insights arise about the essential role of collaborative, hopeful, and creative futures thinking in the successful redesign of the financial system. The dominant myths, models, and 'best practices' associated with financial and economic management (stability, for example), policy-making (cost-benefit analyses), and approaches rooted in extrapolation-based strategic foresight are found wanting. New approaches share an appreciation that financial challenges and socio-political contexts co-evolve and that systemic, strategic foresight rests on 'learning about' the future through working with alternative futures rather than gathering evidence 'about' the future.

Black Swans

The term 'black swans' comes from an incident in which explorers reported back to London that black swans could be found in Australia. The report was ridiculed. Philosophers of science now use the term 'black swans' to refer to the way induction from previous evidence can lead to wrong conclusions.

The author Nicholas Taleb used 'Black Swans' as the title of a book describing the blunders created by the false 'knowledge' of the financial experts as they drove the market over the edge.

Similarly, from his study of the Three Mile Island nuclear reactor incident, Charles Perrow coined the phrase 'normal accidents', which are accidents that are unwittingly built into the design of complex systems—and that will inevitably happen.

Common sense can be the greatest enemy of good sense. Common sense would never come to the scientific conclusion that, for example, continents float around like whipped cream on a cup of coffee, or that the earth floats through the heavens, spinning like a top.

Coupling risk and reward offers more difficult challenges, in part because the creation of new financial instruments almost always outstrips regulatory capacities; and attempts to prevent abuses in advance often have unintended consequences. Meanwhile, in other arenas, the challenge of 'lock-in' in existing risk-reward systems starts to be more widely appreciated. For example, one of the most difficult dilemmas has to do with intellectual property rights, which are embedded in a system built before the knowledge economy existed and intended to encourage inventors to share their work by establishing a way to reward them for it. Ironically, this antiquated system has created both unintentional 'lock-in' to access and a breaking of old business models for earning profit for 'content'. The increasing shift in the volume of patents outside the U.S. and EU is accompanied by the proliferation of alternative IP systems and models (*e.g.*, GreenX, creative commons).

The WTO produces 'The Shanghai Protocol' at about the same time that GERI publishes its initial recommendations for a sweeping overhaul whose recommendations treat the global financial system as a subset of a much larger global system that includes social and environmental health as well. The Shanghai Group and GERI agree on three fundamental principles:

1 In addition to supporting short-term consumption, national economies must create incentives and taxation policies that support long-term physical, social, financial, human, and ecological capital.

2 Experimentation and the failure of individual institutions and organisations must be accepted as natural to the healthy functioning of a dynamic and open global system. Any institution considered to be 'too big to fail' becomes a quasi-governmental institution under much stricter rules and oversight.

3 New financial instruments must not be introduced into any market without an explicit analysis involving systemic strategic foresight.

In attempting to come up with guidelines that support these principles, policy-makers begin to feel that there are limits to the effectiveness of approaches rooted in greening growth and fairer trade—for example, increasing eco-efficiency and relying on 'pricing' to address environmental and social externalities in the financial system and real economy may not, in themselves, guarantee sustainable development.

The response to these initiatives is mixed. Some argue that since national economies are just beginning to recover, now is not the time to introduce such sweeping reforms. During the next two years, requirements for explicit incorporation of feedback loops and the inclusion of externalities in national taxing systems does indeed appear to slow down growth whilst raising new challenges about the ability of market prices to reflect the multiple functions of complex ecosystems. As a result, a new approach to eco-financing emerges that encourages investment not only in the provisioning of goods and services but also in the regulation of services. These new approaches are characterised by sensitivity to cultural and aesthetic values and norms as well as rules of transparency and oversight.

Some people in developing economies, especially China, India, and Brazil, and in countries with a growing population, protest attempts by global bodies such as the G20 and the WTO to impose these strict standards on them. Their governments feel pressure to continue growing in order to sustain their prosperity-based legitimacy. But attempts to continue national strategies of dominance, isolationism, and protectionism are met with successive shocks—in this world, interdependency is not a matter of choice.

Other countries, which benefited from the 'old' system, argue that economies are complex adaptive systems, not equilibrium systems, and that if they don't grow, they decline. They complain that the backlash resulting from the financial crisis has moved government from an oversight role into a regulatory mode, with the layers of bureaucracy and the stifling of creativity that always come with 'control from the top'.

The G20 attempts to come up with a multi-tiered set of requirements to take into account the developmental stage of the country. This effort fails. What does develop, however, is a new system of measures. For the first time, measures are developed to give insight into long-term, planetary-level connections, multi-scalar systemic resilience, and the notion of better preparedness as the capacity for adaptation. In many countries, rewards for shareholders and managers begin to be linked to a combination of the degrees of risk and resilience and to long-term health rather than simply to short-term advantage and historical accounting. Rating agencies—now quasi-government agencies—also place much greater emphasis on long-term health in their analyses of the companies they rate.

Over time, established 'best practices' of risk management, insurance, and strategic foresight shift from predominantly tool-based methods to action-learning processes that encourage reflexivity in problem framing, that pay attention to the quality of anticipatory knowledge processes and judgments, and that respect the variety of agendas always present in attempts to mobilise action.

Through Systemic Risk to Resilience

Managing risk is core to any business—but, as practiced, risk management is essentially unsystemic. Each business looks out for its own interests, paying no attention to how its actions might affect the system as a whole. For example, in 2008, when the massive counterparty exposures created by credit default swaps came to light, it became clear that the overall risk was much larger than the sum of the individual risks. The financial system as a whole turned out to be rather fragile.

Risks are not only financial, they can also be ecological or even cultural. To deal with aggregated risks, a system must be 'resilient'. 'While the concept of 'resilience' has several origins, it is now being' applied to socio-economic systems, such as finance and banking. However, there is limited understanding about how to put resilience into operation and whether to focus on the ability of a system to bounce back after a specific shock (stress test/future proof) or, perhaps more importantly, to continuously co-evolve with its context (systemic innovation and transformation).

In providing capital, the financial 'subsystem' can be thought of as the 'brains' of the capitalist system as a whole—a system that includes approaches to health care, the environment, and other subsystems. In other words, the financial system does not exist alone. Are the post-crisis regulators equipped to strengthen the resilience of the whole system and not just its financial part?

This shift towards a willingness to embrace uncertainty is the key to unleashing progress towards enhancing adaptive capacity, giving birth to the practices of eco-financial health management. In *Health*, joint experiments arise in response to the changing socio-ecological and economic environment: for example, some newspaper content providers pool their resources and sell individual pieces of content to individuals and blog sites for small fees. Computer programs keep track of these transactions, and gradually, protestors in favour of free intellectual property on the web begin to accept the small fees charged for use.

In *Health* no governance system is fully optimised at every level or in the face of every challenge; instead coalitions emerge in many fields, sometimes at the expense of, or overlapping, other governance institutions and mechanisms.

5d

Sustainability as Opportunity

Issues of economy, ecology, politics, and society come together in *Health* for a variety of reasons. Some activists are finally recognised for an agenda they have advocated for a long time, and that has now become mainstream. Others realise that the health of societies and the ecological services on which they depend underpin economic health—and are supported by economic health as well.

Redefining Prosperity – Beyond GDP

Although we struggle to define happiness, most agree that it is relatively well correlated with wealth, as measured through GDP, with two important caveats: first, the correlation between happiness and GDP has been weakening in rich countries since the 1970s; second, people derive satisfaction from being wealthier than others, so relative rather than absolute wealth also determines happiness.

Yet can we envisage our planet supporting nine billion people with even a 1970s level of GDP? Concerns over the capacity of the planet to support consumption at a high level plus the disconnection of wealth and happiness have led to a search for other measures of well-being, such as the UNDP's

Human Development Index, which take the environment and social well-being literally into account.

Measurement matters. Metrics such as GDP act as a kind of fitness level around which activities organise themselves, with an increase in the metric as an indicator of progress. Bhutan's introduction of a 'happiness index', for example, drove a change in the policy agenda, as a fit society is no longer just one optimised for GDP.

One of the sources of tension in *Health* is the plethora of different approaches to ecological issues, human engineering, and population ageing--approaches that do not always or easily sit side by side. In some areas of the world, for example, geo-engineering solutions are advocated. In other areas, such as China and Africa, aquaculture and GMO/biotech solutions are attempted as ways to provide food, water, and energy security while addressing climatic variability and climate change.

Fairness and Economic Health

Differences in wealth can seem unfair. But as we increase our understanding of complex systems, we are discovering that diversity and its associated tensions are an essential fuel of the life of these systems. A moderate income disparity (Gini between 0.25 and 0.4) encourages entrepreneurship in the economy—much lower appears to stifle dynamism, but much higher appears to engender a negativity that is not productive.

A certain degree of randomness is another necessary ingredient for the vitality of a system. In many sectors, a successful enterprise requires dynamics of increasing returns as well as a good dose of luck, in addition to skill and aptitude.

These vital ingredients of diversity and randomness can often seem

at odds with ideals of 'fairness'. On the flip side, too much diversity and randomness elicit calls for regulation to control the excesses.

(Kitterer, W., "Die Ausgestaltung der Mittelzuweisungen im Solidarpakt II," *FiFo-CPE Discussion Papers - Finanzwissenschaftliche DiskussionsbeitrÃ¤ge* 02-1, University of Cologne, Cologne Center for Public Economics, 2002.)

In response to this emerging global culture of integrated and prospective accountability, multinational companies, cities, and other transnationally connected networks compete and collaborate with each other to position themselves as global citizens and enablers of global systemic transformation. Even within companies, new accounting methodologies assess company performance in relation to emerging global planetary limits, standards of systemic resilience, transparency, and prospective accountability. Corporations begin to devise ways to tie financial performance bonuses to the long-term health of the company. Having big rewards tied to long-term results leads to the added benefit that corporate managers begin to take more prudent risks.

Most corporations see a strategic advantage in showing that their carbon footprints are shrinking while their social capital is increasing, and many refuse to use suppliers that do not follow their lead. Ad hoc groups form across the public, private, and civil sectors to create systemic sustainability management tools, including footprint analysis and monitoring, dynamic life-cycle analysis, emerging and systemic risk management, and various forms of balanced scorecards. These tools allow both rating agencies and national governments to make comparative assessments of the sustainability profile of individual companies, sectors, cities, and nations.

The Health of Socio-Ecological Systems

Most fish species have declined 50-80% since the 1970s, and many are verging on collapse. Attempts to address this situation have almost all failed, in part because the short-term individual economic incentives for over-fishing are more powerful than the long-term care for a shared resource.

Fish, along with forests, fresh water, and other natural resources, are in a class of resources called 'common pool resources' (CPRs). Recent Nobel laureate Elinor Ostrom has devoted her career to examining how such resources are best managed, (Ostrom, 1990)[9] drawing on successful examples often going back centuries. It turns out that using the governance mechanism of a 'commons' rather than a market (privatisation) or state control (nationalisation) can often deliver sustainable outcomes for CPRs. In a commons the users of a resource contribute directly to setting rules for exploiting it, for monitoring each user's draw, and for sanctioning any user's over-exploitation. Ostrom's research shows that a commons governance mechanism can help to avoid the 'tragedy of open access' of unmanaged or poorly managed CPRs.

A notable exception to the failure to manage a fishing CPR has occurred in Iceland, where scientists (not politicians) define quotas for each boat based on the average catch for the previous three years. These quotas are strictly policed by government inspectors on board each boat. By encouraging the conservation of stocks, Iceland's fishing policy offers fishermen a reasonable expectation of profitable long-term fishing.

Increasing prospective and integrated accountability and contributing to planetary-level sustainability begin to be seen not as taxes, but as ways to render markets and the societies on which they depend more resilient. New financial institutions spring up, especially new forms of banking and social entrepreneurs dedicated to 'lock-in busting' and 'systemic solutions'.

New constellations of actors offer different approaches to credit. Rather than simply syndicating and packaging loans to sell, many bankers return to basing loans on long-term relationships. This trend is encouraged by a change in Basel capital requirements that, before the global financial crisis, incentivised the unloading of loans from the balance sheet. In some countries, where banks are nationalised, they become a public utility. In others, innovative new private banks emerge whose loan interest is geared to the degree that the project contributes to sustainability. Other innovations—including Internet-based peer-to-peer, or person-to-person lending, and consumer- and micro-finance —create a new and personal interest between borrower and lender. Virtual venture capital firms bundle capital from many small investors to fund new innovations. Technological innovations found in the 'cloud' dramatically decrease the capital required to become an entrepreneurial innovator, leading to a decline in the cost of innovation.

Slowly at first, but with increasing rapidity, the global financial system begins to give birth to a new business culture. Accountability for the health of the environment and the welfare of those less well off, whether nations or citizens within nations, means that people begin to regard sustainability as an opportunity rather than a burden on the system.

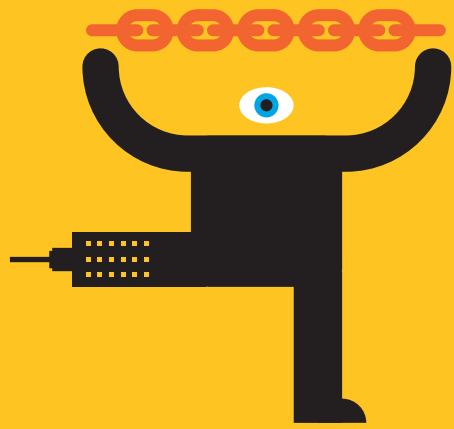
By 2015, the advantages of a 'connected economy' are seen not only in increased employment opportunities but also in the strategic transformation of various iconic companies and NGOs that have reinvented themselves to meet the emerging needs of the new economy as well as the competitive positioning of a host of new green industries and social technologies.

Many people now begin to see a powerful connection between the global financial crisis and the global ecological crisis. Both crises involve culmination of individual human actions unleashing

and reshaping global-level dynamics, and both involve liabilities and debts that don't show up in the near-term. Both are caused, in part, by short-term desires rather than long-term responsibilities. And each involves a global system whose rewards are reaped by private-sector winners, whose failures are suffered by the poor and by the system as a whole, and whose transformation is challenged by the difficulties of unlocking, unlearning, and adapting to fundamental change.

However, this is not a world without pain and conflict. Just as the dynamic of an ecosystem is essentially driven by a cycle of creation and destruction, so, too, old institutions and companies die, and new companies and institutions emerge, allowing innovation to take place. But a consensus emerges that the natural pace of 'creative destruction' in the past 100 years of global economic development has been too narrow and too slow to guarantee that humanity survives the next 100 years. The search for more rapid transitions and transformations continues.

In the midst of creative destruction in the economic world, the new institutions tasked with managing systemic risks and tensions successfully defuse many tensions—but not all. Some conflicts, particularly those driven by population pressures on access to natural resources, develop into armed conflict. In some regions of the world, these conflicts (like the mutations of a virus) provide catalysts for systemic change.



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The Health of Connections

By 2020, a major shift in thinking has occurred in most countries in relation to the economy. The habit over the past decade of taking into account the whole system, including the economic, social, and ecological components of the system, and the practice of pricing potentially harmful inputs into the system—whether carbon or risky financial instruments—lead to an emphasis on whole systems in every area of society. Systems thinking, 'complexity science', business ethics, philosophies of anticipatory knowledge, and creative thinking skills become common components of the curriculum in most business schools.

In some countries, such as China, for example, the health care system moves from paying for activity to paying for outcomes, thus rewarding choices for the prevention of disease rather than treatment for the results of disease. China also provides the models for extensive pension system reforms that combine a small monetary pension with adaptive continued employment.

Necessary ingredients of a healthy system include the ability to bounce back after shocks, and the resourcefulness to experiment and evolve in the face of inevitable surprise. But one of the most

problematic aspects of public policy concerns the trade-offs between efficiency and resilience. Resilience typically requires a degree of redundancy, a willingness to experiment, and the capacity to learn from failure. But resilience turns out to be a public relations nightmare: in the beginning, resilience simply looks like duplication, and the global media make it into a sport to describe measures aimed at increasing resilience as waste. This tension is never really resolved, as the distinction between resilience and waste is often in the eye of the beholder.

By 2015, the world is both more global and more local: more global in its awareness and thinking and more local in solutions to needs for financial capital and services. New business models are characterised by a shift away from thinking in terms of linear value chains to using dynamic values constellations. Metaphors of 'loop', 'mix', 'partner', and 'incubator' proliferate. In these, profits are the key measure of the health of the economic aspects of the enterprise, but goals are formulated in terms of producing wider systems benefits. Such companies carry the energy and entrepreneurship of the private sector, raise capital through the market economy, and deal with products, services, customers, markets, expenses, and revenues — but with the profit-maximisation principle incorporating ecological and social responsibility and applied across all stakeholders, both present and future. These companies typically attract the most talented staff and leaders, who are motivated by mission as much as by compensation and opportunity for advancement.

The world of *Health*, in effect, moves its primary emphasis from improving foresight to increasing preparedness and collaboration in the management of systems. But this transformation may have a dark side. Just as the beauty of the delicate balance of an ecosystem hides a vital and vicious cycle of creation and destruction, the world of *Health* has loosened some of the

institutions and processes that previously underpinned aspects of equity. Increased diversity and experimentation bring great successes, but also big failures. Governments are less able to bail out failing car companies and banks, or to underpin the vast transfers of wealth that institutions such as the EU have provided. System resilience is vastly increased, but individual variations have risen, too.

Making networks more resilient to shocks requires not just building stronger defences in each individual institution, but also strengthening the key interconnectors, including the biggest international banks and major market infrastructures. It requires, also, more effective international coordination of regulation to limit regulatory arbitrage and to identify and mitigate vulnerabilities in the international system.

In the world of *Health*, the ability to see connections and to manage across multiple scales, systems, and worldviews means that the "greatest good for the greatest number" is not achieved through a one-size-fits-all, top-down government system but, like the numerous interactions in a human body, through the harmonious working together of interlocking systems whose coordinating power evolves an ever more complex, differentiated, and intelligent global society.

In *Health*, accidents and disease still occur, and many things go wrong—but by and large, system-wide collapses are avoided. By 2020, the world has evolved from a collection of countries tied together by a global financial system whose aim was simply short-term economic growth to a globally interconnected socio-economic ecosystem whose collective purpose is health.

Of course, holding a collective purpose and achieving it are two different realities. While some find hope for the future in the emerging global consensus on sustainability, others point out that global growth, if measured by the old GDP standards, is much

slower than it had been after the turn of the century—and that this slow-down mostly damages developing countries, whose governing classes sometimes claim that their aspirations for a rising standard of living for their people have been thwarted by the new global emphasis on health.

“It is periodically the task of progressives to, ironically, save the market system from its own excesses.”

Lawrence Summers, Director U.S. National Economic Council, April 1 2009

“Just as our banking sector is struggling with its debts... so Nature’s life-support systems are failing to cope with the debts we have built up there, too. . . If we don’t face up to this, then Nature, the biggest bank of all, could go bust. And no amount of quantitative easing will revive it.”

BBC One’s annual Richard Dimbleby Lecture, St James Palace, July 7, 2009.

“In an innovative economy there are not enough precedents to be able to estimate the probability of this or that outcome.”

“Uncertainty Bedevils the Best System,” Edward Phelps, Financial Times*, May 12, 2009.*

6 Working with Scenarios

The value of scenarios lies less in their intellectual content than in their power to provide a platform for reflection and discussion on issues that we are collectively wrestling with. The availability of plausible, alternative future worlds allows us to enhance our understanding of complex systems, to challenge our own and each other's thinking, and to better navigate the space for action defined by choice, uncertainty and constraints, whilst remaining open-minded to new and better possibilities. The quality of decisions concerning the management of key systems rests on the effective and direct involvement of stakeholders, and the quality of this engagement, in turn, rests on respect for alternative histories and alternative futures. Engagement using scenarios unearths our hidden assumptions and ultimately broadens our minds and enriches our policies and actions.

The true value of scenarios lies not in building the storylines but in our courage and capability to utilise scenarios to explore 'what if' and avoid 'if only' by acting on our new-found insights.

In considering the following examples of how others have used these scenarios, we encourage you to create your own alternative narratives and envision ways they might be used to foster new ways of thinking about complex, global challenges.

> **"The Cartographers Guild drew a Map of the Empire, whose size was that of the Empire, coinciding point for point with it. The following Generations, who were not so fond of the Study of Cartography saw the vast Map to be Useless."**
>
> *(Jorge Luis Borges, "On the Exactitude of Science,"* A Universal History of Infamy, *1975.)* [10]

Better Foresight vs. Better Preparedness

The future does not lend itself to 'radar type' detection: the noise-to-signal ratio is very large, and the biggest threats are unfamiliar.

Futures practices have always been in a race with an ever more complex world, and the gap between effective practice and need seems especially large today. New approaches to systemic strategic foresight are emerging in response to the challenge of new vulnerabilities in an era in which connectivity is the key driver of value and vulnerability—for example, notions of 'emergent' and 'systemic' risk are becoming more commonplace.

New and more data does not, in itself, guarantee better judgement. Systemic strategic foresight can be manipulated in the interests of the few, overwhelmed by evidence from the past, dismissed as qualitative and flaky, or denied because it raises uncomfortable challenges. Deliberation is key since anticipatory knowledge processes, in effect, 'create' the future. Deliberation requires attention to the vocabulary and quality of strategic conversation and to questions such as who has 'voice', and which time horizons really matter. The interpretation of systemic strategic foresight also demands attention to the bigger picture – alternative 'stories' of what might be going on and why.

As a result, best and emerging practices in strategic foresight are harnessing multiple approaches, such as horizon scanning, scenarios, computer-based simulation, and modeling. The effectiveness of such foresight rests on its embeddedness in strategic conversations that link different parts of an organisation or system, as well as different actors and scales.

How Others Have Used These Scenarios

The Oxford Scenarios: Beyond the Financial Crisis have already been deployed in and refined via a number of wider engagements, including:

- **Global Economic Symposium, September, 2009**

The scenarios were used for the opening keynote address and engagement session of the World Economic Symposium, which took place in Kiel, in Germany, September 8-9, 2009 (http://www.global-economic-symposium.org/ges-2008-09/ges-2009). Participants were invited to use this set of scenarios to reveal and test strategic assumptions underpinning any solutions proposed by the Symposium.

The scenario platforms were welcomed by several participants as a much-needed approach for escaping from the linear, deterministic approach to futures thinking that characterises the political narrative and the work of many of the international and multi-lateral institutions actively working to fix the crisis. Others suggested that the scenarios reflected a new approach to shared and societal-level learning that is more appropriate for the 21st century – an era characterised by complex, interdependent, and puzzling situations that confound conventional approaches to learning—approaches that typically treat problems independently of their context, breaking them down into components in order to find the right solution. It was also noted that the scenarios encourage respect for alternative views of the history leading to the crisis, leading, in turn, to respect for alternative futures in formulating solutions.

- **Financial Innovation Laboratory**

These scenarios were also used to encourage 'out-of-the-box' thinking at three initiating events of a new Financial Innovation Laboratory, which took place in the UK in July 2009. This initiative was led by the WWF (Worldwide Fund for Nature), ICEAW (Institute of Chartered Accountants for England and Wales) and Reos Partners.

At each event, over 50 participants, representing a range of key stakeholder perspectives, used the *Growth* and *Health* scenarios in role-play exercises to create and share imaginative but actionable ideas that could be further developed and tested during the course of this multi-year initiative. For example, one of the London-based workshops produced a table that summarises possible regulatory and consumer responses to events in each scenario.

		Growth	Health
Regulators	**What happens?**	Regulators focus on enhancing the availability and detection of early warning signals, in order to spot when normal market conditions are transitioning into crisis/bubble formation.	In an unprecedented move, the FSA in the UK begins to regulate according to economic substance not legal form (as indicated in the Turner Review in 2009).
	So what?	Regulators encourage the evolution and expansion of price comparison sites, where only regulated firms can offer their products and advice, thus creating a more transparent platform for consumers.	Financial regulators continue to be seen as laggard institutions that are unable to proactively attend to and manage systemic impacts and linkages.
Consumers	**What happens?**	Consumers are, once again, overwhelmed by the breadth of information provided in public sites.	Skepticism grows around this as a responsible response to the crisis: it is seen as avoiding the fundamental moral issues of acceptability and viability of sustained leverage and debt, in particular, credit card debt, which continues to grow.
	So what?	Consumers are provided with tools to understand the market, which enables trust to be re-established in the financial services markets.	The adoption of new forms of socially responsible, eco-finance thrives beyond the UK.

Scenario planning is a creative and rational process that helps groups come together to explore situations where the thinking and action is 'stuck' or 'paralysed', not so much by the lack of information, but rather because of contradictory certitudes about what should and can be done. (See: http://www.sbs.ox.ac.uk/newsandevents/Pages/rethinkingfinance.aspx.)

How You Might Work with these Scenarios

There are many ways to work with scenarios. We offer two suggestions. The first is a design for applying the scenarios in a workshop or seminar setting. The second explores how each scenario might look to an editorial writer who lives in the alternative scenario.

A Possible Workshop Design

Introduction - Before presenting the scenarios, it is helpful to anchor discussions in present-day concerns and to park any existing 'big ideas'.

Pre-scenario Engagements:

1 Start with a 'brainstorming' exercise. For example, what key events have led to the current situation? Build a timeline of the past. Reflection on and discussion about the timeline can help identify alternative histories, highlight that change is inevitable, and prepare the ground for exploring why futures changes need to be anticipated.

2 Another approach would be to design a set of open-ended questions that reflect some of the uncertainties about the present situation. For example: What can grow? What cannot go on forever? Where are the 'ticking time bombs'? Why can/can't we go back to 2007? Twenty years of innovation – so what? License to operate – who will decide, and when and how will governments 'get out of' business?

3 Request participants to capture their 'big ideas' about solutions to the financial crisis on sticky notes, which are then collected. This serves to open people's minds and literally 'park' the prejudices they may have brought with them.

Presentation **The Growth Scenario**

Engagement—Break-out sessions at tables to discuss:

1 What are the key words that you associate with the world of *Growth*?
2 What signals do you see today through which you recognise the world of *Growth*?

Presentation **The Health Scenario**

Engagement—Break-out sessions at tables to discuss:

1 What are the key words that you associate with the world of *Health*?
2 What signals do you see today through which you recognise the world of *Health*?

Presentation **So What?**

Engagement—Break-out sessions at tables:

1 Discuss the specific topic of the seminar in the light of each scenario. (This can be done in a variety of ways depending on the size of the audience, the range of topics on the agenda, and the time available.)
2 Ask participants to take roles—for example, regulators, consumers, companies, NGOs—to explore the values, decisions, actions, and consequences of their 'character' in each scenario. (If time permits, this should be done on another day, to allow the participants to reflect and deepen their grasp of the scenarios by going through the scenario booklet.)

Health Looks at Growth; Growth Looks at Health

The *Growth* and *Health* worlds are very different, and some views that may be held as obvious truths in one world may well be perceived as non-sense in the other. We look at this contrast between these worlds by comparing some fictitious newspaper editorials from an imaginary traveler between these worlds

Through the *Health* lens, *Growth* is seen as a dangerously narrow economic approach, with negative implications for environmental sustainability and social justice.

Through the *Growth* lens, *Health* is seen as a naively environmental and social approach with negative implications for innovation and economic prosperity, especially for developing nations.

The Growth Tribune

OpEd - Health world fails to grasp importance of growth
By Mary J. Beige

Last week's debates in the *Health* parliament have revealed widespread misunderstanding about a number of fundamental realities. Most notable is the idea that growth is not essential to a healthy economy or to fulfilling the aspirations of the poorest societies. In addition, several speakers referred to the idea that diverse, bottom-up environmental initiatives could be a viable alternative to coherent financial policies that encourage growth while at the same time requiring transparency and responsible margins and lending.

The debates also brought to light a romantic notion of human nature based on the utopian fantasy that without incentives and regulations, people would operate against their own self-interest in order to save the environment and solve problems of social justice around the world—that the ants could be persuaded to sacrifice for the grasshoppers.

Health advocates argue that techno-fixes won't solve the mess created by the global financial crisis—but it appears that underneath their scorn of such solutions lies an equally unsupported belief in "pie in the sky" social fixes. Dream on.

The Health Times

OpEd - Widespread non-sense underpins Growth policies
By Chatterjee B. Sun

At a recent conference titled 'Economic *Growth* Perspectives,' speakers demonstrated an unwavering belief in the free market to solve our current financial crisis. Sure, they admit, a little transparency and a bit more regulation might help us avoid another crash like the one we've just endured. But basically, we have the best of all possible systems in the best of all possible worlds—at least for some.

A more pernicious bit of non-sense was contained in the sessions devoted to the environmental challenges. Clearly, the climate and biodiversity crises rank high on anyone's agenda, but the *Growth* approach would be perilously ineffective, requiring multiple planets to realise. And not a single speaker referred to the inexorable connection between the economy and the environment.

Finally, we draw attention to the conviction of *Growth* advocates that decoupling long-term environmental priorities from short-term financial system stabilisation is both possible and necessary. They assume that we can wait to turn our attention to the environment until after we fix the financial system. Dream on.

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About our Futures Group

The Institute for Science, Innovation and Society (InSIS)'s futures group tackles significant challenges by learning with the future, rather than about it, to enable better sense-making and develop robust policies and resilient strategies. We do not seek to predict likely futures, or ignore the past, but to think in creative ways about plausible futures and how these might come about. Our practical scholarship is aimed at clarifying what works, when and why, and addressing questions concerning "best" and "next" practices. In conducting futures projects we aim to help groups and organisations transform their futures. InSIS draws on the intellectual breadth and depth of the Saïd Business School, the James Martin 21st Century School and the entire University of Oxford. For further information on futures research at InSIS, visit www.insis.ox.ac.uk.

Acknowledgments
Designed by Peter Grundy, www.grundini.com
Research assistant: Cesar Aya

PDF version of the booklet available at:
www.sbs.oxford.edu/financial-scenarios

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