

SUBMISSION TO THE INDEPENDENT COMMISSION ON BANKING

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This submission offers an alternative approach to thinking about the British banking system. It mixes the political philosophy behind the Big Society (notably that argued by ResPublica) with new and maturing fields in economics, including Network and Complexity theory.

My biography is provided in the annex in order to outline the experience and qualifications underpinning the analysis in this submission. In brief, I have worked at the Bank of England and in a global macro hedge fund, and, in addition to being ResPublica's Chief Economist, I am a Senior Research Associate of the LSE's Complexity Group. This submission is made on behalf of ResPublica.

Preamble

The main thrust of our submission is to suggest that the Commission ought to place sufficient emphasis on recent advances in Complexity and Network theory. We believe it important that these new insights are adequately taken in to account so the Commission reaches the right conclusions. If the Commission were not to incorporate such thinking in to its deliberations, it will risk making a "framing error", with obvious implications for the resultant policy conclusions.

We explain what we mean by a complex systems approach under question 1.1. The value this new discipline would add to the Commission's work would be to consider the banking sector as an *evolving network*, rather than as an aggregation of single institutions. There is a risk that without understanding the reality of the interaction of financial institutions, we could not arrive at a deep enough understanding of the *whole system* to inform policy.

In this paper we will follow the sequence of questions in the call for evidence, to provide consistency for members of the Commission. The core of our thinking is outlined in our answer to question 2.1. In short, subject to necessary deep empirical and modelling work, and real world pilot studies, there is a good argument for Britain moving to a decentralised (community-based) banking system. Other parts of the banking system, including investment banks, would adapt endogenously to this restructuring.

We would also argue for distinguishing between the *British banking system* - that which is in direct contact with British people, and London's *international banking industry*. The two need to be as distinct as possible to prevent contagion effects (so-called *global cascades*) from the international financial system (including the City of London). Modelling work needs to be done to understand how best to do this - it is unlikely the two can be completely separated; the question is one of optimisation.

Finally, it is worthwhile noting that we plan to run a project between December and the beginning of May 2011 that will flesh out in more detail the complexity and network-based perspectives highlighted in this paper. We hope to include the thinking of several experts in this field; work already done; and - depending on funding - to develop a few related models, including *Agent Based Models*.

Question 1.1

Re “The relationship between the Commission’s two primary objectives of financial stability and competition (including consumer choice)”

If we were to take a perspective based on Complexity theory, which would allow us to consider the *whole system* (not just its parts), we would start by identifying the ultimate aims of the Commission and then “work backwards”.

In terms of aims, we would suggest starting with the well-being of the British population. While this is vague at this stage, it would avoid the mistake of focusing on material welfare when other things (notably people’s underlying values, such as “fairness”) also matter to people. Importantly, economics affects parts of our lives deemed outside the remit of orthodox economics (which focuses on material welfare); and factors considered outside of conventional economics (e.g. human cognition) affect things considered within its terrain i.e. the allocation of scarce resources.

A *whole systems* approach leads us to frame the economic and financial system as an evolving network of interacting people and institutions: a complex system. For members of the public not familiar with this term, let us be clear. We would suggest¹ a complex system is “a system containing multiple agents, potentially heterogeneous, interacting with, and adapting to, each other”. The key difference between a conventional framing and a Complexity-based approach is an appreciation of the inter-connections within the whole system. It also helps us appreciate the broad range of new concepts that have come out of Complexity theory (which has matured over the past 30 years), which are relevant to the Commission, including *emergence*, *self-organisation*, and *co-evolution*.

As an example of one concept in Complexity theory, we can consider how regulated financial institutions and regulators *co-evolve*. In effect, this means that regulators and the regulated adapt to each other in an iterative way (adaptation by the regulated is a well-known phenomenon in orthodox financial theory). The implications of this continuous *co-evolution* are critically important and point to the fact that the economic and financial system, which is Complex, is in a continuous state of flux. In more technical language, the system is *non-ergodic*: the underlying “rules” are constantly changing for the regulated institutions, the regulators, and (by extension) the whole system. What this means is that regulators will probably never get to a “once and for all” perfect system of regulation.

Returning to the question, once we have understood the ultimate aim of the exercise, and framed the mechanics of the real world more accurately, we can start to understand the importance of *competition* and *financial stability*, and the relationship between them. For example, there is an argument that while competition is important for obvious incentive effects, *co-operation* is also important in complex economic systems. Indeed, we can think of financial regulation (macro- and micro-prudential) through the lens of system-wide co-operation (as well as through the concept of *self-organisation* in complex systems). Furthermore, we would argue that financial stability ought to be viewed as a part of the objective of *resilience*, a concept that is much better understood through the Complexity lens.

¹ A consensus definition of a complex system is yet to emerge, so we offer this only as a working assumption.

Question 1.2

“What weight should the Commission give to the other objectives – on lending and the pace of economic recovery, competitiveness, and risks to the Government’s fiscal position – in its analysis?”

We would suggest that if the commission were to start from an ultimate aim (such as the population’s well-being) and were also to take a Complexity approach, the question of “weights” would no longer be relevant. Notably, if the analysis (and modelling) were based on a Complexity approach, the conceptual framework would be built from an assessment of the real world (rather than questionable abstractions); and any “weights” would be implied in the model (whether explicit or cognitive).

Weights are only really relevant in analyses conducted in a compartmentalised, or “reductionist” manner. An approach based on Complexity theory is holistic, and helps to mitigate the problems arising from a modular analysis of the real world (which is also likely to lead to regulatory errors). Note, however, that those familiar with Complexity theory would stress that society is inherently *intractable* and that Complexity theory does not “overcome” this issue. It merely offers an approach to whole systems that is “less-inaccurate” than non-Complex approaches.

Given that economic recovery is mentioned in the question, it might be relevant to highlight here how a Complexity approach would frame the issue of banking and economic downturns.

Fundamentally, we can think of a recession as a collective action problem: it is a man-made (not a natural) phenomenon, which collective we might be able to co-ordinate our way out of. Ignoring any policy responses for the moment, from a private bank perspective, it makes sense to develop and gauge one’s expectations of the future from others. In the midst of a downturn, banks find themselves in a situation that is analogous to the prisoner’s dilemma, and which also frames their rational strategy. If a bank sees other banks reluctant to lend, they will view the future as both uncertain and “probably bleak”, which will lead them to be reluctant to lend. Other banks will see this, so they will be reluctant to lend too. This pessimistic expectation is time-consistent: it brings about its own future.

Macroeconomists understand the idea of multiple plausible equilibria, and this gets us closer to understanding the problem. However, the key difference between the approach built in to the neo-Classical synthesis and Complexity theory is an appreciation that *the future is created in the present*. There is no future to which we are naturally gravitating (nor is one determinable today), including one featuring full-employment. In the case of banking, if banks are reluctance to lend, the future is likely to remain bleak.

This naturally brings us to the question of policy – is it possible to co-ordinate our way out of a recession? We can think of conventional monetary and fiscal policies as attempts to create this sort of co-ordination – a way of “solving” a collective action problem. A discussion of the implications of Complexity theory for Keynesianism is beyond the scope of this submission.

As a final note, the discussion above was based around rational decision-making. We ignored important issues such as limited cognition, and behavioural drivers of decision-making, which ought to be built in to a cohesive approach.

Question 2.1

“Are there other broad options for reform that should be added to this framework? For example, should any of the “other reform initiatives” listed in Paragraph 4.33 be matters on which the Commission should seek to make recommendations?”

We would argue that the list referred to in the question excludes the option that we believe could emerge out of a Complexity-based analysis. Importantly, however, there is a great deal of work required in this area (both empirical and theoretical) before anything definitive can be concluded. In this section we develop a tentative hypothesis, which we would like to test, involving devolution in the banking system.

As mentioned above, and depending on funding, we are hoping to develop our approach in a project we expect to run between December 2010 and May 2011. This will only scratch the surface of what is required in terms of deep empirical and theoretical work, although it is worth noting that there has been some related work in this field, including research at the Bank of England led by Andrew Haldane².

In what follows, we will first identify four principles upon which our hypothesis is based. Second, we make the case for a decentralised banking system, which extends from these four principles. Third, we discuss the implications for existing centralised banking functions, which would have to adapt. And, finally, we will argue that under such a system there will be much less of a need for financial regulation.

Our approach is founded on four related, broad principles, all of which derive from thinking about the economic and financial system as a complex system, as defined above.

First, *society is idiosyncratic* – every person and every community is different. Clearly, there are commonalities between people and communities but we note something that is often lost in macroeconomic analysis - that differences matter.

Second, *society is in a constant state of flux* – there are no universal principles that hold over time (as mentioned above, we must frame society as *non-ergodic*). And, arguably, our globalised world is now changing more rapidly - and in a different way - than it has done previously.

Third, when compared with the dynamism of a heterogeneous social system, *human cognition looks remarkably limited*. In addition, but related to this, our brains are subject to behavioural characteristics that seem to offend the rational agent assumption. Or, put another way, the rational agent assumption is wrong.

Fourth, *well-being is much more than about material welfare*. For the sake of clarity, we will assume that the economic system ought to be concerned with the “triple bottom line”, which also includes environmental concerns and the consideration of the workforce i.e. human dignity, and not only the single (financial) bottom line.

Many economists clearly already appreciate these points. But we would suggest that conventional approaches, involving the “modular” nature of economics, are insufficient. We are also arguing that Complexity theory allows for a more cohesive framework that

² See, for example, Haldane’s speech “[Rethinking the Financial Network](#)” given in April 2009.

can draw from the strengths of multiple sub-disciplines, not only within economics but in other parts of the human sciences too.

These broad principles lead us to offer a hypothesis, that decision-making within the banking system ought to be decentralised³. Today, the financial system, including the banking sector, is governed and managed by people that are some distance from the real economy – geographically and organisationally. This type of economic management creates a heavy “cognitive load” on senior manager, which far exceeds anybody’s capacity to handle it effectively. Put another way, the complexity, idiosyncrasies and dynamism of human society far outweigh the capacity of the human brain to understand it at a “macro” level, and therefore to make appropriate decisions from that perspective.

In addition to this institutional emphasis, it is important to consider the implications of speculation in wholesale financial markets for capital allocation decisions. We would argue that a “speculative class” emerged as the financial system became more centralised over time, and that decisions made in these markets also suffer from the problem of “cognitive load”. Within this we include investment decisions made on the basis of computers (so-called “algorithmic trading”). Such decision-making processes affect the real economy. We would hope to consider the issue of speculation, and the emergence of asset prices, in more detail in the project we expect to lead.

A decentralised banking system, in which capital is managed much more locally, would involve banking activities being, in effect, by and for the people. Such a system would be much more sensitive to the idiosyncratic needs of people, and much more responsive to any changes in those needs. In such a devolved system, the cognitive load on decision-makers would be much less than in the current financial system. In addition, because more capital would be managed at the local level, there will be much less available for “speculation”.

Such a localised based banking system would also focus on the holistic requirements of communities – not only material welfare and the single, financial bottom line. Employees, customers, and the local environment would be considered alongside financial concerns.

An important question is whether the private sector is already providing such a community-based banking system? Retail banks might argue they are. However, we believe that today’s private and centralised banking system is very different to this vision of one based around communities.

Considering our triple bottom line approach, one answer to this question is obvious and well rehearsed: private exchange does not account for non-owned & unprotected parts of our lives, including the natural environment. Decisions made by today’s banking sector may not be in the interests of the natural environment.

A second answer is about the state of management science and insufficiency of our governance and management of large, complex organisations, including banks. The orthodox literature in the management sciences tends to treat organisations as machines rather than communities of people. Many management scientists appear to have made framing errors equivalent to conventional approaches in economics. As a result, organisations can be managed as if they were machines, which can lead to people

³ The four principles above of course do not relate only to the financial system – they also underpin the rationale for a political system based on subsidiarity, which appears to be on the government’s agenda (“the Big Society”).

being treated as cogs, possibly undermining their dignity. We ought to think of banks as more like patterns of human relationships than industrial manufacturing plants⁴.

Furthermore, large, complex organisations tend to offer “one size fits all”-type products that fail to take in to account idiosyncratic preferences. This lack of sensitivity to local differences can create real inefficiencies within the capital allocation process because some viable investment projects might not get funded. In addition, machine-like systems tend to be resistant to change and, as society evolves, the tension between products offered and products required becomes wider. They are not very resilient.

We should note that these comments only scratch the surface of the challenge in the management sciences. There is an argument that a more devolved, and community-focused banking system might be achievable within today’s large national and international banks. We hope to explore this issue in more detail in our project.

The third part of our analysis under this question simply emphasises the view that if the British banking system were re-calibrated, the rest of the banking system would have to adapt, in part to service their needs. This includes the centralised parts of the financial system, for example the money and capital markets, and investment banks.

Importantly, the hypothesis presented here does not involve the financial system being fully devolved and capital “internalised” in local communities. The concept of *subsidiarity* implies the need for “higher” co-ordinating functions to complement the “local”. For example, processes are required to transfer financial capital from people and communities with excess savings, to those with deficits. More generally, there is likely to be a range of functions required from specialised institutions, including what we now call investment banks.

Note that here we refer to those coordinating functions serving what is conventionally referred to as the “retail banking system”. While they are related, we would distinguish between these functions and Britain’s *international banking industry*. This is an important part of our analysis because we would argue there are functions that an international financial centre provides that are essential to the global economy e.g. foreign exchange markets, insurance, and capital markets. While the financial crisis has tarnished the brand of the City of London, many aspects of it would remain in the vision being hypothesised here because they can add value to society (British and global). More colloquially, when considering the regulatory response to the financial crisis, we must not “throw the baby out with the bath water”.

The fourth part of our analysis considers the implications for financial regulation of our devolved banking system. We would argue that the two orthodox rationales for financial regulation (consumer protection and financial stability) would be handled well and internally within such a system. In simple terms, if a bank were run by and for the local community, it would be much less susceptible to fraud. Such behaviour is a risk under any system but we believe it would be less of a problem if banking were localised. Furthermore, there is an argument that a devolved banking system is more resilient, including with regard to financial crises (e.g. most banks could be under some threshold of “too big to fail”). This latter point would have to be considered much more rigorously,

⁴ As with Complexity Economics (cf Paul Ormerod, Eric Beinhocker, and Brian Arthur), there is a group within the management science field that has incorporated a Complexity-based approach in to their thinking. Names include Ralph Stacey and Eve Mitleton-Kelly. Their approach to organisational governance is radically different to orthodox approaches, and sits much more comfortably with the reality of governance and management.

which we would hope to do in our project work (e.g. developing Agent Based Models that are based on the real world).

Question 2.2

“Which (if any) of the reform options identified in the above framework most deserve further development, specification and analysis?”

As should be clear from the above discussions, we believe the Commission ought to include Complexity and Network-based thinking in to how it is approaching the banking system. The types of regulatory models being considered by the Commission appear to implicitly frame large, complex organisations as submissive machines. Within that type of framing, regulation that is enforced by a regulatory authority would be imposed on that machine, which would be compliant and not adapt in a way that might nullify the regulation. As noted above, regulated institutions and regulators are in a continuous dance of co-evolution. We would ask the Commission whether the appropriate response to the problems of a centralised banking system is centralised regulation, or whether it is to decentralise.

We would encourage the Commission to focus its efforts on framing its “problem terrain” through the lens of Network and Complexity theory, and equivalent modelling techniques such as Agent Based Modelling. As mentioned above, we hope to lead a project that would look at work already done in this field, and to test the hypothesis outlined above.

Questions 3.1 – 3.4

“In the context of the other regulatory reform initiatives that are currently under way (for example, on capital and liquidity requirements), what would be the likely impact of the options referred to in the framework above (including any unintended consequences)?”

Our understanding of the new Basel requirements lead us to believe these proposed new regulations are based on a framing of the financial system that does not take in to account the banking system as an evolving network. In our future work we would like to test the implications of a Complexity-based approach for the structure and capitalisation of the financial system, including (for example) whether any capital ratios should take account of inter-connections.

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Annex 1 – Biography & Contact Details

Greg Fisher (greg.fisher@respublica.org.uk) is the Chief Economist of ResPublica. After growing up in the West Midlands, he studied Economics & Politics at St John's College, University of Cambridge. Greg joined the Bank of England as a graduate entrant in 1995 and subsequently worked in a spectrum of roles that mixed economics and finance. Between 2004 and 2008, Greg worked for a hedge fund as a global macroeconomic strategist. Before joining ResPublica in August 2010, he spent two years researching the new science of complex systems, and how it relates to economics and finance. Greg is a Senior Research Associate of the London School of Economics' Complexity Group. His interests extend beyond pure economics, and include human psychology, neuroscience and cognitive science, and how these relate to our understanding of society.