

DINNER/DISCUSSION SUMMARY

Reducing the risk of a systemic failure of the banking system

Held at The Royal Society on 25th April, 2012

The Foundation is grateful for the support for this meeting from
Financial Services Knowledge Transfer Network.

Chair: **The Earl of Selborne GBE FRS**
Chairman, The Foundation for Science and Technology

Speakers: **Professor John Kay FBA FRSE**
Author and Columnist for The Financial Times
Andy Haldane
Executive Director, Financial Stability, Bank of England
Sir Martin Jacomb
Former Deputy Chairman, Barclays and
Former Non-Executive Director, Bank of England

Panellist: **The Lord May of Oxford OM AC Kt FRS FMedSci**
The Department of Zoology, Oxford University

PROFESSOR KAY began by showing a long quotation from a speech in 2006 by Timothy Geitner, later Secretary to the US Treasury, in which it was claimed that the new developments in the financial system had "contributed to a substantial improvement in the financial strength of the core financial intermediaries and in the overall flexibility and resilience of the financial system". Professor Kay had two questions: how did he get it so wrong and why then was he promoted to one of the highest positions in the financial world?

He then discussed why people traded risks: some people were better placed to bear risks; initial exposures differed; people had different risk preferences; and people made different assessments of the same risks. The first three of these were advantageous to the system, but the last tended towards a gambling culture, which was severely detrimental to stability.

He quoted an engineer, Charles Perrow, who had written in *Normal Accidents*¹ that accidents were often the result of unanticipated multiple failures in a complex system, generated by extreme complexity and tight coupling, and that additional safety regimes which added to the complexity might increase the probability of system failure.

Similar principles applied to finance; one needed loose coupling and modularity, and the world-wide financial system (in the West) had become too inter-related and too complex. Mr Geitner had seen that the system made for apparently greater security for individual institutions, but had not seen that the system overall had become much more risky.

MR HALDANE started by showing a graph of the proceeds of a "hedged bet", of £100 in each direction, made in 1900, long in bank shares and short in shares of everything else. The bet had broken even up to about 1960, with small profits on the banking side up to about 1990. But from then on it had soared to a value of about £11,000 in 2007, and had then collapsed substantially to £1,000 at the end of the decade.

He then showed that the cost of the crisis, if one assumed that the pre-crisis trend of GDP of about 2% a year had continued, the economic loss in the UK from 2008 to 2012 was about £540bn, or 37% of pre-crisis GDP, and that even if growth at 2% was resumed, the cumulative loss from 2012 to 2017 would be about one full year's GDP. This crisis looked as if it would be worse than the economic depression of the 1930s, worse than the effect of the Second World War, but not quite as bad as that of the First World War.

There needed to be changes in the intellectual approach to financial risk, from an assumption of Gaussian (Normal) statistical distributions to the more extreme Pareto ones; from random walks (assuming

¹ Normal Accidents: Living with High-Risk Technologies, 1999, Princeton University, Princeton, 1 to 443

normal Brownian motion) to Lévy processes (which allowed much bigger jumps); from "fat cats" to "fat tails"; from the representative agent to heterogeneous agents; from idiosyncratic risk to systemic risk; from risk to uncertainty; from diversification to diversity; and from one equilibrium to multiple equilibria.

There were many analogies with ecological and other systems as the paper by Haldane and May (2010)² had shown. The financial system was a web or network, as they were, and one needed to try to understand the interconnections between nodes better. Each institution knew where its assets were placed, but did not know where the counterparties had placed their assets. A failure in one place would spread throughout the system and one needed to know whether it was sufficiently damped, or whether losses were magnified.

One conclusion was that big banks needed bigger margins than smaller ones. Also that a central clearing system for complicated derivatives might help stability, and improve knowledge of how the system behaved.

He quoted Paul Volcker as saying that "the only useful piece of technological innovation in banking over the past 30 years had been the ATM". Entry to banking was difficult. There had been almost no new high-street banks in the UK for over 100 years (counting the old building societies as being a sort of bank). But in spite of all the technological innovation in computing and heavy spending by financial institutions on IT, the cost of financial intermediation had risen considerably over the last 100 years. There was still much too little information about the way the whole system was inter-related.

SIR MARTIN JACOMB took rather a different view. He said one was not starting with a clean sheet of paper, and also one needed to allow for the political imperatives. Personal depositors were protected; they had votes. It was not easy for separate nations to work together. In traditional banking one took in deposits, and made loans; loans were risky and some would default, so one needed reserves. But if one required banks to increase their reserve ratios, they could only lend less. To get more capital in, they needed more profit. So solutions for protecting the system from failure were not easy.

² Andrew G. Haldane and Robert M. May
Nature 469, pages 351 to 355 (20 January 2011)
www.nature.com/nature/journal/v469/n7330/full/nature09659.html

The scale of inter-bank lending had increased enormously, and this had indeed led to a much greater risk of a default spreading. Governments had had to step in; but poorly drafted regulation could do more harm than good.

There was a tendency among fund managers to stress short-term gains in share prices over long-term profitability. The speculative possibilities in derivative and similar markets had led to moral hazard because of the huge profits that apparently could be earned. So higher risks were taken than a prudent banker would like to see.

It was not clear that breaking banks up would help. Many customers liked their bank to cover all aspects of their needs, including for example foreign exchange, loans, new issues, etc. The banks that had got into difficulties in Britain - Northern Rock, Bradford & Bingley, HBOS, etc. - were not at all "universal banks". It was really not possible to make all banking safe. Perhaps depositors just needed to accept that fact.

In the following discussion a number of diverse points were raised. It was asked whether anyone before 2007 had foreseen what would happen. The replies were that no one had done so in detail, but that many had forecast that the huge securitisation of risk would end in tears. There had been earlier studies criticising the use of very complex instruments. Nominal bank assets and liabilities had risen enormously, driven by inter-bank lending, and this had seemed a source of instability.

It was observed that data for the graph of a network of sexual contact shown by Mr Haldane had been very difficult to obtain until there was a crisis over HIV and AIDS. Perhaps the same might apply here. The banking crisis would lead to better data transparency across the financial sector. The London insurance market had got into trouble in the 1990s because insurers had not realised that the same risks were traded round in spirals, but better information here had helped to show the aggregated risk exposures.

There was disagreement about splitting banks up into retailing and investment banking, but on balance more speakers thought that a split between basic retail banking and more speculative activities was desirable.

There were difficulties in modelling. One needed to allow more for uncertainty as well as for measurable risk. It was also difficult to model behavioural systems. And more realistic models might well be more complicated too, which was not necessarily desirable.

It had been pointed out by Adam Smith that there could be a conflict between the interests of managers

and of owners, and current market structures had possibly exacerbated these conflicts. But it was also observed that UK banks were so highly geared that lenders and depositors were taking a great deal of the risk, and perhaps needed more say in the running of the banks.

One speaker observed that the financial markets in London were very big contributors to the UK national income, and that should not be ignored. Another observed that hedge funds, much criticised, had not seemed to contribute at all to the current crisis, and yet another that the insurance market had not done so either, and its modelling of the material world had been quite good.

Overall, it was not obvious how a solution to what was acknowledged to be a major problem was likely to be resolved.

Professor David Wilkie CBE

Useful web links:

Arts and Humanities Research Council
www.ahrc.ac.uk

Bank of England
www.bankofengland.co.uk

BBC Today Lecture by Sir Mervyn King, Governor of the Bank of England
http://news.bbc.co.uk/today/hi/today/newsid_9718000/9718062.stm

Biotechnology and Biological Sciences Research Council
www.bbsrc.ac.uk

The Department of Zoology, University of Oxford
www.zoo.ox.ac.uk

Economic and Social Research Council
www.esrc.ac.uk
Engineering and Physical Sciences Research Council
www.epsrc.ac.uk

Financial Services Knowledge Transfer Network
www.innovateuk.org/financialservicesktn

The Financial Times
www.ft.com

The Foundation for Science and Technology
www.foundation.org.uk

Lighthill Risk Network
www.lighthillrisknetwork.org

Medical Research Council
www.mrc.ac.uk

Natural Environment Research Council
www.nerc.ac.uk
The Royal Society
www.royalsociety.org

Science and Technology Facilities Council
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