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Banks as Global Corporations:

From Entities to 'Ecological Habitats'

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Introduction

The aim of this chapter is to offer a conceptualisation of banks as global corporations. The main challenge in such a task is to see beyond the silos of main academic disciplines that traditionally examine banks and banking, and recognise that organisationally and functionally, modern banking operates under complex governance structures. These involve national and international regulations and norms, private industry standards (such as accounting and reporting standards), rules of compliance, registration, licensing and insurance provisions. Today, a typical multinational enterprise, banks included, consists of legally independent corporate entities, each licensed to operate within a specified territorial realm, that are linked to each other's legal entities in other countries (or even their own) through economic connections. This organisational and governance complexity is not easily accommodated within traditional academic approaches to finance and banking.

There appears to be a lack of a dedicated academic tradition of analysing banks and other financial institutions and distinct entities. In economics for instance, any enterprise – financial and non-financial - is typically understood as a firm, defined as an entity that 'uses inputs to make output' (Sloman et el. 2013: 4), a notion that abstracts away from legal, institutional, political and cultural specificities of modern economies. In political science - a discipline that inquiries into the origins of power and influence – banks too, tend to be equated with other non-financial businesses, and are examined on the basis of their political power and influence over decision-making (Pagliari 2014; Pagliari and Young 2015). Legal scholars describe the phenomenon of the corporation broadly, focusing on the underlying

property relations and debating the nature and the personality of the corporation. The latter, in turn, can be understood as either an agglomeration of individuals and hence a natural result of private initiative; or as an artificial creation of state law that has a separate existence from its shareholders and management (Millon 1990: 201). None of these divergent disciplinary approaches to banking recognises the specific features of banking, as unique business enterprise, and which endows financial institutions with unprecedented structural power in our societies. Yet partly as a reflection of such specificities, the corporate character of global banks proves extremely difficult to pin down.

The record of the evolution of banking and financial institutions, as witnessed most recently during the crisis of 2007-09, demonstrates that banking and finance is are far from being a neutral segment of the economy. Contrary to the assumptions of much of the legal scholarship, banks are neither the linear agglomeration of private interests, nor mere constructs of state laws. They are better seen, we argue in this chapter, as complex ecologies of financial and legal innovation, whereby multi-jurisdictional, multi-cell organizational complexity of banking are used to increase opacity in the financial system (Awrey 2013). This complex web of operational niches, professional and legal frameworks and communities governing the daily work of financial institutions suggests that banks operate not as discreet economic units, but more like biological ecologies that contain at times, hundreds or thousands of differentiated entities that are grouped up in a loosely related set of activities. Goldman Sachs Group incorporated, for instance, consists of 3,115 corporate entities of which 1,670 are non -US based; JP Morgan Chase is a conglomerate of 3,391 entities including four commercial banks (Avraham, et al., 2012).

While the crisis of 2007-09 has highlighted the problems of opacity in finance by partly, focusing on the phenomenon of shadow banking, the post-crisis debate on banking regulations has tended, on the whole, to discuss ‘global banks’ as unified entities, glossing over the legal nuances of the differences between economic control and legal incorporation. At the same time the history of banking over the past three or four decades shows that banks and other financial entities have exploited their diverging legal status to their advantage. It is well established that many companies organise their affairs internationally through a host of holding companies and subsidiaries, in order to avoid or ‘optimise’ taxation. The same principle also plays an important role in the evolution of banking organisations as they have continually sought to avoid regulations and oversight. It is notable in this respect that global

banks are not considered to be one *legal entity* subject to international law (McConnachie, 2009).

The question we raise in this chapter is whether conceptual confusion and terminological slippages between such concepts 'banks,' 'banking organisations', 'banking groups', 'bank holding companies', 'firms' are mere curiosities, or whether they are of analytical and theoretical importance. We believe they are the latter. In what follows, we inquire into the conceptual implications of such complexity.

What is a Bank?

What is a 'bank' or more broadly, what exactly is a 'financial institution'? Historically, rules and regulations governing banking institutions have evolved within the broad spectrum of commercial law (Berle 2012 [1938]). In legislative acts and processes, banks are treated as corporate legal personalities, not being distinguished from other types of corporate entities. Economists habitually treat 'banks,' 'insurance companies' or 'hedge funds' as unitary corporate entities. Yet this approach encounters problems the moment theory is put into practice. Let us take an extract from the Bank of International Settlements (BIS) document laying the technical ground rules for the international accord on banking regulation (also known as the Basle accord[i] or Basle rules on banking regulation). It is a rather typical example, we believe, of how the unitary concept of 'bank' begins to unravel once the nitty-gritty of data collection or regulatory governance are being discussed. We quote:

> '[t]here is considerable variation in how banks structure their capital planning processes. At some banks, the various responsibilities associated with capital planning are divided along functional lines. For example, experts assigned to a business unit have responsibility for establishing capital targets and managing their business in relation to them. Those estimates are aggregated to arrive at a firm-wide view of capital adequacy. Other banks rely on a more centralised model. In this model, a central group develops assumptions to be used firm-wide and has the authority and responsibility to review and challenge the estimates produced by individual areas of the bank' (BIS 2014, 2).

The document is vague about the very nature of those entities that the organisation is supposed to study and regulate. It begins by referring to 'banks' as 'banking organisations', it then introduces the concept of the bank as a 'firm' that takes on a 'firm-wide' perspective of its activities. The document then identifies more specifically 'business units' and/or 'central groups' within banks that devise the bank's or 'firm's business planning.

More worryingly, the BIS notes that some banks have adopted what it believes are 'sound capital planning processes.' These are described as 'formal processes in place to identify situations where competing assumptions are made' (BIS 2014, 3). The BIS alleges, in other words, that banks (or 'firms' or 'business units') often follow internally competing assumptions about the nature of capital and/or planning. The BIS defines 'well governed banks' as not necessarily those that adopt a single set of criteria or assumptions about the nature of their capital planning, but those that at least have developed *formal* processes of adjudication among the different assumptions made about planning. By implication, one learns that many 'banks' - those that are not governed well - do not even have such processes, and may adopt a range of competing assumptions and/or organisations and logistical techniques within the same 'bank' as their business model. Can any of these banks be considered a unitary entity?

The law does not make the situation any clearer. US code recognises a banking association called 'national banks'. Point 7 of U.S. Code §24 defines clearly what such association can and cannot do.

> 'To exercise by its board of directors or duly authorized officers or agents, subject to law, all such incidental powers as shall be necessary to carry on the business of banking; by discounting and negotiating promissory notes, drafts, bills of exchange, and other evidences of debt; by receiving deposits; by buying and selling exchange, coin, and bullion; by loaning money on personal security; and by obtaining, issuing, and circulating notes according to the provisions of title 62 of the Revised Statutes.' (US Code, Title 12 Chapter 2. §12, Current through Pub. L. 113-121.)[1]

US law defines various limitations on the business of dealing with securities and stocks by the association, and other limitations. A brief look into the history of American financial regulation is useful in this instance. It has become a convention in academic debate to view the evolution of global banking as driven by the policies of economic and financial deregulation of the 1980s and 1990s, led primarily by the USA. Yet a closer reading of the rules and regulations of American national banks reveals that the majority are still operating under the 1935 Banking Act (known as the 'New Deal' regulations), and specify various obligations to different U.S. regulatory authorities.[ii] While originally Glass Steagall defined an area of (insured) commercial banking, prohibiting commercial banks from engaging in (non-insured) securities trade, it was the nuances of interpretations of the Act that would lay

[1] http://www.law.cornell.edu/uscode/text/12/24

the foundation for the progressive erosion of barriers between various financial institutions and ultimately, facilitate the emergence of the shadow banking system. For instance, Kregel (2010) notes, Section 16 of the Act awarded regulated banks 'all such incidental powers… necessary for the business of banking" (Federal Reserve Board cited in Kregel 2010). Interpretations of these terms in turn, would over time prove very diverse, requiring the regulators to allow for more and more exceptions to the rule. As Kregel explains,

> 'Most of the exceptions that enabled commercial banks to meet the competition from noninsured banks and led to the progressive erosion of Glass-Steagall came in later interpretations of the 'incidental powers'. The overal impact of these rulings 'was the compelete reversal of the orginal intention of preventing banks from dealing in securities on their own account. The rulings laid the basis for the creation of properity trading desks by banks for their own account, as well as derivatives dealing and the provision of structured derivatives lending – both of which led to the rapid growth of the OTC market in credit deirvatves. The justifucation was to provide regulated institutions a level playing field with investment banks" (Kregel 2010: 11-12).

Crucially, Glass-Steagall bypassed the issue of the fundamental reform and conflicting relantioship between state and national charters and regulation (Papadimitriou 2010: 3) – a problem that serves as a hurdle to regulation and control to this day.

Does it mean that all 'American' banks are 'national banks?' and are therefore subject to all those statutory regulations? Not really. Goldman Sachs explains on its K-10 form submitted to the United States Securities and Exchange Commission (SEC) that it is not a bank but a 'bank holding company' (BHC) (established under the rules of the Bank Holding Company Act BHC of 1956), and a financial holding company (established under the amendment to the bank Holding Company, the Gramm-Leach-Bliley Act of 1999). In other words, like multinationals, 'Goldman Sachs' consists of many legal entities some of which are regulated by the Federal Reserve Board, while others are not. In fact, most of the large household name banks are not 'national banks' but 'bank holding companies'. While there is by now considerable literature discussing differences in the governance structure of these BHC (Adams & Mehran, 2003), the regulatory implications of such divergences among banking entities is not entirely clear.

In the UK context the meaning of the term 'bank' is even more complicated. Historically, McConnachie (McConnachie, 2009) argues, the best description of a bank is offered in the English common law. In *United Dominions Trust v Kirkwood* (2)[iii] Lord Denning of the Court of Appeal describes what makes up a bank by trying to define the

essence of the task of the banker. 'The Court of Appeal defined 3 elements for determining whether or not a person is a banker: 1 - The nature of the banking services provided; 2 - The importance of these services in relation to the business as a whole; 3 - The reputation of the institution.' (McConnachie, 2009)'. Otherwise, '[t]here was an absolute prohibition on the accepting of deposits by a person in the course of carrying on a deposit-taking business, unless that person was an "authorised institution" in the words of the Act as per se 67(2). Authorisation could be revoked or restricted and the Bank had powers of investigation.' (McConnachie, 2009). Current UK legislation has adapted the same principles to the new regulatory context. In the Banking Act of 2009, a UK bank is defined as a UK institution which has permission under Part 4 of the Financial Services and Markets Act 2000 to carry on the regulated activity of accepting deposits.[iv]

In academic terms, it is notable that banks are defined partly by the activities of the 'banker' – a concept that is often associated with the idea of 'narrow' or 'boring' banking whose age has come to an end around late 1970s- early 1980s (Augar 2008). The developments that have transformed banking and financial industry in the second half of the 20th century have blurred the lines between banks as deposit-accepting institutions, banks as market dealers, banks as investors and bankers as proprietary traders. Not only has the institution of 'universal banking' engulfed a variety of bank activities under one roof, but many other, non-banking financial intermediaries today can perform banking functions with, for instance, many former building societies now accepting customer deposits. In this regard, one is reminded of the prescient words of the then Chair of the Financial Services Authority (FSA) [v] Lord Turner, who offered perhaps a more 'practical' definition of a bank: 'if it looks like a bank, and quacks like a bank' then it should be treated as a bank for regulatory purposes' (Turner 2012).

Historically, many developments can explain the proliferation of diverse corporate organisations operating under the umbrella term, bank. The conflicting wishes of countries to regulate and control all economic activities within their territories on the one hand, while encouraging the internationalisation of trade, investment and business on the other, resulted in a somewhat inelegant form of international business activities. While standard economic analysis may consider national banks, or Banking Holding Company (BHC) or Financial Holding Company (FHC) as interchangeably and as a single *economic entity* operating under one roof and one economic logic, in the real-life business context, the proliferation of entities

serves a diversity of purposes. Along the common trends in the corporate world towards what Desai (2008) calls 'the de-centred corporation.'

Firms and Corporations

Demestz (1988) notes that classical economic theory is concerned less with competition, as it is often thought, and more with the concept of decentralized order, which it contrasts with the familiar order of its day (18th century), a centralized or top-down order. In fact, economics never developed a fully-fledged theory of the firm – something that only began with the work of Roland Coase (Demestz, 1988). A default position has emerged of the firm as a proxy economic actor. The firm is understood accordingly as a profit maximising, shareholder utility optimising single entity generating income as a consequence of its financial transactions with third parties. The theory assumes that such action takes place under the apparently disinterested direction of a board of directors who forego their own personal welfare in the interests of the corporation and its owners, to ensure the interests of those owners alone.[2] The key questions driving these studies concern the balance of interests and the structure of incentives. How, for instance, to ensure that the agent's performance and interests - either salaried employees in financial services and/or subsidiary branches and desks within a banking group - are aligned with the principal's goals and interests?[3]

An institutionalist approach is concerned less with the principal-agent problem and more with juridical questions. Jean-Philip Robé maintains that one of the great, and arguably most problematic, innovations of Western civilisation has been the concept of the corporate legal personality (Robé, 2011). A system of law that had developed to adjudicate among people was extended therein to include two types of corporate entities: states and corporations. Corporations are licensed by a sovereign corporate body to operate within its

[2] The theory, or variants of it, has been adopted in financial economics (Friedman 1970; Jensen 2001; Srivastava et al 1998). In parallel, modern governance literature has focused on the so-called principal-agent problem, specifically in the case of finance post-crisis (Chesney et al 2010; IMF 2014; Mehran et al 2011; OECD 2009).

[3] The general drift of the discussion that has developed out of this literature suggests that it is the incentive structure that may lead to interest alignment (Mehran et al 2011).

territorial boundaries. States insist on full sovereignty over their territories. This means that all active economic actors that are located in their territories, whether they are physical persons or a corporate personalities (or indeed, every moveable object, including cars, airplanes, ships and so on) must be licensed to operate in each and every territorial space they wish to operate. Corporations[4] are therefore legal entities that are licensed by the sovereign to operate within the boundary of a specific national space. Those that wish to operate in other countries as well must comply with the incorporation rules of host jurisdictions, often establishing a local corporation under a separate name (this may assume a variety of forms).

A Goldman Sachs, therefore, may be a US BHC. But if it wishes to operate in the UK, it is required to set up a UK registered company in order to do so. The two companies may have close economic relationships between them; the UK entity may be fully or partially owned by Goldman US BHC, and the income generated by the UK company may flow fully or partially back to the US 'parent' company. Yet legally speaking, the two companies can be seen as separate entities, dependent on the function and context. One company functions under the supervision, laws and taxation rules of the UK, the other under the supervision, laws, regulation and taxation of the US.

In light of the above, Robé (2011) proposes to dwell on the distinction between the concept of the *corporation* and the concept of the *firm*. The corporation, he suggests, is a legal entity that is licensed to operate in a national space. The firm is not a legal entity but the economic mechanism that unites co-owned but legally separate corporations. Firms often control strings of legal entities or corporations – at time numbered in the thousands – and in that sense, they can operate in many jurisdictions or be seen as 'multinational corporations'. But, according to Robe, firms do not have a legal existence, only corporations do. Thus while we habitually refer to a 'multinational corporation' or a 'multinational bank', these terms may refer to important economic and even political or social categories, but not to legal entities (see McConnachie, 2009).

Comment [s1]: No, but to legal groups, that are seen as groups/can be understood as groups for various purposes.

Comment [A2]: We may have to agree to disagree here. I have read your Muchlinksi textbook, it does not really prove that they MNC exist legally at all. It simply provides a history of definitions used by others – rather abstract in this sense, without an analysis of court proceedings etc, and with no acknowledgment that in order to go into an arbitration case, a Goldman Sash will have to choose which of the hundreds of GS entities is used for this case.

Table 1

Number and Distribution of Subsidiaries: Top Seven US Bank Holding Companies

		Commercial	other	foreign	total	Domestic	Consolida

[4] Or companies, different countries use different terminology to describe licensed corporate actors.

		banks				commercial banks	total assets US$ billion
1	JPMorgan Chase & Company	4	2,936	451	3,391	86.1	2,265.8
2	Bank of America Corporation	5	1,541	473	2,019	77.9	2,136.6
3	Citigroup Incorporated	2	935	708	1,645	68.8	1,873.9
4	Wells Fargo & Company	5	1,270	91	1,366	92.5	1,313.9
5	Goldman Sachs Group, Incorporated	1	1,444	1,670	3,115	11.2	923.7
6	MetLife, Inc.	1	39	123	163	3.2	799.6
7	Morgan Stanley 2	2	1,593	1,289	2,884	10.5	749.9

Comment [s3]: Again, much like other MNCs

Source: (Avraham, et al., 2012)

Therefore, while firms are primarily identified as economic structures, their legal personalities remain a matter of contention (McConnachie, 2009; Robé, 2011). To put it differently, legally speaking, there is no such thing as a 'multinational corporation' or a multinational bank. Table 1 presents the known distribution of corporate entities of the seven largest US BHCs, or US banking 'firms' to use Robé's terminology. To return to our example, the Goldman Sachs Group Incorporated consists (in fact, of 3,115 corporate entities of which 1,670 are non -US based). Goldman Sachs therefore appears more like an 'ecology.'

The idea that financial structures evolve more like ecologies rather than discreet units has attracted attention in light of the 2007-09 (May and Haldane 2009) but given the continuing problems of complexity and scale of modern banks, clearly deserves more research. The conventional literature takes it as a given that despite the myriad entities that

make up Goldman Sachs or JP Morgan they can be treated as unitary economic actors. But in light of the lessons of the crisis and in particular, post-crisis reforms, it is not unreasonable to ask whether the different components/entities within competing banks may in fact be competing with one another under the common umbrella of an organisation that shares elements of a brand name. The LIBOR scandal of 2012 and its echoes, or the rigging of the foreign exchange market in the 'free for all' culture of five major banks in 2014[5], suggest that certain desks or department within big banks cooperated with trading desks in competing institutions to set up their own 'communities' and sometimes, working against the purported policies of their own companies. Within a bank, different units and groups are competing for resources, power and prestige in the organisation (Polillo 2013). Considering the number of these diverse legal entities, we suggest that an approach that conceives of such units as an ecology may shed light into the behaviour of a complex organisation such as bank that is otherwise obscured by the assumptions of unitary approach.

In standard economics, the divorce between the legal status of the corporation and economic agency of the firm tends to be glossed over, but the divorce between the two may help explain some of the semantic ambiguities described above. When the BIS refers to banks as a 'banking organisation' and as a 'firm', the terminology clearly tries to capture a diversity of legal entities that are located in different parts of the world. But then, terminological ambiguities reflect lack of clarity of the legal status of many of those firms that are supposed to be regulated, say, by Basle 3. So whereas the discussion may give the impression of a same-like subject 'banks' or 'banking organisations' or BHCs are being regulated, the reality may be that a variety of entities operate under different legal status and requirements.

Finance as a Complex Economic Habitat

The 'ecology' of banking is particularly significant in light of two important aspects of today's financial system. The first aspect concerns the function and organization of today's finance. While standard theories of finance maintain that the core function of the financial sector is to mediate between savers and borrowers, in reality banks and other financial

[5]Two UK and US regulators said they had found a "free for all culture" rife on trading floors which allowed the markets to be rigged for five years, from January 2008 to October 2013. UK and US regulators fined Citibank, JPMorgan, RBS, HSBC, Barclays Citibank and JP Morgan and UBS.

institutions, trading in risk and innovations evolving at the nexus of financial and legal techniques, play a vital role in the *creation* of private credit (Mehrling 2011).

Second, and importantly, in today's societies the financial system has become a self-referential space. The sources of this tangible autonomy lie in the central role that financial innovation plays in the contemporary credit system. The propensity of today's financial entities to create credit and thus expand the frontier of private money and hence, purchasing power, points to the role of the process of financial innovation, rather than the positions of individual banks and other financial actors, in shaping the very core of banking practice and organisation today.

Shadow banking is one of the most recent and challenging outcomes of the endogenous financial process, and it is here where the ecologies argument meets functional theories. A narrow definition of this phenomenon describes shadow banking as constituting market-based[6] (rather than bank-based) ways of funding economic transactions, or, in other words, 'money market funding of capital market lending' (Mehrling et al. 2013). More inclusive definitions suggest that shadow banking is simply 'credit extension outside of the banking system' (Financial Stability Board 2011). Despite continuing disagreements about the definition of shadow banking, there is a broad consensus in the academic and regulatory literature that shadow banking has played a major role in the recent crisis, although arguments continue as to whether the shadow banking system has played a leading (McCulley 2009) or merely an amplifying role in the unfolding crisis (Lysandrou 2012; Lysandrou and Nesvetailova 2014).

Both sides of the debate do acknowledge, however, that the ability to create credit 'outside' the regulated realm of banking has enlarged the *de facto* size of banks and financial institutions. In reality some of the facilities of credit creations outside the banking system would turn out to be performed either by entities that are formally or informally part of the core BHCs. As a consequence, the 'shadow banking' industry is not necessarily a different sector, made up of different legal or economic entities, but in fact, a conceptual distinction

[6] Conventional literature in IPE distinguishes between bank-based and market-based financial systems. In a bank-based financial system, banks are the key providers of credit and funding to the economy; in a market based financial system there is a more competition in the financial system for providers of funds, and in addition to banks, economic agents are able to borrow money or raise funds through various market mechanisms. Hardie and Howard (2013) explain that it has been most commonly used to describe the 'shadow banking system,' or those parts of the financial system that provide credit, but are not commercial banks, such as investment banks, money market funds and some of the off balance sheet vehicles made infamous by the crisis (see Adrian and Shin 2010).

that describes a trend that has evolved due to the historical marrying together of various trends described above.

There are three main ways in which this process, largely undetected until 2007–8, has affected the financial system. First, the shadow web of financial transactions that connects regulated banks – whatever that term may mean -- with a myriad of complex and opaque financial and legal structures widens the actual economic size of the bank. Access to market-based funding and alternative financial channels may help a single institution be more adept in a competitive environment, realize economies of scale and manage its risks more efficiently. In the context of the system, however, a complex web of undetected financial links through the shadow banking system has made individual institutions such as Lehman Brothers, Bear Sterns or Northern Rock illiquid and insolvent, putting the financial system as a whole on the brink of a collapse.

Second, shadow banking operations have the capacity to transform a group of apparently non-bank financial entities (which may include related entities of some of the BHCs in the table above), such as hedge funds, money market funds and special purpose vehicles, into a bank-like structure, the financial activity of which is unregulated, lightly regulated or simply not accounted for. For instance, mapping the US financial system, the Bank of England admitted in its 2015 study that the value of assets hedge funds in the UK (estimated at £670 billion) is indicative only, based on estimates using a number of data sources and assumptions" (BoE 2015: 120, Fig. 4, ft. c). The Bank has no sector estimates for the assets managed by 'other authorised funds' (BoE 2015: p. 120) and notes that 'while the hedge funds captured in the map are managed from the United Kingdom, the funds themselves are typically domiciled overseas' (BoE, 2015: p. 123, emphasis in the original).

Both sets of connections – between the regulated and unregulated segments of finance, and within the shadow banking system as such - raise prudential and systemic risk concerns from the point of view of financial stability, a matter currently forming a central part of attempts to bring about international financial regulatory reform (e.g., Greene and Bloomfield, 2013). The size of banks and financial institutions is related to the problem of systemic risk and fragility and hence has political ramifications, both overtly and covertly. The funding models of 'official' banks and other financial institutions relied on complex schemes of financial ownership that produced or held financial products or operations that could only function as long as the market mechanisms for pricing these instruments functioned (Langley 2013).

Comment [s4]: no: see the FSA – at least for the UK, I wouldn't want to speculate what regulation exists in other countries of the world

Comment [a5]: YES, hedge funds are not regulated in the UK. Only FUND MANAGERS are. In the UK there are no limits on collateral hypothecation. Commodity trading houses are not regulated in USA, black trading pools are not regulated, the list goes on.

With the onset of the crisis in August 2007, this mechanism seized up and it became impossible to price complex financial products or execute individual transactions to get access to funding in the wholesale financial market. As a result, the viability of major banking and financial institutions came into question. The exposed failures of individual institutions pointed to the fragility of the system. The latter in turn, was exacerbated by the micro-prudential approach to financial regulation that had been informing national and international financial policies up to 2007, most prominently in the Anglo-Saxon countries, but also in Europe (Caruana 2009; Freixas et al 2015). Thus the 2007-09 crisis and its aftermath illustrated the costly consequences of overlooking the details of legal and functional forms in today's finance, and of the crucial importance of 'grey' areas in financial regulation.

Contemporary Scholarship on Complex Finance

In this light, an attempt to define a bank and inquire into its essence as a global entity would require a new analytical approach. Such a framework should accommodate a focus on the nature of financial interactions, the various inhabitants of the financial system, as well as on the outcomes of their interactions.

Two academic traditions help build such a synthesis. The first originates in the emergent field of evolutionary finance. This field recognizes the central role of the apparently limitless capacity for innovations in investment styles, products and the regulatory framework. Evolutionary finance assumes that the marketplaces for risk-based assets exhibit a great degree of dynamism and evolution in the behaviour and interaction of their participants. Drawing on several academic currents, evolutionary finance examines the causes and effects of the dynamic nature of financial markets through the application of Darwinian ideas. While acknowledging that such changes can be traced back to intended outcomes of human endeavour, evolutionary scholars recognize that they are caused by the adaptive, self-organizational and endogenous dynamics of the decisions and interaction of agents in the financial market (Evstigneev et al. 2008: 2).

Within the field of evolutionary finance, agent-based modelling and dynamic models of financial markets offer important insights into the choices that financial actors make under conditions of uncertainty and nonlinear rationality (for example, Keen 1995; Raberto et al. 2012; Thurner 2011). In particular, heterogeneous agent modelling (HAM) is an approach developed from the 1980s onwards by economists who recognized the bounded (rather than

the linear) rationality of economic agents and examined their behaviour under conditions of uncertainty. Although this perspective builds on the early heterodox economics and advances the insights of Keynes and Simon into the role of uncertainty in influencing economic agents, new developments in mathematics, physics and computer science in nonlinear dynamics, chaos and complex systems motivated economists to develop new models and tools. Challenging the traditional representative rational agent framework, heterogeneous agent modelling presents finance as a highly nonlinear, adaptive system (Hommes 2006: 1114).

The second foundation of the emergent synthesis centres more closely on the complexity of organization and adaptation, and derives from network theory. Applied to banking, the basic premise of this perspective is that today's credit systems are not only composed of a variety of actors (banks, money market mutual funds, investment conduits, structured-investment vehicles, hedge funds, broker-dealers, finance companies, and so on), but also of a range of credit instruments (wholesale money-market instruments, repos, asset-backed securities, and so forth) and therefore credit transactions (Guttmann 2003; Guttmann and Philon 2010). These transactions necessarily take place in two realms simultaneously – legal and financial – and, together, form intricate webs of funding affiliations, intermediation and ownership chains. Finance and the credit system, therefore, are webbed as complex networks and need to be understood as such.

The financial system today, and its embeddedness in the wider political-economic context, is defined first and foremost by dynamic interaction between its different inhabitants, and the effects (intentional and unintentional) of such interactions on the entities themselves, the financial system as a whole, as well as on the 'outside' context (politics, society, economy, culture, and so on). Yet seeing the banks and the financial system operating in a given 'environment', as is common in various fields, poses its own epistemological barriers. The notion of 'environment' implies interaction between entities (traditionally, human and other living organisms) with an outside, exterior context.

In the wake of the global financial crisis, applications of network theory have become common in the discussion of sources of financial instability and, more specifically, in the work on systemic risks in finance (Allen et al. 2010; Goldin and Vogel 2010; Haldane 2009; Turner 2011). A major conceptual insight here concerns the paradox of integration and complexity. Hyman Minsky (1986) famously argued that, in finance, stability breeds instability. Network theory complements his insight by describing how too much complexity breeds instability and fragility. According to Simon (1962), most complex systems exhibit high levels of self-similarity and thus can be simplified for purposes of modelling. Recent

work in the field of the social studies of finance demonstrates that models used by financial agents to capture the complex realities by processes abstraction and simplistic borrowing of mathematic approaches from physics (MacKenzie 2006). Being widely used by different types of financial institutions, these modules have evolved into an evaluation culture of the financial industry, and exercise their own impact on the state of the financial system (MacKenzie and Spears 2014: 13). As Goldin and Vogel (2010) argue, the very process of simplification is inevitably reductionist and therefore can increase system fragility: homogeneity is one of the destabilizing characteristics of complex networks and, in financial markets, has been shown to contribute to liquidity crises (Persaud 2008).

The spread of financial innovations such as credit derivatives and securitization (the process of taking an illiquid asset, or group of assets, and through financial engineering transforming them into a financial security) has increased the level of complexity and integration in finance. At the same time, however, these innovations have also rendered the system exposed to targeted attacks on what Goldin and Vogel (2010) call 'hub nodes', with the potential for risk amplification and contagion. Indeed, securitisation both enhances and relies on liquidity. On the one hand, it enhances the liquidity of underlying receivables by transforming them into tradable securities, contributing to the perception that, individually, financial entities are liquid and financially robust. Yet, on the other hand, the funding of a large number of market participants involved in the securitization process critically depends on market liquidity being permanently sustained (Bank of France 2008: 2). The homogeneity of financial actions of various entities, as well as the very nature of financial liquidity, implies that, at the aggregate level, the financial system driven by innovations is becoming progressively illiquid (Nesvetailova 2010). In this reading, while it was the sub-prime crisis that triggered the financial crisis, it was the underlying innovation, integration and interdependency of the global financial network that created the fragility of the system (Goldin and Vogel 2010).

Continuing the analysis of complex networks and drawing especially on the similarities with the 1970s scholarship on ecology, Haldane and May (2011) have developed the concept of financial ecosystems as a tool to examine the consequences of financial interactions and the distribution of risks in the financial system. The authors acknowledge major differences between ecosystems that have long existed in the natural world and financial ecosystems that are embedded in political and social realms. Today's ecosystems, they argue, are the survivors of long-lasting evolutionary processes, whereas the evolution of the financial system is a relatively recent phenomenon. Moreover, in finance, selection is not natural but

political: ‘in financial ecosystems, evolutionary forces have often been survival of the fattest rather than the fittest’ (Haldane and May 2011: 351).

Yet, notwithstanding these qualifications, the concept of finance as ecology appears to be uniquely suited for analysing the dynamics of the complex financial habitat which, embedded in the network of shadow banking entities and functions, thrives and transforms through innovation. Etymologically, the notion of ‘ecology’ implies no distinction between human and non-human, living and non-living nodes within complex networks. As opposed to the notion of environment (which living species interact with), ‘ecology’ accommodates the connections between entities and their endeavours with non-human ecosystems, as well as within the socio-technical networks which underpin the financial industry today. Global banks therefore, need to be understood not as unitary economic agents or firms, but as corporations accommodating multiple legal personalities across many jurisdictions. Regulating these complex structures as unitary entities is bound to be inefficient, as they have proven to be able to evolve as complex networks through financial innovation, regulatory arbitrage and avoidance. One of the first steps towards a better regulation of global banking therefore, would to be acknowledge the gap between economistic approaches to banks and financial institutions as firms, and legal approaches to the corporate personalities of banks. Evolutionary political economy and ecological approaches to financial dynamics can serve as an important step towards such a new understanding.

Conclusion

The lessons of the global financial crisis have produced a paradoxical result. In the wake of massive losses, revelations of banking scandals and in light of the emergent literature on the phenomenon of shadow banking, we seem to know a lot about banks today; or at the very least, we know more about banks than we did before the 2007-09 crisis. We are broadly aware for instance, that banking today has become very complex, organisationally and functionally. The largest banks in the world today are known as ‘universal banks’: under one roof, they perform several different functions with different asset classes, benefitting from the opportunities afforded by the overall size of the group. We also know that a lot of the operations conducted by banks today have little to do with credit provision to the economy. They are driven instead, by banks’ own incentives cultures (known as commission-based banking). Banks have learned to pass on risks associated with the loans they originate to other participants of the financial system. And even if the specifics of credit creation and banks’ balance sheets remain too complex for non-specialists (as well as some to experts),

arguably, we have greater awareness about the importance of banks and banking for the economy, and the fragilities associated with many modern banking practices, than we did before the summer of 2007. It is increasingly clear that today's banking system can hardly be analysed with conceptual tools developed for the era of 'narrow banking'.

Notwithstanding these insights, it appears to us that even the experts are rather vague on the very definition of a bank. Current discussion does not appear to factor in the fact that 'banking organisations' have the technical knowhow, ability and incentives to arbitrate their legal status across various jurisdictions in order to benefit from the multiple legal personalities that afforded by their corporate structures. The concept of banking as an ecologies is still in its infancy, as is the theory of shadow banking. Yet both phenomena point that further research into global banking and finance need to be focused on the interface between the legal and functional forms in contemporary financial system, since although a distinction between the economic concept of a bank and the legal notion of a corporation and their representation may not seem pivotal in the everyday operation of the financial system, they become central when questions about the efficacy of global financial regulation, financial stability and public policy are raised.

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[i] The Basle accord of international banking regulations is a set of internationally agrees norms and rules that govern internationally active banks across the work. It is named after the town in Switzerland, Basle, where the first accord (Basle I) was agreed upon under the framework of the BIS in 1982.

[ii] See 12 U.S. Code Chapter 2 - NATIONAL BANKS (http://www.law.cornell.edu/uscode/text/12/chapter-2), in particular subchapter I, IV and V.

[iii] *United Dominions Trust Ltd v Kirkwood* [1966] 2 QB 431

[iv] See: Financial Services and Markets Act 2000, schedule 2, http://www.legislation.gov.uk/ukpga/2000/8/pdfs/ukpga_20000008_en.pdf
And Banking Act 2009, 'interpretation of bank' http://www.legislation.gov.uk/ukpga/2009/1/section/2

[v] The FSA was dissolved in 2013. The Financial Conduct Authority (FCA) assumed most of the FSA functions.