Editors’ Introduction for Economy and Society special issue on Knowledge Limits

**An important failure: knowledge limits and the financial crisis**

*In Breughel’s Icarus, for instance: how everything turns away*

*Quite leisurely from the disaster; the ploughman may*

*Have heard the splash, the forsaken cry,*

*But for him it was not an important failure…*

W. H. Auden, *Musee des Beaux Arts*

Academic journal special issues and books about the financial crisis have been of variable quality and often ephemeral significance and the results so far include crisis fatigue and finance overload amongst editors and readers. Whether through a rush to judgment or blame, or because of an effort to avoid being “mugged by reality”, the prodigious output has often been narrowly focused conceptually or empirically—as if crisis did little to disturb conventional habits of thought. At first sight, the crisis should have been a huge opportunity for those from sociology and science and technology studies who had recently created a new specialist field of social studies of finance. But other social scientists are unlikely to be convinced by the accumulation of more constructionist case studies of financial markets and may become indifferent or hostile just as the last generation of social scientists became averse to ever more labour process case studies of car assembly plants.

The academic response to crisis has been overwhelmingly conservative because familiar old problematics are the lens through which unexpected new events are being understood. Many academic discourses, which had never coupled finance and crisis before 2007-8, now have thought leaders who explain and illustrate how their form of analysis can help us understand what happened; so it is with, for example, the governmentality approach to finance where Paul Langley (2002, 2008) has turned from celebrating everyday subjectivity to explaining the crisis that broke as his book went to press. For others, the crisis is an opportunity for settling old scores with opponents and establishing that they were right all along: so it is with the mildly heterodox economists like Joseph Stiglitz and Paul Krugman or behavioural finance academics like Robert Shiller who are the internal opposition to US mainstream economics and finance; and so it is also with the many varieties of Keynesians and Minskians in Europe and elsewhere who would agree with the sentiment of Robert Skidelsky’s (2009) title about “ the return of the master” previously disrespected by shallow followers of intellectual fashion. These corpuses of work, from Langley to Skidelsky, are very different but alike in one respect in that they are all primarily directed towards a sub group of academics who already agree with the presuppositions of the author, Thus, in a world where social scientific knowledge is balkanized, we will shortly reach the point where each academic affinity group will have translated financial crisis into its own language and explained it to its own satisfaction.

Meanwhile, of course, most academics are not paid to be public intellectuals and their main business is making their way as individuals by publishing within disciplinary parameters So that it is not surprising that the crisis barely registers for most of those researching and teaching in academic finance and mainstream economics. Another consequence is that the academic debates about policy reform in and around the main stream invariably conjecture on strategies for “going back”: and finding the errors and omissions that led to the period of crisis and eradicating them such that core analytical agendas might resume their normal path. Think here, for example, of the work of Bebchuk et al (2010) on how pay incentives encouraged risk taking or Ferguson’s ( 2010 ) argument about how transactional banking replaced relational banking. Crisis as emergency event urges a response that can be immediately and feasibly implemented, thereby naturalizing the limits of the possible and enacting a return to prelapsarian normalcy. As argued in CRESC’s (2009) *Alternative Report on Banking Reform*, new knowledges have longer gestation periods so, in the midst of crisis, the policy advantage always lies with those who carry on with existing knowledge, albeit knowledge which was implicated in the crisis itself. One way or another, as in Auden’s poem where the ploughman is not disturbed by Icarus falling from the sky, for most academics the financial crisis is “not an important failure” because they have either ignored crisis or responded by carrying on with their ordinary business.

Hence, the intellectual response to the financial crisis has so far been led not by academics but by a diverse group of practitioners including regulators, central bankers and journalists. The best accessible account of the crisis (for students or intelligent general readers) remains the Turner Review which was drafted by Adair Turner (2009) whose formation was as a McKinsey consultant. The most serious rethinking of position after the crisis comes from Andrew Haldane (2009), financial stability director and a lifetime employee of the Bank of England. Rather like a Victorian losing faith in the Almighty, Haldane now rejects an economics with physics based models of markets and proposes instead more ecological and epidemiological biology based understandings of finance. Others like Alan Greenspan admit a flaw in their model of how the world works but are more reluctant to question the dominant paradigms. Nevertheless, practitioners are generally more ready to change position (if not underlying perspective) after the crisis; thus the chorus of criticism of the market quants and academic mathematization of finance is led by Pablo Triana an ex banker who had before the crisis (Triana, 2006) published a completely orthodox guide to derivatives. Meanwhile, on the airport book stand, demand is met at the level at which it is effective with business best sellers by ex bankers and working journalists with melodramatic titles like *The Big Short* (Lewis, 2010) *Trillion Dollar Melt Down* (Morris 2008) or *Too Big To Fail* (Sorkin, 2009). The greatest personal success has been enjoyed by practitioners with an intellectual line, like Nicholas Nassim Taleb (2007) or Gillian Tett who covered several bases by writing both a business best seller book (Tett, 2009) and a more serious anthropological account of the preconditions of crisis as “ silos and silences” (Tett, 2010)

If the policy intelligentsia and the commentariat are already writing fluently and flexibly about the preconditions and outcomes of crisis, how can academics edit themselves back into the script? We could ask what knowledges and politics get sidelined in the process and whether academics might rise to this occasion to be not only relevant but influential (critically at least). For academics to develop new positions involves challenging the categories within which finance has been conventionally understood: to question where there were momentums within financial markets which were not understood because they were not probed. As Adorno puts it in his famous work *Negative Dialectics* “objects do not go into their concepts without leaving a remainder” (1966, p. 5). How we discern this ‘remainder’ and find within it means to reveal momentums within financial markets remains a primary objective. But, given the conservatism of the academic response so far, it would be unwise to expect too much too quickly from academics because fundamental reflection from academics threatens to disrupt existing status hierarchies and write off intellectual capital. In that case, we could ask more modestly: how can academics edit themselves back into the script about crisis by developing (rather than renouncing or reasserting previously held) positions? There are then a variety of possible critical academic strategies which include questioning the notion of crisis used so widely and uncritically after recent events or questioning the heroic ideas about knowledge widely held by social scientists before the crisis.

The editors considered the potential of both these agendas before choosing the second. If crisis is in many ways a convenient reusable label, in common sense terms it denotes an emergency event and, in medical or political usage, crisis denotes a contained episode where fever or such like is followed by resolution. This hardly fits the pattern of post 2007 events when illiquidity and solvency problems initially move like a bubble in an economic bottle and afterwards developed in a political process of compounding. After Lehman’s collapse, the so called “credit crunch” turned into a threatened banking system breakdown in autumn 2008. The costs of bail out were so high that the outcome was fiscal crisis in many states which then morphed into a European sovereign debt crisis. Pre-emptive public expenditure cuts and austerity did not prevent the need for government bail outs in Greece and Ireland (with no doubt more to come). Each stage in this process has challenged conventional understandings and it is increasingly unsatisfactory to focus economistically on banks and financial markets when we now face the political challenge of intensifying distributive conflict within and between nations. This opens up exciting new intellectual agendas which bring back politics but the distributive struggle is in its early stages and will make a great special issue only in a couple of years’ time.

Another possible agenda concerns knowledge limits in and after the financial crisis. This has the virtue that it already has a public interest profile and connects with issues of enduring interest to a broad group of social scientists The issue of knowledge limits has figured in media and academic debate about the financial crisis since Queen Elizabeth at the LSE asked “Why did nobody see it coming”. But, more important, the question of knowledge limits (aka knowledge failure and knowledge shifts) is of interest to social scientists before and after the crisis because so many of them had in different ways made so much of knowledge in the few years before 2007 (when they did not see it coming) We can take the first step in justifying this agenda by counting the ways in which academics made so much of knowledge.

The big picture is that the decline of 1990s style grand narratives and confident meta theory opened the way for a preoccupation with knowledge(s) in the 2000s. Consider, for example, the shift in the changing preoccupations of British geographers: in 1994 Ash Amin published a reader on Post Fordism where capitalism was a kind of theoretical cartoon; whereas a decade later Thrift (2005) was collecting his own essays in cultural history under the title of “knowing capitalism”. If Tony Giddens and others had floated ideas about reflexivity, these were now incorporated into a redefinition of capitalism which used such ideas to define the knowledge based distinctiveness, mobility and complexity of present day capitalism. Thus Thrift now emphasised “ the cultural circuit of capitalism” or the knowledges of business schools, consultants, gurus and the media as “perhaps the chief creation of the capitalism of the post 1960s period”.

Ideas about a knowledge based economy and knowledge workers can of course be traced back to J.K. Galbraith, Fritz Machlup and Peter Drucker’s work in the 1960s, and that of Alain Touraine and Daniel Bell in the seventies. In the 2000s, partly through the work of Manuel Castells on “information society,” they became the basis for a renewed epochalism amongst social scientists and others like OECD statisticians concerned with empirically measuring greater dependence on knowledge. The “new classes” were no longer defined by their relation to corporations and bureacracies but by their role in knowledge production; hence Robert Reich (1992) wrote of the symbolic analysts” and Richard Florida (2002) about “the rise of the creative clasess“ This went along with historical revisionism like Joel Mokyr’s (2001) book on the “historical origins of the knowledge economy” where the industrial revolution is reworked as a knowledge revolution.

Many other social scientists preferred not to generalise about abstractions like capitalism or the social but, in their different way, they were just as taken with knowledge. The sociologists and anthropologists influenced by science and technology studies (STS) took a kind of descriptive turn and then through case study discovered a world made up of expertise. In a free form way this position was developed in Mitchell’s reinterpretation of the British imperial project as “rule of experts” which gave a leading role to what a 1970s Althusserian would have disparaged as technical practice. Foucauldian ideas about capillary power were developed by Miller and Rose (1990) into a new concern with liberal governmentality and the production of self governing capabilities which then opened up all kinds of new possibilities of history of technologies and subjectivities.

More generally influential was the concept of performativity (and corollary ideas about counter performativity) as developed by the science and technology studies historian Donald MacKenzie who wrote about how formal economic knowledges like the Black Scholes algebra formatted the markets so that knowledge was “an engine not a camera” (MacKenzie, 2006). By the later 2000s, performativity, long the province of linguists and humanists with memories of dead philosophers, was everywhere the new, new thing in social science as part of a descriptive turn which privileged extensive micro case studies which conceivably served to make performativity analysis itself performative.

It would be possible to bracket all these developments, from Thrift to MacKenzie, as a kind of hagiography of knowledge. This is developed in different ways within diverse problematics which are unified insofar as they always default onto representing knowledges as the initiator or prime mover of social processes. This is classically so with notions of performativity where knowledges both format social processes and undermine their validity. But the differences between the various positions are important in several ways, not least because these differences raise a whole series of so far unresolved issues about the role and status of knowledges.

To take just two issues:

What kinds of knowledge matter and how? The science and technology studies preoccupation with formal knowledges led to an implicit history of the rise of finance as the mathematization of the world which then becomes the episteme of our time. But Thrift could admit business school rhetorics and consultancy nonsenses like shareholder value as prime movers of the modern world. (How) could both be right?

Should experts be granted a new and higher status? Within a “two cultures” frame (Snow, 1959) the idea of the expert or technocrat has carried negative and pejorative overtones because such figures could not participate fully in politics or cultural life. In the new descriptions, the expert became a much more heroic figure and expertise was what substituted for charsisma and ideological vision in remaking the world.

The differences also mattered because they opened onto a space of academic critique and polemic, represented in this journal in the debate between Danny Miller (2002) and Michel Callon (2005). After they discovered the construction of the strawberry market at Sologne, the preoccupation of Callon and others with markets and market devices has made many of us, quite apart from Miller, thoroughly queasy. Why should mainstream micro economics about markets have a privileged efficacy denied to other forms of knowledge? Why the indifference to Keynes’ argument that the neoclassicals fatally could not think “roundabout repercussions.” The question here is not about the fruitfulness of Actor Network Theory but about whether one group of ANT theorists have been captured by a sub set of (Chicago) economists much as old fashioned Oxford historians used to get captured by their sources. This in turn raises awkward questions about whether many knowledge-centred views have a politically naïve and uncritical relation to the Thatcher and Reagan projects and what came afterwards. Thatcher’s political initiatives were anti democratic in that they “depoliticised” activities and resources, like the utility industries, partly by putting things on the market and partly by using expert regulation to simulate competition. And incidentally, in financial regulation and central banking, created a new kind of politicised technocrat whose involvement in the pre 2007 failure of public regulation of finance goes unnoticed by most of those who celebrate devices and expertise; just as they ignore Bezzemer’s (2009)arguments about how and why the post Keynesians and Minskians were prescient about the bubble..

As political economists, the editors of this special issue have their own views on such issues but we would not wish to press them too far. Our internal social science debates about other people’s errors and mistakes have been partly rendered obsolete by a crisis which has highlighted the danger of hypocritical fault finding and raised a general problem which all groups should face. After a decade when academics of all persuasions had been celebrating the capillary or micro power of knowledges, present day capitalism demonstrated the tsunami destructiveness of financial instability in which events outran knowledge and imagination. As Bernanke is reported to have said after Lehman’s collapse, the risk was that, without immediate, extreme intervention “there will be no economy on Monday” (Duke, 2009). Yet the result was extreme intervention to save banks and unfreeze markets without any clear knowledge base and with inevitable massive unintended consequences.

Those longer-run consequences have been profound. Most conspicuously, the privatisation of gains by workforce and shareholders in the upswing was followed by the socialisation of losses after the crisis at the expense of taxpayers and service consumers. The political arithmetic on these points is quite striking Immediately after the bail outs in 2009, the focus was on calculating the costs of bail out (eg Horton 2009) and putting these direct costs into perspective. The Alternative Report (2009) demonstrated that, in the UK case, the direct costs of bailing out the financial sector were substantially greater than the taxes paid by the financial sector in the five years before the crisis. By 2010, in the middle of a finance led recession, it was clear that the value of the output lost through recession was much greater than the direct costs of bail out costs beause the lost output amounted to some 10% of world GDP. On Haldane’s (2010) calculation, depending on the proportion of the output loss which was permanent, the output cost of the crisis was between $60 and 200 trillion dollars for the world economy which is between one and five times the value of annual world GDP. The figures illustrate that capitalism is disorganized and pathological in a much more fundamental way than Lash and Urry (1987) proposed a generation earlier. Under the rubric of “post modernism” Lash and Urry had envisaged a knowable quasi epochal form of disorganization whose key trends and semi permanent characteristics were obtained by denying and inverting the imagined principles of an earlier Fordist order. The crisis raised altogether more disturbing questions about whether disorderly capitalism might not always be the same but subject to (violently) changing conjunctural logics (see Erturk, Froud, Johal, Leaver & Williams, 2008) and whether the limits of knowledge were being set by a dated social scientific imaginary which had confused momentary plausibility with performativity..

The historic paradoxes do matter and we need to remember the world before 2008 with so many knowledges and so little sensible prescience of coming disasters. But, looking forward from 2010, we whould be equally concerned about that other paradox about so much destruction of intellectual capital and so little effective e reform. Prior to the dramatic events of 2007-8, practitioners, regulators and their academic fellow travellers in mainstream economics and finance all bought into the undermining of restrictive public regulation of banking and finance; their collective assumption that the markets knew best sanctioned a latticework of interconnections whose accumulating fragility was not captured by enterprise level probabilistic measures of risk or challenged by light touch regulation. All the subsequent options of denial or remorse about knowledge failure and the possibilities of knowledge repair have since been explored by defensive bankers, self critical technocrats and behind the curve social scientists; but there is no intellectual consensus on a reform programme or political willingness to press reform aggressively. The reasons for frustration differ country by country as, for example between the US and the UK where in the American case the executive blocks the legislature and in the British case the executive does not know what to do except pursue the purification of competition as the antidote to contaminated competition. The most likely outcome of the deliberations of the banking commission in the UK is an irrelevant reform which delivers more competition on the high street through the break up of the branch networks of the two nationalised banks (Lloyds and RBS).

As Eric Helleiner ( 2010) has reminded us, after considering the long gestation of the Bretton Woods reforms, a legitimacy crisis is usually followed by a significant interregnum which, if conditions are right, may after a delay lead to a subsequent phase of constructive reform. Given the way in which financial reform has stalled in all major jurisdictions, we are likely to have a long wait for constructive reform. Meanwhile, as this brief overview has argued, the question of knowledge limits is intellectually important and practically relevant even if most of the established disciplines are, like Breughel’s ploughman, sure to turn away. If we then consider how knowledge limits can be addressed, this special issue has been prepared on the assumption that our collective failures in the social sciences are not best redressed by some dramatic paradigm change which would initially espoused by a minority school of true believers. The editors of this special issue firmly believe that knowledge limits are best approached in a different more plural and gradualist way within a variety of different established problematics. Hence, the idea of this special issue which brings together a team of distinguished contributors to consider knowledge limits from a variety of points of view

The first two papers deal with increasingly irrelevant knowledges and their social constituencies: Philip Mirowski explains how main steam economics has survived the crisis with core assumptions unchallenged; Randy Martin addresses the paradox of the decline of the professional managerial class in a so called knowledge society,.The second couple of papers directly tackle the limits of public and private knowledge. Nicholas Dorn analyses how public regulatory knowledge is undermined by information overload while Donald MacKenzie exposes the limited market knowledge which underpinned the activity of the designers and traders of financial products. The two last papers are more radical in that both frontally confront expert knowledge as the illusion of the epoch: Melinda Cooper challenges the engagement of expert knowledge in the evolution of everyday financial relations while Engelen and the CRESC team examine the role of a politicised technocracy in the failure of public regulation before 2007.

It is easy to talk of the destruction of intellectual capital after the crisis; but, under the mark to discipline conventions of valuation that apply in academe, such impairment is often not recognised by those using the apparatus. So it is in Philip Mirowski’s paper which explains how the dominance of neo-classical and neoliberal economic doctrines has been preserved and reinforced despite the patent challenges of the financial crisis. Mainstream economics has learnt little and forgotten nothing insofar as the efficient markets hypothesis and the DSGE macro models have been questioned but the core assumptions of rationality and efficiency have been protected from criticism. The internal opposition to main stream economics in the United States comes from behavioural finance economists like Akerlof and Shiller or left liberals like Krugman and Stiglitz. These dissenters reinforce the hegemony of the orthodoxy if, as Mirowski argues, they both criticise the conventional wisdom and advocate policies to make reality comply with the core theoretical categories. Mirowski (2002) is best known for his history of the imaginary of main stream economics in books like *Machine Dreams* and his contribution to this special issue updates that history.

Knowledges have their social constituencies and, in his contribution to this issue, Randy Martin analyses one such constituency in fluent post Marxist terms. The “professional managerial class” includes both executives in financial services and professors in academe engaged in knowledge formulation, instruction and application The paradox for Martin is is that their specialized knowledge does not reign in the world of the “ knowledge society” because the autonomy and mastery of the professional managerial class is diminished. Their numbers may continue to increase but they no longer have autonomy to govern a specialized domain of expertise by virtue of formal credentials. Caught between a proliferating managerialism in which all are invited to be experts, and masters demanding productivity indifferent to its sources, professionals have found themselves facing certain features of proletarianization—a shift from craft to industrial principles of production, and from autonomy to protocols of  measurable performance. The importance of Martin’s argument is that it opens a different perspective where crisis is not a momentary break down in the normal state of affairs because knowledge never ruled.

Donald MacKenzie and Nicholas Dorn’s papers explain how and why knowledge does not rule by addressing the issues of too little and too much knowledge in the private and public spheres where the issue in both cases turns out to be the value which we attach to transparency and accountability. Unlike most of those who write about risk in financial markets, Nicholas Dorn has a background in criminology, a grasp of legal reasoning and a broad range of interests in regulation for safety and security. In Dorn’s account, those who regulate finance are swamped in detail and undone by knowledge complexification. The information from financial markets and institutions is complex knowledge which cannot be interpreted without access to the confidential models and techniques of data gathering which regulators do not have because they are distant from the sites of knowledge production. The implication is that calls for increasing transparency in financial markets will make things worse, because in Dorn’s world of regulation , as in the Borges story about Funes the Memorious, complete recall is a disabling condition . The seriousness of this condition is underlined by Dorn who believes that, with regulation effectively unreformed, political reaction to the crisis is delegitimizing regulatory institutions and public knowledge.

Donald MacKenzie’s craft skills in interview based case study of financial markets are unsurpassed And in this case his skills are used to make the important point that transparency and complexity of knowledge is is an issue within financial institutions and markets themselves (as well as in the relation between financial institutions and regulators). Following up his current work on credit default swaps based on asset-backed securities (Mackenzie, 2010), Mackenzie’s contribution to this special issue focuses on the formation of a set of generalised indices ( the ABX) based on these exotic products which were in high demand immediately prior to the crisis. The ABX index rendered the sub prime crisis visible to the financial markets but, despite the existence of prices based on canonical market mechanisms, the knowledge generated was complex, contested, ambiguous and limited in ways which we struggle to understand. Mackenzie is characteristically cautious about policy implications but clearly sees that new regulatory requirements for exchange trading on open markets will not necessarily solve outstanding problems.

The contributions by Melinda Cooper and by Engelen with the CRESC team are different because they represent an altogether more radical rethinking of established presuppositions which suggests the future is politically uncertain and the past should be reworked through revisionist history. Cooper returns to the self acting subjects, like the day traders of the 1990s and the house flippers of the 2000s, who figured so prominently in culturalist accounts of the everyday life of personal finance in pursuit of rising asset values, She now criticises such accounts as monological or framed from above because they assume that promises to pay between creditors and debtors will be honoured according to the norms of professional investors. Cooper raises another possibility that the conventions of trust, obligation and faith that emlist everyday investors could come undone “ from below” from within the world of household investment. Whereas the subprime crisis of 2007 was triggered by the objective inability of borrowers to repay their loans, the long 'aftermath' of the financial crisis has seen a serious spate of deliberate, strategic defaults on the part of everyday investors.

The CRESC team offer more revisionism focused not on ordinary household resistance after the crisis but on expert elite responsibility before the crisis, They begin by surveying the post crisis literature and observing the limits of knowledge in various existing accounts of crisis which disagree about the causes of crisis but share underlying assumptions about the socio technical form of crisis as accident, conspiracy or calculative failure. The CRESC team then propose an alternative explanation which frames the crisis very differently as an elite political debacle, like the Western military adventures like Iraq or Afghanisatan,. They raise fundamental questions about the politicised role of technocrats after Thatcher and Reagan’s anti democratic revolutions. Because they highlight the hubristic detachment of political and technocratic elites who never focused on how the process of financial innovation through bricolage after the 1990s was beyond technical control or management; just as they argue that effective reform and re-regulation of finance is technically impossibile without a dramatic simplification of finance which renders it amenable to governance.

In their historical study of financial crises, Reinhart and Rogoff (2009) quite properly mock the “ this- time- is -different syndrome” and the recurrent idea that capitalist crisis cannot happen in our time because “we are smarter and have learned from past mistakes”. But, if we change the focus and look back not at the crisis but at the hagiography of knowledge in the decade before 2007, we can admit that last time it was different because of a new intellectual emphasis on socio technical materiality which was absent in previous versions of idealism and earlier theories of ideology. But, maybe not different enough. The radical papers in this issue by Cooper and the CRESC team raise new questions about the intellectual framing and the practical project which both in different ways try to take finance out of politics. More exactly, as the anthropologist Annelise Riles (2010) argues in her critique of the science studies approach to social studies of finance, the problem is that many intellectuals before 2008 defined politics too narrowly as the politics of expertise where a hidden politics presented itself as epistemological practice. After the crisis, we are beginning to (re)discover that, in Riles phrase, “ finance is an explicit politics”.

**References:**

Adorno, T.W. (1973).[*Negative Dialectics*](http://en.wikipedia.org/wiki/Negative_Dialectics). (E.B. Ashton Trans.). London: Routledge. (Original work published in 1966)

Bebchuk, L.. Cohen,A and Spamann, H. (2010) ‘The wages of failure: executive compensation at Bear Sterns and Lehman 2000-8 ‘, *Yale Journal of Regulation*, 27: 257-82.

Callon, M. (2005). ‘Why virtualism paves the way to political impotence. A reply to Daniel Miller's critique of Laws of the Markets’. *Economic Sociology*, 6(2): 3-20.

CRESC (2009). [***An Alternative Report on UK Banking Reform***](http://www.cresc.ac.uk/publications/documents/AlternativereportonbankingV2.pdf). Retrieved from: <http://www.cresc.ac.uk/>

Duke, E. A. (2009). ‘Containing the crisis and promoting economic recovery’. (Speech at the Women in Housing and Finance Annual Meeting, Washington, D.C. June 15.)Retrieved from: <http://www.federalreserve.gov/newsevents/speech/duke20090616a.htm>

Erturk, I., Froud, J. Johal S., Leaver A., & Williams K. (Eds.) (2008). *Financialization at Work: Key Texts and Commentary*. London: Routledge.

Florida, R. (2002) *The Rise of the Creative Classes*. New York: Basic Books

Ferguson, N. (2010) *High Financier: the Lives and Time of Siegmund Warburg.* London: Allen Lane

Haldane, A. (2009). ‘Rethinking the financial network”. (Presented at the Financiakl Student Association, 28 April 2009) Retrieved from:

<http://www.bankofengland.co.uk/publications/speeches/2009/speech386.pdf>

Haldane, A. (2010) ‘The $100 billion question” (Presented at the Institurte of Regulation and Risk, Hong Kong, 30 March 2010) . Retrieved from <http://www.bankofengland.co.uk/publications/speeches/2010/speech433.pdf>

Helleiner, E. (2010) ‘A Bretton Woods moment? The 2007-08 crisis and the future of global finance ‘*International Affairs* 86 (3): 619-36.

Horton, M., Kumar, M. and Mauro, P. (2009), ‘The state of public finances: a cross country fiscal monitor’, *IMF Staff Position Note*, IMF.

Lash, S. & Urry, J. (1987). *The End of Organized Capitalism*. Cambridge: Polity Press.

Langley, P. (2002). *World Financial Orders.* London and New York: Routledge.

Langley, P. (2008). *The Everyday Life of Global Finance.* Oxford: Oxford University Press.

Lewis, M. (2010). *The Big Short.* New York: W.W. Norton.

MacKenzie, D. (2006). *An Engine not a Camera: How Financial Models Shape Markets*. Cambridge, MA, and London, MIT Press.

MacKenzie, D (2010) ‘The credit crisis as a problem in the sociology of knowledge’

<http://www.sps.ed.ac.uk/__data/assets/pdf_file/0019/36082/CrisisRevised.pdf>

Miller, D. (2002). ‘Turning Callon the right way up’. *Economy and Society*, 31(2): 218-233.

Miller, P. & Rose, N. (1990). ‘Governing economic life’. *Economy and Society*, 19 (1): 1–31.

Mirowski, P. (2002) *Machine Dreams*, Cambridge: Cambridge University Press

Mokyr, J. (2001). *The Gifts of Athena: Historical Origins of the Knowledge Economy*. Princeton: Princeton University Press.

Morris, C.R. (2008). *The Trillion Dollar Meltdown*. New York: PublicAffairs.

Reich, R. (1992) *The Work of Nations*. New York: Alfred A Knopf

Reinhart, C.M. and Rogoff, K.S (2009) *This Time is Different*. Princeton: Preinceton University Press.

Riles, A. (2010) ‘Collateral expertise: legal knowledge in the global financial markets’, *Current Anthropology,* 51(6): 795-818

Skidelsky, R.J.A. (2009). *Keynes: The Return of the Master.* London: Allen Lane..

Snow, C.P. (1959). *The Rede Lecture*, reprinted as *The Two Cultures*. Cambridge: Cambridge University Press.

Sorkin, A.R. (2009). *Too Big to Fail*. New York: Penguin.

Taleb, N. N. (2007). *The Black Swan*. New York: Random House.

Tett, G. (2009). *Fool's Gold*. London: Little, Brown.

Tett, G. (2010). ‘Silos and silences’ (Banque de France) *Financial Stability Review* No. 14: 121-29. Retrieved from: <http://www.banque-france.fr/gb/publications/telechar/rsf/2010/etude14_rsf_1007.pdf>

Thrift, N. (2005). *Knowing Capitalism*. London: Sage.

Triana, P. (2009). *Lecturing Birds on Flying.* New York: J Wiley.

Turner, A. (2009). *The Turner Review*. Financial Services Authority. Retrieved from: [www.fsa.gov.uk/pubs/other/turner\_review.pdf](http://www.fsa.gov.uk/pubs/other/turner_review.pdf)