



BANK OF ENGLAND

Speech

Why institutions matter (more than ever)

Speech given by

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It is a great pleasure to be speaking at this year's CRESC annual conference. It is particularly poignant, in the week of Ronald Coase's death, to be discussing "Why Institutions Matter". This is belatedly becoming conventional economic wisdom. Yet I wish to argue not just that institutions matter, but that the forces shaping today's great global systems mean they matter more today than ever previously.

There are many forces shaping the evolution of the world's systems – social systems, financial systems, economic systems. But two of the most potent and pressing are *integration* and *information*. Both have undergone a radical transformation over recent years, driven skyward by a combination of globalisation and technology. They have reached heights undreamt of a generation ago.

Take *integration*. Cross-border flows of resources - people, goods and services, capital – have seen a remarkable upsurge over the past few decades. Chart 1 plots some measures of cross-border flows of goods, services and capital – the ratios of world trade and global external assets to world GDP. They exhibit broadly similar trends: rising in the early part of the 20th century, falling during the interwar years, before rising rapidly to the present day. They chart the ebb and flow of globalisation.

Over the past 30 years, globalisation has flowed as never before. Trade integration has risen at a rate of over 1 percentage point per year, international capital integration at a rate of 6 percentage points per year. Today, the ratio of world trade to GDP is two and a half times its level at the end of the Second World War. The ratio of global external assets to world GDP is nearly ten times this level. Global integration of goods, services, money and people is at levels well beyond those seen previously.

The creation and exchange of *information* has undergone an even more remarkable phase shift. The stock of information currently available is estimated to be around 1,200 exa-bytes.¹ Sufficient, if it were placed on CDs, to stretch to the moon and back almost three times. Sufficient for every person on the planet to each have over 300 times more information than was stored in the great library at Alexandria which, 2000 years ago, housed the sum of all human knowledge (Cukier and Mayer-Schoenberger (2013)).

What is more, almost all of this information is new. Over 90% of it has become available in the past 10 years. Nearly half has become available in the past 3 years. This rate of expansion is unlikely to slow. Google alone processes 25 million gigabytes of data each day (Devenport *et al.* (2012)). Wal-Mart is handling 1 million new transactions every hour. Facebook is home to 40 billion digital photographs which increase at a rate of 10 million per hour. Looking ahead, the stock of information is forecast to double over the next 3 years (Cukier and Mayer-Schoenberger (2013)).

On these trends, by 2020 the stock of information will have risen 150-fold since the turn of the century.² At that stage, the information created this century will account for over 99% of that ever created. That CD pile

¹ A bit is a 0 or a 1. A byte is 8 bits. An exabyte is 10¹⁸ or a quintillion bytes.

² www.economist.com/node/15557443.

will stretch to the moon and back more than 10 times. Each person alive will have nearly 1500 times more information than was housed in Alexandria.³

These remarkable trends in global integration have delivered significant benefits to global wealth and welfare, providing a large boost to growth (Kose *et al.* (2006), World Bank (2008)). There is also now decisive evidence of the IT revolution having materially boosted economy-wide productivity (Jorgenson *et al.* (2008)). As more of the economy has become virtual and global, and less physical and local, it is possible that existing national income methods may, if anything, have understated these gains (Arthur (2009)).

Yet, as recent events attest, rapidly rising integration and information are not costless. They can reshape and rescale the risks facing social, economic and financial systems. In particular, I wish to argue that the twin forces of integration and information may have increased the severity of the tail risks facing global systems, as recently evidenced by the global financial crisis. Insuring against those rising tail risks may call for a fresh policy response – for example, a strengthening of public policy *institutions*.

Integration and Systemic Risk

Consider first the relationship between *integration* and *systemic risk*. It is well-known that deeper integration of a network does not have a straightforward impact on its stability. Integration can be a double-edged sword – and the greater the degree of integration, the sharper this sword. This is sometimes known as the “robust-yet-fragile” property of connected webs (Watts (2002)).

The intuition is beguilingly simple. Within limits, connectivity acts as a shock-absorber, a risk-spreader. Links in the system act as a mutual insurance device as risk is distributed and diversified away. That results in connected networks appearing “robust” to shocks. But when shocks are sufficiently large, the same connectivity serves as a shock-transmitter. Risk-sharing becomes risk-spreading. Links in the system act as a mutual incendiary device as risk is amplified across the wider web. Connected networks become “fragile”.

In short, connected networks tend simultaneously to be stable and unstable, calm and turbulent, robust-yet-fragile. They sit atop a cliff-edge, on one side of which are the sunny uplands of stability, on the other the stormy lowlands of fragility. The more connected and integrated the system, the more precipitate this cliff-edge (Acemoglu *et al.* (2013), Haldane (2009), Gai and Kapadia (2010)).

As we might expect, the distribution of outcomes from such robust-yet-fragile systems are lumpy and non-normal. Relative to the smooth contours of the bell curve, they generate a clustering of extreme outcomes as systems tip the wrong side of the cliff edge. The distributions have “fat tails”. In simple terms, this tells us that catastrophes are much more likely than if God were rolling a dice (Haldane and Nelson (2012)).

³ <http://www.foreignaffairs.com/articles/139104/kenneth-neil-cukier-and-viktor-mayer-schoenberger/the-rise-of-big-data>.

This fat-tailed property has been found in most connected webs on the planet: in natural networks, such as rainforests and oceans; in physical networks, such as electricity grids and computer networks; in social networks, such as epidemics and social media sites; and in economic networks, such as trade networks and interbank payment systems (Newman (2005)). For all of these systems, the abnormal is normal, the exception the rule, the local global, the tails fat.

If fat tails are the unavoidable consequence of deeper integration, then the global financial crisis provides no better example. This was preceded by an unprecedented period of stability – the “Great Moderation” (Bernanke (2004)). A key cause of such stability was felt to be improved risk-sharing. The integrated global financial system had scattered risk to the four winds, dispersed and diffused. The web appeared robust.

Robust yet, as subsequent events have shown, also fragile. At the same time financial integration was calming the waters on shore, it was brewing a storm at sea. The financial system’s tail was fattening. When that tail wagged in 2008, almost every country on the planet fell off the cliff-edge at an almost identical time. The world experienced its first-ever truly global financial crisis. This time was different.

Unprecedented levels of financial integration made that so. Over the course of a 30-year period, it had transformed the global financial system into a tangled cats-cradle, the ultimate robust-yet-fragile web. While everyone was shocked by the crisis, perhaps no-one should have been surprised by it. If the path of integration – social, economic, financial – continues skyward, next time will be different for other systems too.

Information and Systemic Risk

Consider next the link between *information* and *systemic risk*. Here again the relationship is far from straightforward. Increased information is generally felt to improve decision-making; it allows us to re-optimize in response to news. Facebook and Twitter allow us to befriend and defriend, to like and dislike, in real time. eBay and Amazon allow us to trade instantaneously. Trading platforms allow us to buy and sell at sub-second speeds. Matchmaking sites allow us to search for jobs and partners in our lunch-break. People, goods, services and money all now swim in a liquid real-time market.

Yet high-frequency information and decision-making may be neither costless nor harmless. To understand why, look inside your head. MRI scans now enable us to do just that. What they show is that, neurologically, humans are schizophrenic by design. The brain is part impatient “doer”, part patient “planner”. Those two components result in us “Thinking fast and slow” (Kahneman (2011)).

Information prompts a chemical reaction in the impatient part of the brain. This provides the synaptic spark to re-optimize, to exchange, to transact, to befriend, to change our minds as never before. And change our minds, quite literally, it has. Some have argued that the information flood may have caused a neurological

rewiring, the like of which followed previous IT revolutions such as the printing press (Carr (2011)). This may have reduced attention spans, perhaps permanently; it has hardwired myopia.

While the neurology of this is new, the point itself is not. In 1971, information theorist Herbert Simon wrote: “In an information-rich world, the wealth of information means a dearth of something else: a scarcity of whatever it is that information consumes. What information consumes is rather obvious: it consumes the attention of its recipients. Hence a wealth of information creates a poverty of attention” (Simon (1971)).

In other words, an information surplus may cause an attention deficit. An attention deficit is likely to lower the quality of decision-making. For cognitive psychologists, it is a disorder – one whose reported incidence has sky-rocketed over recent years. If short-term reactions are clouding long-term judgements, the doer crowding-out the planner, the immediate the important, then more hurry may be generating less speed.

This might be called the “information-rich-yet-attention-poor” property of connected webs. One manifestation is over-trading – over-trading in friends, partners, jobs, stocks. Perhaps that is why marriage rates have halved, and divorce rates doubled, in the UK since 1970; why the tenure of global CEOs has halved since 1995; and why holding periods for stocks has more than halved since 1980. For many key decisions, myopia has been mounting.

It may also have become self-reinforcing – a myopia trap. For addicts, shortened horizons generate a quest for quick fixes which further shorten horizons in a downward spiral (Coffey *et al.* (2003)). For gamblers, a sequence of losses shortens horizons and increases risk-taking (Xiu *et al.* (2011)). For depression-sufferers, low confidence in the future becomes self-fulfilling (Alloy and Ahrens (1987)).

Myopia traps affect countries as well as individuals – and their macro-economic costs can be large. For developing countries, they often materialise as “poverty traps” (Sachs (2005)). That trap is self-sustaining because poverty leads to under-investment in the human and financial capital that would allow the country to break free in the future (Banerjee and Duflo (2011)). Low future prospects for growth become self-fulfilling.

Advanced economies are not immune to these problems. An information-rich-attention-poor world will generate under-investment in physical and human capital, infrastructure, the environment. That will be self-sustaining if it lowers future prospects or heightens future risks (Davies *et al.* (2013)). More hurry than assuredly means less speed. This is not a poverty trap. It is a poverty of attention trap. Policymakers have recently begun to focus on short-termism, perhaps for that reason (G30 (2012), FSB (2013)).

There is a final twist in this story of the dark side of integration and information. Fat tails and short minds can combine in uncomfortable ways. Myopia generates under-insurance against future risks, especially tail risks which seem remote. Yet, courtesy of integration, these tail risks may be on the rise. In other words, systemic risks may be rising at precisely the time societal insurance against these risks is most needed.

Why Institutions Matter

If so, then policymakers face a dilemma - catastrophe risk rising, but catastrophe cover falling. In these circumstances, the public good of system stability, locally and globally, socially and economically, may be at risk. How should policymakers respond?

One response would be to turn the tide, reversing the paths of integration and information. Since the crisis, there have been some signs of just that. Chart 2 shows one measure of global capital market integration over the past century – the correlation between national saving and investment rates in a set of countries. A value of one signals financial autarky – countries fully reliant on domestic saving to finance investment. A value of zero signals perfect financial integration – countries financing local investment globally.

For much of the 20th century, global financial integration, so measured, was very low. In the early 1980s, after decades of post-war financial liberalisation, this was seen as a “puzzle” (Feldstein and Horioka (1980)). Yet at precisely that point, the puzzle began to unravel. Correlations between national saving and investment began falling. By 2007, they had reached zero – bliss point for global capital market integration.

Yet bliss was short-lived. 2007 proved to be a high-water mark. The onset of the financial crisis has resulted in significant capital market retrenchment as nation states have returned money home, placed regulatory ring-fences around assets and imposed restrictions on capital movement. Today, global capital market integration is back to levels last seen in 2000 and is still falling.

This retrenchment reflects nervousness about the dark side of globalisation, its fragility and contagious cost. And this nervousness is not confined to capital flows; it has affected flows of goods, services and people too. That is why the World Trade Organisation’s (WTO) latest round of negotiations has been on-going for nearly 12 years. And it is why policy debates about immigration restrictions in a great many advanced economies are so vexed. These are attempts to turn the tide or at least stem the flood.

The costs of a significant retreat in flows of capital, goods, services and people are difficult to quantify. They are not, however, difficult to imagine. We need only look back to the aftermath of the First World War for a case study. Then, trade barriers were erected, capital flows restricted, immigration controls imposed. What followed was not a halcyon period for the global social, economic and financial order.

Reversing the rising tide of information would be an even more Canute-like task. While the library at Alexandria succumbed to fire, it is difficult to see the clouds suffering the same fate. Ending quarterly reporting will not bring an end of quarterly capitalism. The flood of information seems set to continue to rise, our cognitive in-box overflowing, our brains rewiring.

That begs the question of whether there is another public policy path better able to tackle fat tails and short minds. There may be. It is both an old path and a new path. Along it lie *institutions* - “humanly devised constraints that structure political, economic and social interactions” (North (1991)). So defined, institutions have long been recognised as key ingredients of stability and growth.

In Adam Smith’s “other” book, *The Theory of Moral Sentiments*, institutions were seen as a necessary foundation for progress (Smith (1759)). They embedded past knowledge – “institutional memory” – thus providing a platform for future development. They also created the security of environment necessary to generate that progress – for example, through the rule of law and property and civil rights.

In the late 19th century, economists such as Thorsten Veblen went one step further. They saw institutions as the basic building blocks of economic development (Veblen (1899)). As societies and economies became more complex, institutions were needed to solve increasingly complex collective action problems. They helped co-ordinate the actions of individuals to create public goods such as language, money, the rule of law, even central banks.

After a lull of over half a century, institutional economics has re-emerged with a vengeance. For Ronald Coase and Douglas North, institutions helped solve information and co-ordination problems within organisations, communities and societies (Coase (1960), North (1981)). The more complex these information problems, the more important were institutions as staging posts to efficiency and progress.

For Mancur Olson, institutions could be a bulwark against the power of vested interests (Olson (1982)). Vocal minorities could block reform which would otherwise benefit the silent majority – for example, through tougher anti-trust law and tighter regulation. Institutions, arms-length from these vested interests, could break that reform logjam and thereby act as a growth facilitator.

A common denominator among all of these thinkers, from Smith to Veblen to Coase to North, is that institutions rise in importance as societies become more complex, integrated and information-rich. Indeed, by embedding knowledge from the past, and investing in public goods for the future, institutions were essential prerequisites for continuing progress in such systems.

Recently, those basic insights have been corroborated by historical evidence. Institutional quality has been found to be a key determinant of economic growth, particularly during financial liberalisation (Kose *et al.* (2006)). For Acemoglu and Robinson (2012), institutions play *the* pivotal role in explaining “Why Nations Fail”. In an echo of Olson, they distinguish extractive (catering for an elite) and inclusive (catering for society) regimes, with the first a recipe for economic regress, the latter for progress.

Whether old or new, institutions seem to matter. Their secret lies in solving societal problems of knowledge, co-ordination and incentives. Institutional memory can help lengthen and strengthen otherwise short and

subjective minds. And institutional investment can help build public goods and flatten otherwise fat tails. In other words, institutions are the perfect antidote to the dark sides of integration and information.

Institutions in Economics and Finance

These features of institutions – memory of the past, investment for the future – are particularly acute when tackling economic and financial policy problems. Very often, these involve difficult trade-offs between today and tomorrow: is growth today worth trading-off against higher inflation tomorrow or a greater probability of crisis the day after tomorrow?

Not only are these choices difficult, but policymakers may have an inbuilt tendency to get them wrong. In economics, this is often termed the “time consistency” problem (Kydland and Prescott (1977)). The problem arises when policymakers have incentives to promise good behaviour *ex-ante*, but then renege on that promise *ex-post*. Policymakers are prone to making St Augustinian pledges to be chaste, just not yet. This is a classic myopia trap.

The roots of this problem are often felt to be political – a desire to court near-term popularity to achieve re-election. Yet the true roots may be more neurological than political. Experimental evidence shows that people’s preferences are themselves time-inconsistent or “hyperbolic” (Laibson (1997)). People become increasingly myopic as payoffs become visible, elections approach, nest eggs near hatching. This is true for everything from pigeons pecking corn to mothers seeking pain relief during childbirth (Haldane (2010)).

One man’s hyperbolic preferences are another’s policy time-inconsistencies. For example, when setting monetary policy, there may be a desire to go for growth today at the expense of inflation tomorrow – to seek the drugs rather than gas and air option. Because people over time build that behaviour into their expectations, the result may be a permanent upwards inflation bias, the like of which blighted many advanced economies in the 1970s (Barro and Gordon (1983)).

Over the past 30 years, practical solutions have been sought to this monetary policy myopia problem. Interestingly, these solutions have often been explicitly institutional. Over that period, monetary policy in a great many countries has been placed in the hands of central banks operating arms-length from government, but with an inflation mandate set by government.

The reasons for doing so should be readily familiar from the earlier literature on institutional economics. Central banks have institutional memory, embedding past knowledge of the costs of inflationary excess. For example, the Bundesbank’s inflation-aversion is deeply rooted in Germany’s hyperinflationary past. This memory of the past is crucial for preserving the value of money in the future.

So too is operational independence from government. This helps provide the patience necessary to safeguard future stability in the value of money – for example, through an inflation target. It leans against the St Augustinian tendency to dash for growth today at the expense of inflation tomorrow. Today, these institutional principles for monetary policy are enshrined in the statutes of central banks in all of the major advanced countries and a growing number of emerging markets.

This much is now largely accepted for monetary policy and inflation-fighting. It is somewhat less well-accepted for financial policy and crisis-fighting. Yet, in theory and in practice, the case for placing financial stability policy in the hands of an arms-length institution is at least as strong, and arguably stronger, than for monetary policy. This is the case for three reasons.

First, financial cycles are longer-lived than the typical business cycle. Chart 3 plots a measure of the cycles in credit and GDP in the UK over the past century (Aikman *et al.* (2010)). Peak-to-peak, the credit cycle lasts between 8 and 20 years, the business cycle between 2 and 8 years. The longer duration of credit cycles increases the chances of policymakers falling prey to disaster myopia. That is why “This time is different” has so often been the pre-crisis narrative (Reinhart and Rogoff (2009)). In an “information-rich-yet-attention-poor” world, people in future may be even more prone to such myopia.

Second, the financial cycle exhibits wider fluctuations, and imposes much larger costs, than the typical business cycle. As Chart 3 shows, the amplitude of the credit cycle is more than twice the business cycle. The costs of crisis dwarf those of business cycle fluctuations (Claessens *et al.* (2008), Jorda *et al.* (2011)). By making the system “robust-yet-fragile”, financial integration has fattened tails and added to these costs. This, too, strengthens the case for remedial policy action to avert these tails and their associated costs.

Third, the financial cycle tends to generate stronger constituencies of winners and losers than the business cycle. This includes asset-owners benefitting from asset price booms, borrowers benefitting from credit booms or banks benefitting from both. Each is a powerful vested interest. This makes for stronger and more successful lobbying, making it harder to lean against financial cycles.

A financial boom is, in effect, a generational power struggle. The beneficiaries from an asset boom are today’s asset-owning older generation. Vocal and voting, they are a powerful coalition. The losers from an asset boom are today’s younger or future generations who face costlier assets or larger amounts of debt to repay. Yet they are often neither vocal nor voting. Many will be unborn. They are a weak coalition.

This generational imbalance of power may generate an inherent pressure to expand credit and inflate asset prices. The financial system may have in-built tendencies to create credit and asset booms, to enable the transfer of resources from tomorrow to today, from the young and unborn to the old, from the silent to the vocal. Yet, longer-term, this is another myopia trap. Indeed, as it is effectively a transfer from the pockets of our children and grandchildren, it is the ultimate deceit.

If regulatory attempts are made to reign in financial excesses, there is a second political-economy problem to navigate. Regulatory action will tend to focus on staunching the sources of credit, namely the banking system. But this pits regulators against a powerful, and well-heeled, coalition of potential losers, often resentful of those removing the party's punchbowl. Such is the story of the past five (hundred) years.

These structural features of the financial system mean the myopia trap may be more acute in finance than in most other spheres of policy: the costs of getting it wrong, distant but huge; the vested interests against getting it right, vocal and powerful. Financial policymakers are impaled on the horns of a dilemma. And greater integration and information, by fattening tails and shortening minds, have sharpened that dilemma.

Institutions and Regulatory Design

The features of the financial system that generate this dilemma are in many respects familiar: a shortage of embedded knowledge of the past, an absence of co-ordinating action for the future, the power of vested interests wishing to trade off the future for the present. That suggests institutional reform could be a key ingredient when reducing financial time-consistency problems. What institutional features are likely to be most important in safeguarding financial stability?

First, financial crises underscore the importance of placing responsibility for their avoidance in the hands of a policymaker with institutional memory. This reduces the risk of disaster myopia, of ignoring worrying dots on distant horizons, of being "information-rich-yet-attention-poor", of forgetting fat tails. To misquote Mark Twain, although crises do not repeat themselves they do rhyme. Long-lived institutions are likely to be better able to recall those ancient rhymes.

Second, financial policymakers should ideally be arms-length from the political process – for example, operationally independent for regulatory tools. This reduces the temptation to trade off an asset boom today for a bust tomorrow. It helps deliver greater investment in future financial stability and greater insurance against fat tail risk. It helps avoid the ultimate deceit of mortgaging the unborn.

Third, financial policy needs to have a system-wide focus. In the jargon, it needs to be *macro*-prudential in nature (Crockett (2000)). That is essential in an integrated "robust-yet-fragile" world where crises, when they come, are fat-tailed and global. Because it is system-wide, macro-prudential regulation may also help muffle the siren voices of vested interests, increasing the chances of an inclusive, rather than extractive, regime.

In large measure, these institutional characteristics are reflected in the UK's new regulatory arrangements. These came into place with the passage of the Financial Services Act (2012). Under this framework, responsibility for prudential policy falls to the Bank of England. It is split between the Prudential Regulation

Authority (PRA) carrying out micro-prudential regulation and the Financial Policy Committee (FPC) conducting macro-prudential policy.⁴

The new institutional framework for UK financial policy in many respects mirrors that for UK monetary policy. As with monetary policy, both the FPC and PRA have operational independence when setting certain prudential instruments. As with monetary policy, both operate subject to statutory objectives and remits set by Parliament. And as with monetary policy, each is subject to rigorous accountability mechanisms enforced by Parliament. Both FPC and MPC have instrument, but not goal, independence.

These institutional features have attractions as a response to the time-consistency dilemma which faces financial policymakers. The Bank of England is an institution with around 320 years of history. Financial crises have pock-marked its history. This ought to provide the Bank with the institutional memory necessary to make sense of dots on distant horizons, to diagnose emerging obesity in the financial system's tails, to conscientiously object to next time appearing different.

The primary objective of the FPC is to preserve the resilience of the financial system and, subject to that, to support the government's objectives including for employment and growth. That ordering of the FPC's objectives helps lean against short-term pressures to go for growth today at the cost of instability tomorrow. In effect, the FPC provides the long-sightedness necessary to preserve future stability at a time when private risk horizons may be shortening. And it provides necessary insurance against future tail risks at a time when these tails may be fattening.

This macro-prudential regime, with the FPC at its centrepiece, is an explicitly institutional solution to the financial policy dilemma. It is regulation *of* the system *for* the system: of the system because the FPC's focus is system-wide; for the system because the FPC's aim is stability in the wider economy. Macro-prudential policy protects the financial system from itself and the wider economy from its consequences.

The FPC's actions to date have been completely consistent with those objectives. For example, it has called for UK banks to increase their capital levels to safeguard their future resilience. It has also relaxed liquid assets requirements for UK banks to support future growth. Through these actions, the FPC has sought to protect the financial system from itself and the wider economy from its consequences.

In future, the FPC will have at its disposal a Countercyclical Capital Buffer (CCB) and Sectoral Capital Requirements (SCR). These are designed explicitly to lean against financial cycles. Like monetary policy, they operate symmetrically to constrain credit booms and cushion busts. They help safeguard today's younger generation from the impatient grasp of their parents and grandparents, to avoid the ultimate deceit.

⁴ The Financial Conduct Authority (FCA) is the third point of the regulatory triangle of the UK. It has responsibility, among other things, for consumer protection.

The FPC can also invest in financial public goods – for example, new financial infrastructure to support resilience. In the past, central banks helped build market infrastructures such as payment, clearing and settlement systems to support resilience. Like lampposts and language, these are classic public goods. In future, the FPC may wish to help build other types of market infrastructure - for example, securitisation markets - to help create a more diverse financial system.

The macro-prudential actions of the FPC will not always be popular. But financial policy is not a popularity contest, for that way lies the time-consistency dilemma, the myopia trap. Party-pooping accusations have come thick and fast through this crisis, some faster and thicker than others. Yet, though uncomfortable, these are a sign of the new system working, not failing. They are indications of the patient part of the brain regaining some control, of those attention deficits starting to narrow.

A number of other countries have also now embarked on a macro-prudential mission, in both advanced and emerging countries, often in response to crisis. The Financial Stability Board has recently set out some design principles for these macro-prudential regimes.⁵ Interestingly, not all of these regimes have central banks at the helm (IMF (2011)).

In a recent study, the IMF found that macro-prudential regimes which gave central banks an important role were associated with more timely use of macro-prudential instruments (Lim *et al.* (2013)). That underscores the importance of an appropriate institutional solution to the myopia trap. The institutional framework for macro-prudential policy may have further to travel internationally if this trap is to be avoided in future.

Conclusion

In *The Rock*, T S Eliot wrote:

“Where is the wisdom we have lost in knowledge?
Where is the knowledge we have lost in information?”

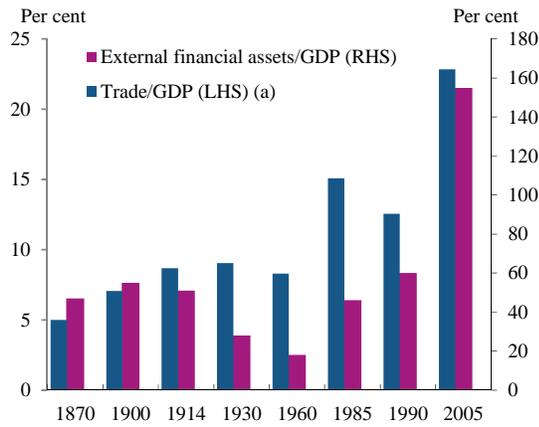
Today’s information-rich world may have come at the expense of knowledge and wisdom, including about the fat-tailed risks which may threaten social, economic and financial systems in the future. The worst-in-a-lifetime financial crisis of the past few years is exhibit one. It is unlikely to be the last.

Yet the history of political and economic progress offers a clue to solving these problems. This has relied heavily on long-lived, far-sighted institutions which are able to tackle the problems complex, integrated, information-rich societies throw up. Post-crisis financial reform has recognised that, giving system-wide regulatory responsibilities to a set of arms-length, long-lived institutions.

⁵ See FSB (2011), “Macroprudential policy tools and frameworks”.

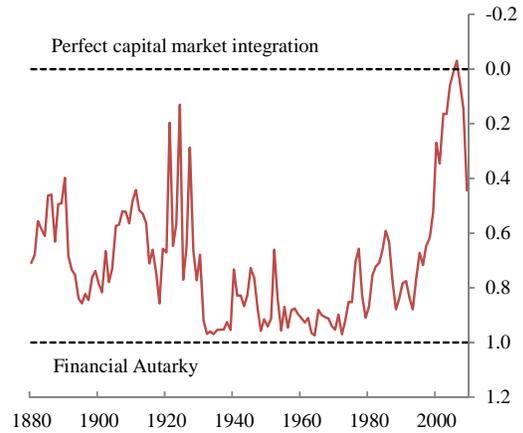
There are many other areas of public policy where long-tailed risks loom large – pandemics, cyber risks, trade disputes, carbon emissions. Left to their own devices, societies may under-insure against these tail risks too. That is why institutions matter, now more than ever. They explain why nations failed in the past. They may be even more important in helping them succeed in the future.

Chart 1: Flows of capital, goods and services



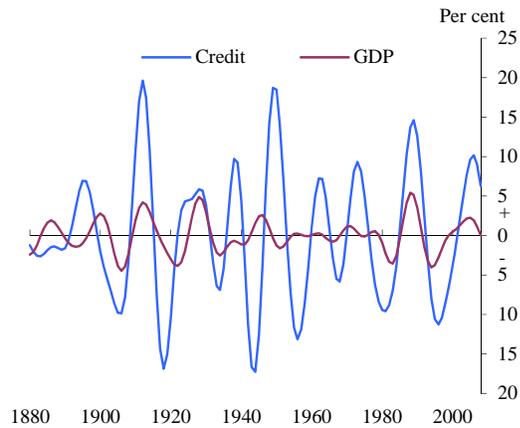
Sources: Maddison (1995: pg 227,239), IMF International Financial Statistics, World Bank WDI, National Bureau of Economic Research, Mckeown (2004 P 184) and Bank calculations.
 (a) Trade is volume of exports.

Chart 2: Global capital market integration



Sources: Taylor (2002), IMF WEO, Obstfeld and Taylor (2004) and Bank Calculations
 (a) Global capital market integration is the correlation coefficient between domestic savings and investment for 15 countries (the sample varies slightly over the period)

Chart 3: Credit and GDP cycles in the UK



Source: Bank calculations.

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