
# CRESC Working Paper Series

Working Paper No. 98

Title

Sources of Financial Sociability: Networks, Ecological Systems or Diligent Risk Preparedness?'[1]

Author
Grahame Thompson

Copenhagen Business School, Denmark and CRESC, Open University

For further information: Centre for Research on Socio-Cultural Change (CRESC)
Faculty of Social Sciences, The Open University,
Walton Hall, Milton Keynes, MK7 6AA, UK
Tel: +44 (0)1908 654458 Fax: +44 (0)1908 654488

Email: cresc@manchester.ac.uk *or* cresc@open.ac.uk

Web: UUwww.cresc.ac.uk



# Sources of Financial Sociability: Networks, Ecological Systems or Diligent Risk Preparedness?'[1]

**Grahame Thompson**

## Abstract

This paper investigates the sources of sociability in modern financial systems as a prelude to assessing the prospects for financial regulation. Three sources are identified: sociality dependent upon contract, upon relational interdependency, and upon the operation of will and passion. Each of these would provide its own rationale for regulation but it is the third that is stressed here as a radical conception, one that needs to be more fully addressed than has so far proved possible in an analytical context. And it is this conception that connects most closely to a second overall theme of the article which is to explore further the nature of 'irrationality' as manifest in financial crises. When the contours of both these aspects of financial calculation have been elaborated, the paper moves on to consider how they might shape regulatory responses to the seeming inevitability of financial crises in modern capitalist economies.

Key words: financial sociability, financial irrationality, financial calculation, systemic risk assessment, ecological systems, distributed regulatory preparedness.

# Sources of Financial Sociability: Networks, Ecological Systems or Diligent Risk Preparedness?

## 1. Introduction

How is financial sociability to be conceived? This contribution outlines several features of the financial system that pose this issue, though initially in a somewhat oblique manner. One of its main arguments is that to understand such sociality requires coming to terms with a controversial claim as regards the financial system: that it demonstrates many irrational properties. So a preliminary problem is to explore the character of this irrationality. This is the task set for the first three main sections in particular, which widen the treatment of this to be found in Thompson (2010a) and (2010b). Section 2 addresses the relationship between rationality and irrationality as analogously analyzed by Carl Schmitt in *The Nomos of the Earth* (Schmitt 1950/2003). Here Schmitt crucially links the nomos of a rational calculative 'inside' with an anomic 'outside' which is somehow beyond calculation and therefore 'irrational' in his terms. Clearly, to sustain the force of any similar argument in the context of the financial system requires specification of exactly what rationality means in both contexts, something examined at the end of Section 2. Section 3 then moves on to examine the history of the term 'finance' to point up the particularity of its modern usage: as a verb indicating to the generalized mobilization of creditors and debtors in an arrangement where there is no final redemption of debts. This is the source of financial crises, it is suggested, which, as a consequence, cannot be eliminated from the financial system through regulation or management. Crises are endemic to the financial system so the problem is to come to terms with this 'irrationality', something pursued in a later section. It is in Section 4 that the issue of financial sociality as such is addressed head on. Here three senses of such sociability are invoked: it being conceived as a matter of a contract, as a matter of interrelatedness, and as a matter of will and passion. And it is this latter sense of sociability that drives much of the irrationality of the financial system, it is suggested.

Once these preliminary observations have been made the article moves on to investigate the concrete failings of orthodox financial calculations in the light of this analysis of irrationality in its various guises. The key problem has been to deal with risk. Section 5 plots the move from a concern with the risk facing individual agents to that of systemic risk assessment – broadly from VaR to CoVaR in conventional terminology. And this is where a consideration of the ideas associated with evolutionary models, networks and complexity as a way of understanding the financial system arises. Andrew Haldane (2009) provides an introduction to this in his Bank of England speech, which is referred to in passing. However, it is argued that such an approach does not quite do justice to the issue of irrationality highlighted earlier in this contribution, though it represents a genuinely worthwhile antidote to the prevailing orthodoxy in terms of regulatory responses to the financial crisis. Finally Section 6 develops an alternative scenario for regulatory advance -- 'diligent risk preparedness' -- which draws upon the ideas presented earlier in the main body of the text and elsewhere.

## 2. Schmitt's Irrational Other?

In *The Nomos of the Earth* (1950/2003) Schmitt argues that for there to be a nomos there must be an 'outside' (the domain of the exception) which is anomic[2]. Schmitt presents several historical instances of a nomos (and their anomic others), but the one occupying the greater part of his analysis is the Eurocentric global order ushered in by (he argues) the discovery of the New World in the 16th Century and which came to an end towards the early part of the 20th Century as the European system of a 'nation-based settlement' (*jus publicum*) ended with the

prospect of 'total war' between the main European powers (which threatened to engulf everyone else). But the reference to Schmitt is not to re-rehearse his thesis in any detail (indeed, at all) but rather to use it as a way of opening up a discussion about the nature of the financial system[3]. At first glance this might seem a fanciful tactic but I argue that it presents a powerful analogy that it will be profitable to examine.

The point about the reference to Schmitt is to suggest that a similar issue may arise in respect to financial calculation as does in respect to the structure of his global nomos. Schmitt forcefully argues that without an anomic 'other' there could be no nomos in the first place. It is the anomic features (and fear, in his case) of a chaotic other that provides the basis for there to be an accommodation between the parties within the terrain of the nomos – producing at least a *modus operandi* there (though not a *modus vivendi*). Without such an anomic 'outside' the chaos would immediately penetrate the 'inside' and undermine the conditions of its existence – it would cease to be and collapse as a nomos (and, indeed, this is exactly what he argues was the consequence of the undermining of the European based and organized global *jus publicum* as the contours for Great War took shape in the early part of the 20th Century).

So how might this analogously transfer to the financial system? The issue it poses is whether there is a place for an 'unordered other' for there to be an 'ordered nomos' in the financial system. Or to put it slightly differently, for there to be a 'domain of the calculable' does there need to be an 'other of the un-calculable'? Does the 'rationalistic' require the 'non-rationalistic' as a condition of its existence? Within the financial system economic calculation presumes a certain rationality amongst contracting and calculating parties, but does this also 'require' a terrain of the 'non-calculable' to make it work? If, in principle, everything were fully calculable (all risks *and* uncertainties were at least amenable to a calculation) would there be anything left to calculate about? Would not things run to a complete halt if everything were completely ordered and rationally calculable? Surely, the existence of a non-calculable (with all its risks and uncertainties) is a configurative condition for there to be a point in calculating? Again, to put it in different terms, if everything were in principle able to be known would there be any point in an inquiry about the radically unknown?

The rest of this presentation takes these queries as its point of its departure, so to speak. In general the thrust of the argument is that there is an irrational and un-calculable domain in respect to the financial system which makes the possibility of a calculative and rational response to it[4]. The one presupposes the other, so that the irrational cannot be simply wished away. And it is precisely in respect to periods of crisis that these relationships are exposed, so the task is to examine this domain of the other in respect to the recent financial crisis. Of course, there are many definitions of rationality so one needs to be careful in specifying what is meant by it. Here I take a rather instrumental definition based upon a classic means-ends structure: decisions are made on a one-off basis, after a full calculation of the options possible, according to preferences and clear objectives, and with the aid of intention and reflection. One can complicate this of course: the distinction between 'procedural' and 'substantive' rationality comes immediately to mind where 'bounded rationality' is the clear (behavioral) lead complication in this respect. But these are still predicated on a basic rationality to their boundedness. In fact, one of the founders of the bounded rationality position, Herbert Simon (1985) – whilst discussing these complications – makes a reference to the issue being fore grounded here: what he calls "radical irrationality" (pp. 301-03). But he carefully avoids tackling it head on[5].

On the other hand we could extend the idea of rationality to include intentional rationality or value rationality, aspect of rationality stressed by Weber. These come closer to the idea of the 'irrational' as used in this article. But I would suggest that the role of intentions and values driving decisions and behaviours should not be confused with 'rationality' as understood above but considered as an aspect of the wider category of 'thinking'. People make decisions and behave as a consequence of thinking, but not necessarily as a consequence of their rationality. As we shall see, these could be better described as different 'modes of

rationalization': characterizations of why things were done the way they were (Lentzos & Rose 2009, p.236).

Further to this examination, what would be the global regulatory implications and consequences for the financial system if it were, if not thoroughly then at least partially, 'irrational'? These are the issues pursued later in this article. But first we need to consider the circumstances of finance as such so as to isolate the particularities of modern financial arrangements. This will add a crucial aspect to the overall picture of its potential irrationality

## 3. What is Finance?

Like many things the term 'finance' can be traced back to the Greeks for its origin. But whilst it operated as a *word* for the Greeks with various meanings it was only in the early 15th Century that it became a more generally recognized *conceptual category* with some consistency of meaning and interpretation. From 1400 onwards, for instance, it operated as a *noun* describing the raising of resources – usually associated with a single venture or a project. And its etymological root was important in this context – finance and 'final' are linked etymological categories. The finance associated with each venture would be 'finished' at the end with a final settlement. Thus finance was associated with a single event or project, incurring a debt that would be 'peacefully' and fully paid-off or settled at the end of the venture. It was very important that it did not end in 'turmoil'.

In the late 18th Century – whilst still operating as a noun – it began to be associated with the systematic management of money. But from the early 19th Century it crucially moved from being a noun to a *verb* – the *activity of financing*: the generalized bringing together of creditors and debtors. And associated with this was a further crucial move: the systematic deferral of payments and the possibility of the rolling over of debt and therefore the accumulation of debts. Herein lies the origin of modern finance – and its problems -- because this involved another key consequential activity; the search for liquidity. Once debts could be rolled over individuals agents were faced with the possibility of liquidating their original positions in anticipation of raising further finance to cover their debts and defer any 'final payment': indeed, there need be no final 'final payment' under these circumstances, but only if liquidity could be generated and found. As Keynes pointed out, however, whilst liquidity was a possibility for individual agents it was not possible for the 'community as a whole'. Who or what would provide the liquidity for the community or system as a whole? Thus, for instance, while each national central bank might provide liquidity in the form of lender of last resort (LOLR) facilities for its particular monetary jurisdiction, who or what is to provide such LOLR facilities for the system of national central banks as a whole? If the answer is a 'global central bank' – apart from the difficulty of establishing such an institution at the global level -- this just displaces the problem, since who or what would provide a LOLR facility for any such single global central bank? Nothing or no one, is the simple answer.

Thus the search for liquidity by individual agents is fraught with difficulties. It leads to the drive to make all assets commensurable by rendering them into money in the first instance (liquidity), and then for organizing the interchangeability of all assets more generally (leverage). This in turn feeds the system of endless debt deferral – and thus of endless debt creation -- which is the ultimate source of financial crises (Schularick & Taylor 2009). Financial crises are impossible to avoid in a modern financial system which has broken with the original feature of finance, namely that of the bringing to an end the financing cycle of each venture with a final clearance of debts. In the absence of this 'peaceful' mechanism we have the turmoil created by endless debt and liquidity creation. But how can some surrogate mechanism for this ultimate 'clearance' of debts be secured? This is what the turmoil of crisis does. It 'devalues' the outstanding accumulation of debts to bring into being a new realignment of creditor and debtor relationships. In turn this enables the whole cycle to begin again. But the point about this analysis of what modern finance is and means is to stress the 'necessity' of a financial crisis: it is built into its systemic structure. It is a necessary feature of

the nature of modern finance. Under these circumstances, the problem of regulation and management of the financial system shifts. It is not a matter of the total 'elimination' of such crises – this is impossible -- but one of the management of their inevitable reappearance and the minimization of any disruption they might produce. In turn this shifts the focus of regulatory attention to systemic risk rather than risks associated with individual agents or institutions. The terms of such a management task are outlined late. Before that, let us turn to the characteristics of financial sociability and subjectivity, the last of our preliminary remarks setting out the sources of potential financial 'irrationality'.

## 4. Conceptions of Financial Sociability?

How is the nature of financial sociability or sociality to be understood? How is this conceived and constructed? Just as in the case of sociability more generally there are three aspects to this, the latter two of which I argue seem the most pertinent in the case of financial sociability. These conceptual aspects have an immediate impact on how (financial) subjectivities are thought to be constructed and their consequences for shaping the (financial) world.

The first manner in which sociability is thought is as a consequence of a *contract* – the 'social contract'. Thus in this case parties inaugurate the social field through an initial contract, convention or pact. Such a contract is thought in various ways but it always involves agreement on the basis of reasoning by those concerned or who later 'join'. And it is this emphasis on the role of reasoning and rationality that provides the most obvious link to the way the financial system is thought about; as a realm of rational calculability that secures its sociality. The importance of the contract analogy, or the concrete practices of contracting, has increased over time as more and more aspects of social existence are either subject to such contracting or conceived to be dependent upon it. This moves from the grand social contracting of, say Rousseau and Rawls, through to various forms of contract between leaders and the 'people', to the mundane micro-contracts now being asked of parents and pupils as a condition of them being admitted to schools[6]. And, of course, contacting in a legal sense has also mushroomed in modern societies as more and more relational activity is formalized and subject to rule bounded adjudication.

Which leads us neatly into the second main way sociability is conceived; that is in terms of *interrelatedness*. Here it is the language of relationships, connections, combinations, interactivities, flows, chains and entanglements that expresses the necessary interrelatedness that makes up our sociality. Such a conception seems particularly appropriate in respect to the financial system whether this be in the form of financial risks seen as the consequences of interrelated flows or movements of financial capital and products; the combinations of institutions, markets and models that encourage fervent innovation for instance; or the everyday practices and rituals of the financial system embodying power and authority. All these are thoroughly 'relational'. And this goes for approaches that stress fragmentation and disunity, or the way risks are aggregated and pooled into relatively closed silos (e.g., Tett 2009). From these perspectives the issue is to unlock such obstacles to sociality, or to see only loose connections between its constituent parts, but connections that exist none the less.

This stress on the interelatednesses that typify the financial system and that structure financial subjectivities can also account for the way the *anthropological sensibility* has found a new and productive voice in respect to investigations of the everyday life of financial markets and the financial system. It provides a comparative advantage for anthropological and ethnographic approaches, the stuff of which has always stressed interconnection and relationality, now argued to be on display with a vengeance in the financial workplace and through the instruments of financial circulation and innovation.

What is more, it neatly chimes with another current trend – of which I will have more to say in a moment – that conceives the financial system as akin to an ecological network of radical

complexity and reflexivity. Although this is typified by non-linearity and complex feedback mechanisms, it is a system of interrelatedness nevertheless.

Whilst these two conceptual positions – contracting and interrelatedness – remain the most robust theoretical approaches to thinking about how 'the social' is made and re-made there is another, if rather neglected one. This has to do with the social being inaugurated and continually reinforced or re-forged as a consequence of *will and passion*. The liberal sentiment has always remained suspicious and hesitant about this, which explains its relative neglect. But will and passion—along with chance, fortune and determination – speak to a different conception of that which is involved with sociality. This combination is less associated with rational agreement (as typifies the social contracting approach, for instance) and more with irrationality, excessive exuberance, blind enthusiasm, momentary feverish drives, etc. It involves the dissipation of a certain psychic energy and the destructiveness or ostentatious display of wealth for its own sake. In respect to the financial system it connects most closely with the ideas of excessive exuberances, cascading, herding, Ponzi schemes, Minsky moments, and the like.

One of the reasons this position is rather neglected, and one difficult to fully recognized and embrace is it seems to imply a fatalistic resignation: there is nothing that can be done to prevent the eruption of these emotions since they are written into our psyche or the existential nature of social existence. Now, whilst there is an element of truth in this I would suggest, it is not the case that fatalism is its necessary consequence. Perhaps it was Hobbes who was instrumental in first drawing attention to this role of will and passion in forging a certain sociality (associated with the death and destruction consequent upon religious conflict in 17 Century Europe), but he also suggested a solution, if perhaps a temporary one. What was need, according to Hobbes, was a Leviathan whose role was precisely to exercise his will to control that of his subjects – to instruct their wills and educate their passions. Their passions were to be caged by what we might think of as a 'benevolent dictator' or even a 'democratic sovereign' (Hunter 2010). But it needed an authoritative sovereign power of some sort to rule over the passions. And the lesson for the financial system is similar: it also needs an authoritative regulator or regulatory structure to 'rule over' the passions and wills that continually erupt in respect to financial excess. The problem with this, however, is that although the passions may be caged (for a time at least), they cannot be completely tamed: there is always the prospects that the regulatory cage will rust, that the keepers become complacent or neglectful of their charges, so that sooner or later the 'animal spirits' will escape to wreak their havoc once again.

But there have been other suggested solutions. An influential one was provided by Albert Hirschman in his book *The Passions and the Interests* (1977 – see also Myers 1983 for a more economics inflected treatment of a similar argument). Hirschman argued that late 17 and early 18 Century enlightenment philosophers and worldly men of letters established the notion of the 'interests' (self-interests) as a way of taming the passions and establishing a relatively peaceful milieu for capitalism to flourish from the 18th Century onwards. For Hirschman it was the interests that trumped the passions, and that would keep them under control. But the trouble with this is that the passions have never quite gone away. And when the passions *combine with* the interests instead of being trumped by them, the consequences can be dramatic and very uncomfortable.

Finally, there is another solution, one I have outlined before and which I develop a little further below. This is to construct a system of distributed preparedness for resilience, one designed precisely to be on continual guard against the destructiveness wrought by financial excesses but which recognizes the continued threat of will and passion rather than wishing these away.

Here three key potential analogies with other domains where regulation or management of essentially unexpected events is involved could be examined. These are that:

1) The financial system might be profitably considered as one that works in a similar way as do natural disasters like earthquakes, tsunamis or volcanoes: catastrophic events that cannot be completely foreseen or properly calculated for in advance but which seem inevitably prone to re-appear in one form or another (cf. Reinhart and Rogoff 2009).Clearly, natural disasters are not the same as financial crises: they exist in quite different domains with very different properties. But their consequences can profitably be considered as analogous in terms of disruptions and reactions. Natural disaster planning is thus one intellectual resource that could be brought into play to help understand how to manage or regulate the financial system (Malamud 2004, Grossi,& Kunreuther 2005, Weick& Sutcliffe 2007, Zanini 2009).

2) Alternatively the financial system could be considered analogously to an epidemiological system where viruses invade it and epidemics and pandemics strike as a result. In this case the lessons to be learned from the way public health authorities manage epidemics and such like provides an alternative potential intellectual resource (Epstein 2009; Price-Smith 2009).

3) Finally there may be similarities within the financial system to 'irregular forces' that inhabit the peripheries of military conflicts. How do the regular forces 'manage' or 'regulate' the irregulars like privateers, buccaneers, partisans, raiders, etc? What are the relationships between regular forces and irregular ones (Schmitt 2007)? The financial system is – potentially at least – subject to a similar problem in that it is inhabited by irregular institutions, instruments and events: hedge funds, private equity, sovereign wealth funds, exotic financial instruments, etc., that are always threatening to escape official recognition or regulation by the authorities.

Thus these approaches would not conceive of the financial system as acting like a machine (cf., MacKenzie 2006, see also Mirowski 2002) but as operating closer to an 'irrationality' as considered in its existential forms. Let us now consider the concrete practices of financial calculation that might support this view.

## 5. What's wrong with Modern Finance Theory and Practice?

Views centred around the 'efficient market hypothesis' (EMH). This theoretical position posits that all unfettered markets clear continuously thereby making disequilibria, such as bubbles and crises, highly unlikely. Indeed, in terms of the EMH framework, economic policy designed to eliminate bubbles would lead to 'financial repression': resulting in higher interests rates, the unnecessary rationing of credit and the loss of profitable investment opportunities. That such views about a cosy consensus could have been announced just as the deepest meltdown in financial activity since the 1930s was maturing is perhaps testament to the complacency of conventional economic analysis. But it has not completely shaken the conventional belief in the virtues of such a framework amongst the mainstream macroeconomic modelling community. Rather the crisis has been interpreted as a simple 'random error' within a still robust EMH framework for economic analysis (Minford 2009). On the other hand the crisis has had some impact on the regulatory and policy making community, as will be discussed in a moment.

One of the key features of this EMH framework in its view of the underlying systemic stability of the economy as a whole is that this leaves little room for the separate consideration of the operational stability of the financial system. Once systemic macroeconomic stability is secured this also provides the necessary conditions for systemic financial stability: these two levels are fused together. But in the wake of the 2007-09 crisis an earlier position has come to challenge this view, namely that associated with Hyman Minsky's 'financial instability thesis' (Minsky 1982, 1986). Minsky's argument was that the more stable are the macroeconomic conditions, the more *unstable* becomes the financial system: systemic macroeconomic stability breeds systemic financial instability. This is because as the macro economy seems to stabilize and present continuous growth prospects (the 'long moderation' of 1995-2007)

financial players in particular are encouraged to take on more and more risks, which precisely destabilizes the financial system and then the general economy beyond. It lulls financial players into a false sense of security. And this is precisely what seems to have happened in the run up to the 2007-09 financial crisis.

That modern finance theory is flawed has been extensively documented since the crash of 2008-09 (e.g. Triana 2009). And the likes of Taleb (2004, 2007), Mandelbrot (1997, 2008) and Sornette (2003, 2009) (to mention just a few of the most prominent critics) have been pointing out these flaws for many years. But their critique is mainly a) about the shortcoming of an assumption of the normal distribution of asset prices in the financial markets – they are more 'wild', or subject to 'herding' behaviour, or 'fat tailed', etc.; and b) their alternative specifications remain largely within the 'rationally calculable' framework, although without the key assumption just mentioned (but with ad-hoc distributions – see Jackwerth & Runinstein 1995 for a systematic presentation of several options). Of particular importance is 'risk management' under these circumstances. The pricing of risk became the central feature of modern financial economics. Two key mechanisms for calculating risks were the Black-Scholes-Merton (B-S-M) model of options pricing and the Gaussian copula (G-C) function for the likelihood of correlated defaults[7]. Both of these proved insufficient to the task. The B-S-M option pricing model assumed the volatility of assets to be a random walk (when they proved to be 'fat tailed') while calculations using the G-C severely underestimated the degree of correlation between asset classes because the attention was focused on individual risks rather than systemic ones (Izquierdo 2001, Thompson 2010a – and see below). However, this could all have been quite easily recognized if even the most perfunctory attention had been paid to historical precedents. As early as 1637 the Dutch 'tulip mania' demonstrated how excessive behaviors can easily flourish (Goldgar 2007) and empirical testing of the B-S-M model of volatility demonstrated its shortcomings in tracking actual options prices and the fact that the B-S-M is not necessary to establish 'fair prices' anyway (Moore & Juh 2006, Mixon 2009). But 'irrational' adherence to the EMH prevailed.

The lessons from this episode are several.

First, macroeconomic and financial systems need to be separated out but considered alongside each other in terms of their stability properties; and secondly, that there is a problem of the systemic risks that continue to pervade just the financial system. *Systemic risk* is associated with the way the entire financial system is interlinked or interdependent so that a problem in respect to a single financial institution (or small cluster of institutions) can cause a cascading and paralysing failure across the whole system. Whilst single markets or institutions may be exposed to *systematic* risk, this can be mitigated by diversifying into a portfolio so as to minimise this on an individual basis. But systemic risk poses the issue of interdependencies across markets which cannot be tackled simply by aggregating individual exposure to market risks. There are several approaches to deal with this, all of which have received a renewed interest in the post crisis period (deBrandt & Hartman 2000, Allen, Babus, & Carletti, 2010, May & Arinaminpathy 2010, Stiglitz 2010).

In the international arena the gradual replacement of the Basel II regulatory requirements by a new Basel III system represents the leading edge of this change in emphasis. The Bank of International Settlements (BIS) is charged with regulating the big international banks, and under its pre-crisis Basel II system this concentrated on prudential capital requirement for *individual* banks, which were left more or less to themselves to assess the extent of this as they were charged with implementing their own internal risk assessment models, providing them with an incentive to minimize prudential equity capital held in their account books, so as to maximise the profitable use of thereby freed resources. As a result systemic banking risks escalated[8]. The new Basel III system is designed to address this by concentrating on the *interrelationship* between bank risks ('stress testing' at the systemic level) and by beefing up

necessary capital adequacy ratios accordingly (Fender & McGuire 2010). Whether this initiative is enough to prevent further systemic banking collapse remains suspect (Orléan 2010): the capital requirements still look to be minimal and the system is not to be fully implemented until 2019.

A second closely related approach to this is to concentrate upon modelling 'contagion' between one financial market and another, or between one market in one economy and that in another (Dungey 2008, Stiglitz 2010). Contagion represents the extent of externalities or spill-overs between such markets and in principle can estimate the likely systemic impact of a disturbance emerging in a single market on the system of interrelated markets as a whole. This approach involves operationalizing the covariance between 'values at risk' (CoVaR) across markets and institutions (Adrian and Brunnermeier 2009). The Basel II system just mentioned concentred upon VaR for each single bank considered separately.

But how might such contagion happen? One might look towards 'financial networks' to address this question (Allen & Babus 2009; Babus 2007, Kleindorfer & Wind 2009). Financial networks are building up 'connections' that increase the vulnerability to systemic shock, although they could also reduce susceptibility to these if they were to spread the risks and dissipate the initial shock (as expected by conventional analysis of risk management – and as echoed by the natural disasters literature). However Brunnermeier (2009) has shown that network effects of so called risk sharing do not work in a networked financial system, rather they can exacerbate it. Thus one needs to map these networks and assess the vulnerabilities within them.

What these points raise is the appropriate regulatory response to financial crises. Here two general strands of analysis can be discerned.

The first represents the conventional wisdom and is concerned to regulate out possible crises -- or that is its implicit objective. It provides a one-size-fits-all, top-down approach, conceived to be organized at the global level and implemented from a single 'calculating centre' like the BIS (Basel II and III), or the G-20. Harmonization and benchmarking are the key mechanisms, emphasising the same best-practice adoption by all. Diversity is to be eliminated as far as possible, or ruled out as the basis for a regulatory response. But as the case of the Euro demonstrates clearly, such harmonization and the adoption of a single standard can encourage fierce contagion when things go wrong.

On the other hand we have approaches that emphasise 'systemic ecologies of interrelatedness' often setting the financial system within a different paradigmatic universe: to view it as akin to a network operating in the context of an ecological system (Haldane 2009). Systemic risks are modelled, as a result, in a 'non-rationalistic' and 'non-mechanical' operational framework involving complex adaptive feedback mechanisms displaying non-linear reflexive network properties. Whether this could ever be successfully or fully operationalized, or provide the necessary stabilizing regulatory outcome conditions, remains at issue. Bye and large it still represents a 'top-down' process driven by an all encompassing calculative logic emanating from a single calculative centre. It rather proposes another technical fix for what is at heart a political problem of the mobilization and adaptation of 'bottom up' distributed initiatives arising from a series of centres the branching together of which requires continual political mobilization and attention (Jasanoff 2010).

And this is where an alternative related imagery to both of these arises which combines elements of each approach. Clearly, it would be inappropriate to dismiss top-down efforts to initiate 'global' regulatory responses entirely just as it would be counter-productive to completely replace these by only bottom-up ones. Rather what is needed is something in-between (see, for instance, The University of Warwick 2010 which stresses national and

supra-national regional responses). This would recognize the necessity of diversity as being a fact of life, and learn to live with it. It would acknowledge an inevitable unease, precariousness and vulnerability associated with financial dealings (which could be rendered in respect to personal feelings or in terms of -- crucially – *connections*). And managing precariousness and vulnerabilities raises issues of *resilience*: if we cannot completely do away with possible dreadful consequences, we can at least be alert to them and learn to live with them. It is in the context of mapping the externalities and vulnerabilities, and networking their relationships, that an alternative conception of the kind of international public space that might be developed to address this problem could be conceptualized. This means developing the idea of networks further as a new kind of global public space (one that is neither necessarily market nor state centered – see Haldane *et.al* 2007; Haldane 2009; Kleindorfer & Wind 2009). But given will and passion -- and a certain 'irrationality' that arises as a consequence of these -- the presumption is that crises cannot be entirely eliminated either[9]. In terms of concrete regulatory initiatives, as well as stressing CoVaR type modeling exercises, 'expected loss matrices' and the construction of 'living wills' would be useful in trying to prevent sudden and chaotic death of institutions and ensure some survival mechanism in the event of a crisis (Goodhart 2010). Such is the task set for diligent risk preparedness.

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[1] This paper is based upon one given at the CRESC Conference *Finance In Question/Finance in Crisis*, Manchester University, 12-14 April 2010 and an address to the *EU-COST Workshop on Financial Crises*, Bielefeld University, Germany, 3-5 December 2010. It draws particularly on Thompson 2010a but the paper here develops the argument about 'irrationality' in the financial system much further and demonstrates it consequences. I would particularly like to thank the following for extensive and intensive discussion of these matters over the last few years: Oliver Kessler, Mike Pryke, Daniel Mügge, Gary Wickham, Duncan Wigan and Karel Williams. I have learned a great deal from all these people as they have interrogated an argument with which they do not necessarily agree but have nevertheless, I think, taken seriously.

[2] In the Schmittian use this means a part of the earth that is not governed by any order, standards or norms, but which is purposeless, fatalistic, chaotic and, as a consequence, barbarous.

[3] In fact, for various reasons I am not as sympathetic to Schmitt's writings in this latter period as I am of his earlier writings on the Weimar period. This has mainly to do with the fact that in the Weimar period Schmitt was still concerned with democratic politics, even if in a very conservative style, a concern completely absent from his writings of the latter period.

[4] Note the seeming 'functionality' of this point. In fact, although 'functionalism' is thought to be one of the cardinal sins of social scientific analysis, I remain relaxed about such a charge.

[5] "… you may feel that I have not gone far enough in my scepticism about reason in political behaviour. Surely even the concept of bounded rationality does not capture the whole role of passion and unreason in human affairs" (p.301). He goes on to agree this is the case but then steps aside from examining its implications by re-situating it within the domain of reason: "Let me take a more conservative approach, which accords well with what we know about the mechanisms that link emotions to reason" (p.301).

[6] The two leading ways 'social contracting' is discussed in contemporary political philosophy are the schema offered by Rawls and Harbermas respectively. Both of these tackle the issue of how 'the unruly multitude' are rendered into 'the sociable people' capable of political activity. The Rawlsian version involves a single event (the original position) where, operating under the veil of ignorance, reasoned deliberation produces a liberal constitutional settlement where the 'reasonable liberal peoples' so constituted can, if they wish, cooperate with 'decent peoples' elsewhere to develop the Law of Nations (Rawls 1971, 1999; Thompson 2011, chapter 2). By contrast, the Habermassian variant is not a single event but an on-going historical and discursive reflexive encounter between the private and private spheres: a double 'co-originating' move made by reasonable persons to inaugurate and continually sustain the law (Habermas 1997, 2001; Thompson 2011, chapter 2). Again, however, this involves reasoned deliberation.

[7] The basic Black-Scholes Model (1969-70) is:
$\partial w/\partial t = rw - rx\ \partial w/\partial x - \frac{1}{2}\sigma^2 x^2\ \partial^2 w/\partial x^2$
Where*:*
*w* is option price,
*x* is stock price,
σ is volatility of stock,
*r* is riskless rate of interest,
*t* is time.
This is a 'European option' where the stock pays no dividends and can be exercised only at expiry – the model was subsequently revised to extend it to deal with 'American options' and other more complex matters.
The *Gaussian copula function* is:
$\Pr [T_A < 1, T_B < 1] = \Phi_2 [\Phi^{-1}(F_A(1)), \Phi^{-1}(F_B(1)), \gamma]$
Where:
Pr is the joint default probability for A and B
$T_A$ , $T_B$ are survival times between now and when A and B might default
Φ (copula) is that which couples the individual probabilities associated with A and B
$F_A$ , $F_B$ are probability distribution functions for how long A and B are likely to survive
γ (gamma) is the correlation parameter between A and B defaults

[8] As Andrew Haldane rather colourfully put it: "Basel vaccinated the naturally immune at the expense of the contagious: the celibate were inoculated, the promiscuous intoxicated." *Financial Times*, 26 November 2009.

[9] But nor are they a normal accidents in Perrow's terms (Perrow 1999 and 2010). According to Perrow, whilst normal accidents happen when there is a high degree of complexity and coupling between elements in a system (cf. Guillén & Suarez 2010) – echoing some of the formulations here – he suggests the recent financial crisis was a result of policy mistakes and regulatory failure (on accidents more general see Weick & Sutcliffe 2007).

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