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# Financialization and the institutional foundations of the new capitalism

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One of key features of capitalism as a form of economic organization concerns its ability to change. Innovation often occurs by using old things in new ways, or by taking pre-existing elements and rearranging them into novel configurations [termed 'conversion' by Streeck and Thelen (2005, p. 26)]. Change can also happen when old activities are simply discontinued, or when new activities are added [what Mahoney and Thelen (2010, p. 16) call 'layering']. Capitalist innovation does not arise *ex nihilo*, nor does it involve wholesale rejection of the past. As even casual students of contemporary capitalism realize, much of today's capitalism resembles the old-fashioned kind studied by nineteenth-century social theorists like Marx, Durkheim and Weber. Heavy industry still exists, tangible goods are still manufactured in factories using assembly line methods, commodities are sent around the world via rail or ship, people still make steel and dig coal and iron ore out of the ground, and so on. Nevertheless, a growing number of scholars have identified 'financialization' as a significant change: the growth in importance of financial markets and financial institutions, and the increasing involvement of economic actors in financial transactions (Krippner, 2011; Greenwood and Scharfstein, 2013; Philippon and Reshef, 2013). Such transactions consist of traditional activities like lending (e.g. bank loans and bonds) and investment (e.g. equities), but also newer ones involving derivatives and securitization. What is the significance of this change, and what undergirds it?

The markets that organize capitalism are based on a set of underlying institutional preconditions. What do such foundations consist of? Since markets are venues for economic exchange, the first precondition concerns the objects of exchange. What do buyers buy from sellers, and how are these objects constituted? This is not a matter of physical reality since market exchange involves *rights* over things or services, not necessarily the things or services themselves. But by virtue of private property rights, tangible and intangible objects are commodified and ownership rights over them can be freely transferred from one owner to another.

Second, markets depend on *information* to suppose an interdependent role structure: buyers and sellers. Markets cannot function without actors willing to act in both of these roles. If everyone wants to sell and no-one wants to buy, then market exchange will not occur. The same is true with only buyers, but no sellers. As Akerlof (1970) showed, asymmetries of information can cause markets to unravel. In his analysis, sellers possessed information that they could not credibly convey to buyers, but the more general problem is that both buyers and sellers seek information about the objects they transact. Too much uncertainty will curtail market exchange. Third, markets depend on *regulation* that is sufficient to suppose binding agreements. Many bilateral transactions unfold over time, they are not completed 'on the spot'. For example, one party might receive goods and pay for them later, or someone might pay for goods, and receive them later. In modern markets, contracts are the vehicle typically used to make an agreement formally binding.[1] Finally, market economies contain the possibility of *failure* by firms, who then face bankruptcy. Firms that are unprofitable will eventually close down and cease their activities: their assets will be distributed to their creditors and employees lose their jobs. Corporate bankruptcy or insolvency law provides the means to identify and extinguish failing firms.

Financialization, as I discuss below, involves the modification and rearticulation of these preconditions. Krippner (2011) emphasized the political origins of financialization, but here I explore its institutional basis, an aspect she does not treat. I have listed these preconditions as analytically separable, but in historical fact they were usually linked together. For example, the development of corporate law enabled fictive individuals to become both owners of property and objects of property rights, where financial instruments functioned as the unit of ownership. A corporation was owned (by shareholders), and their ownership interests could be freely exchanged, but the corporation itself could also own property (for instance, other corporations). With the passage of general laws of incorporation and their modification at the end of the nineteenth century, corporations could own, buy, sell and enter into binding agreements. They could also fail, although limited liability protected the personal wealth of shareholders. In addition, these preconditions are often shaped through public regulation. Regulations may set restrictions on market entry (i.e. on who may act as a buyer or seller in a particular market), set prices or quality standards, standardize the contracts that govern exchange, mandate the provision of certain types of information by market actors or set the terms of market exit.

The dynamism of contemporary capitalism stems, in part, from the emergence of new ways to satisfy these preconditions. Through institutional change, capitalism was able to financialize within an overarching framework of private property, information, regulation and failure, maintaining its identity as a distinct economic system. This complex combination of change and continuity unfolded as small variations were amplified into large and often unintended transformations. The outcomes were variably intended.

## 1. Property

A good start for the common law definition of private property comes from Sir William Blackstone. It consists of: '. . . that sole and despotic dominion which one man claims and exercises over the external things of the world, in total exclusion of the right of any other individual in the universe' (Blackstone, 1766, p. 2). Blackstone's formulation underscores that

1 Contracts are not the only way to make agreements binding (Macaulay, 1963).

property rights are exclusive, they are held by individuals and they concern control over physical things. And in economies where assets consisted of land or tangible objects like livestock, buildings and ships, such property rules functioned well. At around the same time, Adam Smith recognized the role of government in the enforcement of private property rights: 'The acquisition of valuable and extensive property, therefore, necessarily requires the establishment of civil government' (Smith, 1789, Vol. 2, p. 232). Smith knew that sovereign governments enforced property rights and recognized the importance of the security of property rights for owners.

Capitalism is a type of economy in which the basic means of production are privately owned. Private property constitutes the basic 'stuff' of market transactions: buying and selling involves the transfer of property rights from one owner to the next. It involves a distinctive bundle of rights that owners possess with respect to the things that they own (Banner, 2011, p. 57). With economic development and the process of commodification, more and more objects became subject to private property rights. Overall shifts in the system of property coincided with major social transformations: consider the enclosure movement in early modern Britain (which, in effect, privatized common land), the Russian Revolution (which established state ownership of productive assets) and the post-socialist transformations of the 1990s (which privatized public property).

History reveals the dynamism of property: what can be privately owned at one point in time may not be at another. Furthermore, the overall trend is clear: more of the world's assets are subject to private property rights, and property has shifted from tangible to intangible objects. Land matters less, and non-physical assets (stocks, bonds, pensions, patents and other intellectual property, etc.) matter more. The growing importance of intangible objects has been particularly important in the rise of the so-called 'knowledge economy'. Increasingly, ideas are commodities subject to private ownership. Through the extension and development of intellectual property rights that work through modern patent, trademark and copyright law, intellectual creations can be owned, bought and sold. However, intellectual property rights are different in that they expire after a period of time and so the idea or innovation eventually becomes part of the common heritage of humankind. Intellectual property owners enjoy a temporary monopoly over their ideas, conditional on official recognition by a patent office. Only ideas that satisfy particular criteria (in the USA an idea must be novel, useful and non-obvious) will receive patent protection. Furthermore, even after a patent is granted, ideas are easy to steal and so to protect them as private property presents serious challenges.[2]

New forms of property and ownership emerged as part of financialization. In particular, securitization is a process in which new financial securities, akin to bonds, are created out of almost any underlying obligation that generates reliable cash flow: mortgage payments, student loan payments, credit card payments and so on. Securitization took apart unitary property and ownership interests, and turned them into highly divisible claims that could be blended, structured, prioritized and repackaged. In so doing, securitization could transform illiquid assets, like mortgage loans, into highly liquid assets, like mortgage-backed securities, and disperse their ownership much more widely than before. A pension fund could find itself invested in small portions of thousands of separate Arizona home mortgages.

2 Consider, for example, that a thief can make an unauthorized copy of proprietary software and leave the original version perfectly intact.

Simple forms of securitization were first practiced in the USA during the 1870s and 1880s and helped Eastern investors put money into Midwestern farm mortgages (Snowden, 2013, pp. 18–20). Mortgage companies pooled mortgages and then issued 'pass through' securities against those mortgages, which they then sold to investors. In effect, an investor purchased a small proportion of a large number of mortgages. However, this type of securitization disappeared during the late nineteenth-century depression. More recently, home mortgages were securitized on a large scale with the establishment of the Government National Mortgage Association ('Ginnie Mae'), whose purpose was to buy residential mortgages and sell 'pass-through' mortgage-backed securities (Green and Wachter, 2005, p. 99; Financial Crisis Inquiry Commission, 2011, p. 39). 'Ginnie Mae' was joined by two other government sponsored entities: 'Freddie Mac' (Federal Home Loan Mortgage Corporation) and 'Fannie Mae' (Federal National Mortgage Association). They created securities that could be traded on secondary markets, and more money was invested in home mortgages.

Securitization developed further with the rise of 'structured finance'. The class of underlying assets was broadened to include commercial and residential mortgages, loans, bonds, leases and other kinds of receivables, and the new securities involved a prioritized structure, where different 'tranches' enjoyed different levels of seniority (Coval *et al.*, 2009; Segoviano *et al.*, 2013, pp. 8–9). More senior tranches were paid first, and so the credit risks associated with the underlying assets were concentrated in the junior tranches. Credit rating agencies played a key role by rating each tranche separately, with top tranches typically receiving the highest rating ('AAA'). Furthermore, the asset pools against which the new securities were issued were held in 'special purpose vehicles' (SPVs) or 'structured investment vehicles' (SIVs), which were legally separate from the bank that did the securitization. Recourse to such 'off balance sheet' vehicles allowed banks to finesse accounting rules and minimize the regulatory capital they were required to maintain (Brunnermeier, 2009, pp. 80–81).

Widespread securitization created a new kind of intangible property: one based on underlying financial claims that had been carefully engineered to evade accounting rules, pool risk and reduce regulatory costs. Old-fashioned obligations, in which a single debtor owed a single creditor, were sliced and pooled with other obligations, and then prioritized so that top tranche securities were paid first by the cash flow generated by the underlying assets. Ownership was itself modified as the banks doing securitizations would transfer assets to new vehicles that were controlled by banks, but separate enough from them to be 'bankruptcy remote'. Ownership and control were split apart, but in a new way.

## 2. Information

In a perfect market, participants know everything: information is complete on both sides of a transaction, and there are no surprises. In real markets, much remains unknown, and ignorance is not spread around evenly. Indeed, some know more than others. One of the insights offered by Akerlof (1970) was that information asymmetries, such as characterized used car markets, could by themselves unwind markets. Akerlof suggested that information asymmetries were also problematic in labour and credit markets, but could be counteracted through mechanisms like guarantees, reputations and certifications.[3]

3 For a general discussion of the economics of information, see Stiglitz (2000).

Governments have long played a role in the provision of market information. For example, sovereigns have promulgated standardized weights and measures, knowing that the creation of credible standards for the measurement of size, weight and volume of commodities facilitated market exchange. The imposition of a uniform standard ensures that someone who thinks they are purchasing a gallon of some liquid is, in fact, getting a gallon, regardless of whether it is gasoline, beer or milk. Standards also ensure uniformity of measure regardless of where a transaction occurs (i.e. a 'gallon' is the same in New York City and San Francisco). So long as the standard-setter is independent of both buyers and sellers, information generated in accordance with standardized measures can help resolve the asymmetries that Akerlof discusses. Such information has the quality of a public good.

As the process of financialization creates new things to be bought and sold, new types of information have been generated to deal with new types of quality and quantity. Historically, the invention of the metric system was an exercise in the rationalization of early modern metrology, and many less well-known reforms have occurred over the centuries (McCusker, 1973; Nightingale, 1985; Hoppit, 1993). But the kind of information that enlightens a buyer about a piece of land is not relevant when considering the purchase of a bond, a patent or a software company. Thus, more recently, two new types of information have become particularly important in credit markets: ratings and benchmarks.

Bond ratings have been produced for more than a century. Starting with Moody's in 1909, for-profit rating agencies published their assessments of the bonds issued by various borrowers, using the now familiar ordinal category system that attaches the 'AAA' rating to the most creditworthy borrowers (Sinclair, 2005). At first, only domestic railroad bonds were rated, but ratings expanded to encompass other corporate bonds, and eventually domestic and foreign sovereign debt. Even before bond ratings, however, mercantile agencies like R. G. Dun were evaluating businesses in the USA with respect to trade credit, and issued ordinal ratings (Olegario, 2006; Cohen and Carruthers, 2014). Starting in the 1850s, mercantile agencies published reference books listing firms and giving them ratings that other businesses could use to assess creditworthiness. Overall, the success of rating agencies revealed the enormous appetite for information about the status of would-be borrowers.

In the USA, credit information was privately produced and sold to those who used it, as a form of intellectual property. Subscribers to Moody's or Dun's services received a reference book listing firms and their corresponding ratings and could use those ratings to guide their own investment or lending decisions. The rating business was completely unregulated, and by the end of the nineteenth century, the legal status of ratings had been defined as akin to opinions. A rating agency could not be sued on the grounds that its ratings were 'wrong'. Hence, users of such information had to proceed on a *caveat emptor* basis, and no regulatory overseer existed to hold rating agencies to account. Nevertheless, users paid for the service, in part because of the severe information asymmetries in credit markets: it was hard to obtain credible information about a borrower's willingness and ability to repay.

The status of ratings changed dramatically in the 1930s, and then again in the late 1980s and 1990s. The conditions of production of bond ratings also shifted in the early 1970s. In response to the collapse of US banking system in the Great Depression, federal bank examiners began to use bond ratings as an alternative way to value the bonds held in bank portfolios. In so doing, examiners could avoid marking them to market and in effect ignore the fact that bond prices had collapsed. By exercising this kind of regulatory forbearance, examiners were able to overlook the technical insolvency of some banks and give them a 'breathing

space' in which to recover (Penet, 2014, Chapter 2). Later in the 1930s, ratings were incorporated into prudential rules that prohibited banks from investing in assets that were deemed 'too risky', where the latter criterion was defined in terms of bond ratings. Henceforth, the distinction between 'investment grade' and 'below investment grade' was inscribed in regulations. Other regulatory agencies followed suit and soon bond ratings were used in the regulation of insurance companies, state-chartered banks, mutual funds and pension funds. Giving regulatory standing to ratings increased their importance considerably. Whereas before private market actors could use ratings at their discretion, legal regulations that incorporated ratings forced market actors to attend to ratings and ratings changes.

The business model of bond rating agencies changed in the early 1970s. For the first 60 years, rating agencies adopted the 'user pays' model: those who used the information paid for it. Agency customers wanted accurate and timely ratings. But for a number of reasons rating agencies shifted to the 'issuer pays' model, where the borrowers issuing bonds paid the rating agencies to have their bonds rated.[4] This change did not alter the status of ratings as an informational commodity, but it did change who bought them. Although the rating agencies continued to have an interest in maintaining their reputation for accuracy, it was more important to keep borrowers happy. And bond issuers wanted to borrow cheaply, which meant high ratings. The 'issuer pays' model, in other words, involved a conflict of interest. And that conflict became particularly apparent in the ratings issued to structured financial products before the 2008 financial crisis (see, e.g. SEC, 2008). As discussed in the previous section, otherwise inscrutably complex securitizations were made comprehensible to investors because they were rated. Sub-prime securitizations were repeatedly given higher ratings than were warranted, and the enormity of the mistake became apparent as default rates skyrocketed.

The role of ratings in credit markets took another step with the development of over-the-counter (OTC) derivatives markets in the late 1980s.[5] These global markets were unregulated and highly innovative, and expanded dramatically over several decades (Stulz, 2004; Jorion, 2010). At the core were the world's largest dealer-banks which dealt initially in interest rate and currency swaps, and these banks founded an association called the International Swaps and Derivatives Association (ISDA) in 1985 (Flanagan, 2001; Partnoy and Skeel, 2007, p. 1039). Unlike standardized derivatives contracts traded on exchanges like the Chicago Mercantile Exchange, OTC derivatives are 'bespoke'. But underneath these unique contractual arrangements lay standardized contractual language, legal templates and uniform definitions set by ISDA in its successive Master Agreements. These were updated to reflect developments in the OTC market and one feature in particular addressed the problem of 'counter-party' risk. Swaps arrangements typically extend over time, and so one risk that parties face is the possibility that the other party will be unable to fulfil its contractual obligations. A special part of the swaps contract, the credit support annex, addresses this risk, and the standardized language developed by ISDA incorporates credit ratings and governs the use of collateral to mitigate the risk (Hval, 1997, p. 809, Jarrow, 2011; Riles, 2011, p. 35). Credit

4 One reason concerned the difficulty of protecting the rating agency's intellectual property rights: with widespread adoption of photocopiers, it became hard to prevent unauthorized copying of the rating agencies' reference books.

5 A 'derivative' references some underlying asset, index or benchmark, and its value derives from the value of the 'underlying'.

ratings are used to gauge the riskiness of a counter party, and hence the need for collateral, and they are used to measure the value of the collateral that is posted (Carruthers, 2013).

Taken together, these developments greatly expanded the role played by credit ratings. As a type of market information, ratings continue to be produced by for-profit private firms, and are subject to little public oversight. Application of ratings has gone well beyond their original usage of improving the decisions of lenders and investors, as they were widely incorporated into public regulations and private contracting. Each extension expanded the importance of ratings and ratings changes. With the incorporation of ratings into prudential regulations, a rating that dropped below the 'investment grade' threshold forced institutional investors, like pension funds and insurance companies, to divest bonds at the same moment, and hence produced a correlated market action that would change prices. With the incorporation of ratings into private financial contracts, a rating decline could force a party to have to post more collateral across all of its swaps transactions at the same time, and potentially force the party to default (as happened to AIG in September of 2008). And even their original application has greatly widened, going beyond railroad bonds to encompass debt issued by utility companies, corporations, municipalities, state government and even national governments. In relation to the latter, the bond rating agencies play a significant role in publicly judging national finances and fiscal policy (Streeck, 2014, p. 88).

Another type of privately produced financial information concerns benchmarks. Financial contracts often incorporate a benchmark or reference interest rate in setting the price or other terms of a particular loan. Such information helps to simplify, standardize and coordinate financial contracts, and in principle is independent of either party. For instance, the London Interbank Offered Rate (LIBOR) is now used globally in financial contracts worth approximately US$ 300 trillion (Wheatley Review, 2012, p. 76). So when LIBOR changes, so do all the contracts that reference it.[6] A wide variety of individual and corporate financial products now incorporate interest rate benchmarks, including commercial loans, credit card loans, student loans, bank loans, commercial paper, deposit accounts and corporate bonds.[7] For example, 97% of syndicated loans, with total value worth trillions of dollars, use LIBOR as a reference interest rate (FSB, 2014, p. 8). Typically a financial contract will stipulate an interest rate equal to LIBOR plus a fixed percentage that reflects the riskiness of the loan (e.g. LIBOR + 5%). Financial derivatives like swaps, options and futures also incorporate LIBOR, EURIBOR or TIBOR, and it is estimated that more than half of US dollar-denominated OTC interest rate swaps and options (with a total notional value of US$ 171 trillion) were linked to an Interbank Offered Rate. Many exchange-traded derivatives reference LIBOR (Tabb and Grundfest, 2013, p. 236), and LIBOR is used by accountants to value assets and estimate discount rates (FSB, 2014, p. 9). Use of a common benchmark is a self-reinforcing practice because users know that different financial instruments will complement each other precisely (for example, a LIBOR-based loan can be hedged by a LIBOR-based derivative).

6 There are a number of other interbank offer rates for other banking communities: EURIBOR for the European Interbank Offered Rate; TIBOR for Tokyo Interbank Offered Rate; HIBOR for Hong Kong Interbank Offered Rate and so on.

7 Curiously, many US financial transactions have their terms set in London, beyond the reach of US regulators. See Yu (2013, pp. 1274–1275).

Ostensibly, LIBOR is the interest rate at which private London banks borrow from each other, on an unsecured basis, and was calculated under the auspices of the British Bankers' Association (BBA). It is a trimmed mean of the interest rates reported daily by participating banks, but it is based on hypothetical, not actual, transactions. That is, no bank need demonstrate that it borrowed at the interest rate it reports. LIBOR is calculated for a variety of maturities (ranging from overnight loans to 1 year) and currencies. Formal LIBOR 'fixings' began in 1986 for only three currencies (dollars, pounds and yen), but expanded to 10 currencies by 2012.[8] Over time, LIBOR displaced government borrowing costs (e.g. Treasury bill yields) as the key benchmark interest rate (Kreicher *et al.*, 2014). In the wake of recent scandals, however, the number of currencies has declined to five, and the maturities decreased from 15 to 7 (Yu, 2013; Hou and Skeie, 2014, pp. 1–2). These scandals revealed that the banks participating in the 'fixings' were deliberately misrepresenting interest rates, either to make themselves seem more creditworthy (by appearing to borrow at lower rates) or to bolster their derivatives positions (Tabb and Grundfest, 2013, p. 229, 238). Banks have paid large penalties (e.g. Barclays paid a US$ 453.6 million fine, UBS paid out US$ 1.52 billion and Rabobank paid US$ 1.07 billion), and various reforms are afoot (Wheatley Review, 2012; BIS, 2013; FSB, 2014). Among other changes, the calculation of LIBOR is no longer done by the BBA, and it is now supervised by the UK's Financial Conduct Authority.

Both credit ratings and benchmark interest rates exemplify a pattern whereby modern financial markets use privately produced information. This information was inscribed deeply into the regulatory and contractual infrastructure, and served to standardize and synchronize the otherwise uncoordinated actions of public and private market actors. Among other things, its specificity enabled automated or algorithmically based decision-making, and made it easy for market actors to exploit developments in information technology and computing power. As use of this information spread, the details of its production became significant, and in the absence of public oversight, various conflicts of interest became problematic. Credit rating agencies worked closely with their clients, the large banks that did complex securitizations, to ensure that structured financial instruments received higher ratings than warranted. The calculation of LIBOR was 'gamed' by participants to serve the interests of the banks that employed them. Both scandals undermined this information's integrity and credibility, although markets continue to use ratings and benchmarks.

To make action contingent on common information is one way to coordinate activity. Some of this coordination was quite deliberate: those who wrote loan contracts stipulating an adjustable interest rate equal to LIBOR + 5% wanted the loan interest rate to move up or down with LIBOR. The process of calculating LIBOR may have become corrupted, but the contract interest rate was intended to track LIBOR, whatever its value. Widespread usage of credit ratings also coordinated activity, but unintentionally so. Particularly in the case where ratings were used in prudential regulations, a drop below the 'investment grade' level could force the managers of pension funds, money market funds and insurance funds simultaneously to sell off a particular security. Such action looked like financial herding, although institutional investors were not deliberately copying each other. Rather, they were required by law to divest an asset that had become 'too risky'. But when such an action is performed by large numbers at the same time, it destabilizes the market rather than stabilizing

8 LIBOR was originally created as a standardized interest rate for syndicated lending. See Tabb and Grundfest (2013, p. 235).

the investor. Similarly, the contractual use of ratings to set collateral in OTC swaps meant that if one side received a rating downgrade, it would have to post more collateral across all of its outstanding swaps transactions. A downgraded party could not respond in a way that varied depending on the particular transaction or counterparty.

## 3. Regulation

Just as new forms of information have developed, so have new forms of regulation. The term 'regulation' calls to mind a government agency with statutorily mandated oversight over some market or industry: it may enforce rules of the marketplace, restrict entry and exit or set prices and standards. The rules imposed by such regulatory agencies often reflect democratic imperatives: for example, early rate-setting by the Interstate Commerce Commission reflected agrarian concerns about monopolistic pricing practices of nineteenth century US railroads, and the establishment of the Environmental Protection Agency was a response to the environmental movement in the 1960s. Public regulators are, of course, vulnerable to forms of 'regulatory capture' that privilege private over public interests (Carpenter, 2010, p. 36, pp. 40–41).[9] Recent scholarship also recognizes the importance of a very different kind of regulation. Private regulation comes in a variety of forms, such as labour and product standards that firms voluntarily adopt as a way to affirm particular ethical values in the minds of consumers. These standards are often set by a private industry group, which also publicly certifies compliance. Although some labour and product standards are clearly a response to political pressure and even may be an attempt to pre-empt public regulation, the extent of public accountability for private regulation chiefly consists of the influence of consumers, whose purchasing decisions may be (or not) swayed by the import of the regulations.

Consider the example of the Forest Stewardship Council (FSC), which is a private, international, non-profit non-governmental organization that sets a number of standards for forest management, and which gained prominence in the wake of concerns about the Amazon rainforest and in response to pressure from environmental activists (Bartley, 2007; Vogel, 2009, pp. 177–178). Its standards concern sustainability, minimal environmental impacts, respect for indigenous peoples, long-term social and economic benefits for local communities and forest workers and so on. Forest managers and companies that sell products using wood from those forests, can voluntarily seek certification, and if so they are audited. A company deemed compliant can then display an FSC trademark or logo so that consumers know they are compliant (of course, the logo has been trademarked). As more forests are certified and demonstrate compliance, the FSC logo becomes a more meaningful signal in the marketplace, although it is not the only private 'green' standard in its area.[10] In 1995, about 4.2 million hectares of forest had been certified, but this area had increased to 183 million hectares worldwide by 2014 (FSC, 2014, p. 2).

Private regulation does not, however, focus only on material goods and activities, and their effects on the environment or worker safety. Intangible activities and relationships can also be regulated. ISDA, mentioned earlier,[11] is a private industry organization that regulates the huge

9 For a nuanced discussion of regulatory capture, see Carpenter and Moss (2014).

10 The profusion of private standards and regulations continues to be a problem. See Newell and Paterson (2010, p. 122) and Locke (2013, pp. 26–27).

11 On ISDA's organization, see Flanagan (2001) and Morgan (2008).

OTC derivatives market ( primarily interest rate and currency swaps, but also things like credit default swaps (CDS)) by designing the contractual machinery that undergirds market transactions. From a very small start in the early 1980s, the OTC derivatives market has grown to the point where the total notional value of transactions is now measured in the hundreds of trillions of dollars.

The OTC derivatives market is highly centralized (Stulz, 2004, p. 187; ISDA, 2010b), with most transactions involving a large global bank as one of the two parties (and frequently as both). Transactions are customized to address whatever risk the 'buy' side wishes to hedge (e.g. currency risk, interest rate risk, credit risk, etc.) and have involved a high degree of innovation alongside increasingly complex swaps (Awrey, 2013).[12] The OTC market is a global one, spanning many national jurisdictions and therefore involving multiple legal systems. It is not obvious, for example, which national laws apply if the New York City branch office of a Chinese bank enters into a Euro-Yen swap deal with a German bank based in Frankfurt.

OTC transactions are governed by contracts, and usually do not involve tangible assets. And although the contracts are customized, the terms, clauses and elements built into those contracts are not (they are, in fact, 'boilerplate'). As market activity grew, one of ISDA's first tasks was to standardize and codify the contractual language used by market participants (Feder, 2002, pp. 736–747). These codifications are assembled into a Master Agreement that has gone through successive iterations (in 1987, 1992 and 2002). ISDA has succeeded as a regulator in that around 90% of all OTC derivatives are governed by ISDA's documentation: ISDA templates substantially govern the market (Braithwaite, 2012, p. 784). By creating standardized language, ISDA reduced transaction costs, simplified negotiations between transacting parties, bolstered legal certainty and made it easier for transacting parties to know what they were getting into from a contractual standpoint. Instead of repeatedly negotiating the meaning of consequential terms like 'collateral', 'default' or 'governing law', or crafting provisions to offer credit support for a given transaction, parties could use pre-existing language and focus on a small set of features (maturity, interest rate, etc.) in their discussions (Hval, 1997, p. 809; Choi and Gulati, 2006, pp. 1140–1141). In effect, ISDA created a market-wide platform for the recurrent creation of high volumes of customized financial contracts.

ISDA monitors how OTC transactions engage with relevant bodies of public law, especially those governing netting, collateral and insolvency. How these fit together greatly affects the market. For example, many OTC derivatives transactions use collateral in order to manage credit risk. Collateral is, of course, a very old device. A home mortgage is simply a loan collateralized by real estate, and mortgages have been in use for centuries. But financial transactions pose problems not envisioned by those who developed the law of secured transactions. Among other features, financial collateral is usually intangible (unlike the house that secures a mortgage loan), it does not have a physical location and it possesses highly variable liquidity (Gullifer, 2012). Similarly, given the high volume of transactions in the OTC market, it can be advantageous to offset claims so that final settlement need only involve a net payment. However, in many jurisdictions, claims are treated as legally separate and so they cannot be summed to produce one overall net balance between two parties. Overall, it helps the OTC

12 The extent of customization distinguishes OTC derivatives from exchange-traded derivatives, which are standardized contracts. The exchanges are subject to public regulatory oversight whereas OTC transactions are not.

market if public law supports or is consistent with market imperatives, as articulated by ISDA. To help manage how private ISDA rules dovetail with public law, ISDA pressures and advises governments to adopt laws that will support the OTC derivatives market. It devised a model netting law and urges its adoption in different countries to help secure the public law netting rules that it wants (Morgan, 2008, p. 649). In the 1990s, ISDA successfully resisted various proposals in the USA to subject OTC derivatives to public oversight (e.g. Bauman, 1998), an effort that culminated in passage of the Commodity Futures Modernization Act in 2000 (Harding, 2010, pp. 413–417). Needless to say, after the 2008 financial crisis ISDA's political activity increased even more.

As a private regulator, ISDA brought order to the OTC market, but it did so via contract law, giving to market participants the tools needed to structure their transactions and enable market activity.[13] It did not worry about the materiality of transactions because derivatives are intangible (although the 'paperwork' associated with such transactions is not). Furthermore, despite the fact that ISDA's membership eventually widened to include derivatives end-users and other stakeholders, at its core were the big dealer-banks that dominate the OTC market and which operate primarily on the 'supply side'. ISDA's actions and policy largely reflect their interests. There is little public accountability or concern for the general interest.

## 4. Failure

Another signature feature of a market economy is the possibility of failure by firms, leading to their bankruptcy.[14] Unlike command economies characterized by 'soft' budget constraints, market economies involve 'hard' budget constraints, and firms are beholden to measures of profit, performance and solvency. If they do well by those measures, they thrive. But if they do not, then drastic measures will be taken. The countries of eastern and central Europe often adopted a new bankruptcy law during the 1990s as they shifted towards market economies. Such laws provided a framework for the imposition of 'hard' constraints. In general, bankruptcy laws can favour debtors or creditors. If the former, provisions will enable debtors to discharge or renegotiate their debts and get a fresh start after the proceeding. If the law favours creditors, however, then the 'sanctity of contract' weighs heavily, debt collection by creditors matters most, and it will be hard for debtors to reduce their debts.

In the simplest version, the bankruptcy of a firm was a straightforward legal process. It was triggered when a firm was unable to service its debts, or when a firm's net worth became negative (i.e. total liabilities exceeded total assets). And failure produced only one outcome: liquidation. Failed firms ceased to exist and suffered a form of organizational death. Procedurally, the failed firm's assets were pooled and valued, and the liabilities registered. Operationally, the insolvent firm ceased to function: its management and employees were laid off, and its assets dispersed. Then, in accordance with the seniority and magnitude of creditors' claims, the assets were liquidated and the proceedings used to repay the firm's claimants. The most senior claims were paid first, and only once they were satisfied were junior claimants paid. Some of these differences are set by contract (e.g. the priority that secured lenders have over unsecured lenders), but many are determined by public policy (e.g. the consideration

13 Contra Macaulay (1963) transactions in the OTC derivatives market always stress a high degree of contractual formality and rectitude.

14 I will set aside the issue of personal bankruptcy, which warrants a separate discussion.

given to tax obligations or employees' unpaid wages). Liquidation was a distributional exercise in which inadequate resources were shared among a set of legal claimants, where more for one claimant meant less for others, and where it was impossible to fully satisfy all claims (Carruthers and Halliday, 1998, p. 160, 309).

In a capitalist democracy, firm failure produces some undesirable effects. Even if it is true that failure forces poorly utilized assets to be redeployed to different and potentially better uses in the long run, firm failure has short run effects that reduce economic activity, lower tax revenues and raise unemployment. These short run outcomes are things that elected politicians dearly wish to avoid. In a market economy, it is not possible simply to legislate that no firms can fail (with the notable exception of those firms deemed 'too big to fail'). Nevertheless, politicians found ways to mitigate some of the harsh effects of failure.

Recently, many bankruptcy and insolvency laws shifted away from 'liquidation' as the main outcome for failed firms, and opened the possibility of rehabilitation or reorganization (Carruthers and Halliday, 1998, pp. 69–71; Azar, 2008, p. 458). Perhaps best exemplified by 'Chapter 11' reorganizations, the goal is to give a troubled firm an economic breathing space, a way to reorganize its operations and restructure its obligations and return the firm to profitability (Skeel, 2001, pp. 181–183). Reorganization rather than liquidation makes it possible to save some jobs and preserve some productive capacity, rather than simply have an insolvent firm shut down.[15] Like liquidation, reorganization is a conflict-ridden distributional exercise. Although all of a firm's stakeholders normally have an interest in the survival of the firm,[16] costs have to be reduced and performance improved: will the reductions focus on wages (which hurts employees), interest payments (which is bad for lenders) or cost of materials (which affects suppliers)? Can creditors be turned into shareholders through a debt-for-equity swap? Bigger cost reductions in one place mean lower reductions elsewhere. Further conflicts occur over the valuation of assets, especially for those that collateralize loans from secured creditors. Nevertheless, reorganization is politically preferable to liquidation, and so many features of the law try to keep the firm alive 'as a going concern'.

In both liquidations and reorganizations, seniority is one of the key factors which affects how well an insolvent firm's claimants do. The losses suffered by the failed firm will not be distributed evenly, and thanks to limited liability, the losses suffered by the firm's shareholders will be capped. Senior claimants have first access to the firm's assets, and the junior claimants divide whatever is left over. Seniority can be established by contract, or statute, but either way senior claims do best in the distributional conflicts that unfold in bankruptcy.

Very recently, a new set of 'super senior' claimants have managed to insert themselves into the bankruptcy process in a way that privileged their claims over everyone else (Riles, 2011, pp. 41–42). ISDA has been very successful in getting many countries to adopt its model netting law.[17] It created a version in 1996, with updates in 2002 and 2006 (ISDA, 2006). Passage of this law means that in a corporate bankruptcy the OTC derivatives counterparties of the failed

15 Of course, informal reorganizations can happen outside of the bankruptcy court, via negotiations between a troubled firm and its creditors.

16 An exception would be a 'vulture fund' that purchased a troubled firm's debt at heavy discount, and hedged using collateralized debt obligations.

17 This includes most large economies: Australia, Brazil, Canada, France, Germany, Japan, Russia, South Africa, Switzerland and the USA. By 2010, 37 countries had adopted netting legislation (ISDA, 2010a, p. 2).

firm are able to net out their positions before the imposition of the judicial stay that normally accompanies the start of a bankruptcy proceeding. The stay is intended to halt all debt collection activity by the firm's creditors, and thus ensure an orderly and lawful distribution of assets. But ISDA netting provisions allow derivatives counterparties to escape the stay by granting 'safe harbor provisions' to OTC derivatives contracts (Edwards and Morrison, 2005, pp. 95–97; Charles, 2009, p. 14; Harding, 2010, pp. 406–407). By allowing netting, a whole series of distinct transactions can be aggregated together, instead of being treated separately (Gregory, 2010, p. 26, 46).

Suppose that one swap transaction between a dealer-bank and an insolvent customer had a negative value (to the dealer-bank), and another transaction between the same parties had a positive value. For the first transaction, the dealer-bank owes money to the customer, and ordinarily in a bankruptcy proceeding, the dealer-bank would have to pay its bankrupt customer. For the second transaction, the dealer-bank is owed money, and ordinarily in bankruptcy its debt collection efforts would be halted by the judicial 'stay' and it receives payment depending on its seniority and the size of the asset pool. Netting means it can combine the two transactions and in effect use the first to repay itself under the second (ISDA, 2010a, p. 3). However, as in all bankruptcy situations, the use of assets to repay a dealer-bank mean that less value remains for other creditors. Yet the import of new netting rules did not become fully apparent until 2008. Then, failure in the financial sector revealed how much ISDA's netting rules favoured ISDA members over other claimants (Roe, 2011). Without benefit of political debate, OTC derivatives counterparties had secured the equivalent of a super-priority and could extract value from an insolvent firm before anyone else.[18] With increasing involvement of ordinary corporations in the OTC derivatives market (typically on the 'buy side'), these advantages for dealer-banks grew in importance. And the 'financialization' trend probably means that they will continue to do so.

Developments in financial markets affect bankruptcy in other significant ways. Both liquidation and reorganization procedures presuppose that secured and unsecured creditors have an uncomplicated interest in getting repaid, and hence in maximizing the value of the bankrupt firm's assets. On the basis of that interest, they are granted a particular role in the proceedings. However, the rise of credit derivatives can alter that interest substantially (Lubben, 2007). For example, a CDS allows a creditor to hedge the risk that the debtor will default. The 'buyer' of the CDS can 'insure' against the possibility that the debtor firm does not repay its creditors and, in terms of its exposure, such a fully hedged creditor is indifferent whether or not the debtor meets its obligations. Such a creditor cannot play the active role envisioned for it in a bankruptcy proceeding. Among other things, such creditors have less incentive to participate in out-of-court restructurings, and more incentive to provoke the kind of 'credit event' that triggers the CDS (Lubben, 2007, p. 427). Finally, much of bankruptcy process involves valuation of assets, and OTC financial derivatives tend to be customized, illiquid and hard to price (unlike exchange-traded derivatives). Even use of mark-to-market accounting relies on models and assumptions about which reasonable people can disagree, and thus greater use of OTC derivatives can increase disputes over valuation in a bankruptcy proceeding (Curley and Fella, 2009).

18 For arguments on why the favourable treatment of OTC derivatives in bankruptcy may worsen financial instability, see Roe (2011) and Edwards and Morrison (2005).

In sum, it would be mistaken to view bankruptcy in a market economy as akin to organizational death. It is true that a firm going through a liquidation proceeding will cease to exist, but there is nothing 'natural' about the imposition of hard budget constraints. Bankruptcy is an enacted and conflict-ridden process that can go in many directions depending on the rights, priorities and standing of the various stakeholders. It can even be suspended entirely, as the application of 'too big to fail' to systemically important financial institutions demonstrates (Stern and Feldman, 2009; Woll, 2014, p. 65, pp. 69–71). Two noteworthy changes have occurred in recent decades. First, in response to the political imperatives of electoral democracy, politicians have added a rehabilitative option for insolvent firms, and thus reorganization joined liquidation. Second, in response to the political power of finance, the major banks that deal in OTC derivatives were granted privileged status in the event of the bankruptcy of their counterparties.

## 5. Interconnections

Financialization links together these changes in property, information, regulation and failure. Financialization has been most closely studied for the USA, but it is a global trend. It is not, however, a uniquely contemporary phenomenon: the relative size of the financial sector waxes and wanes. In the USA, for example, the financial sector grew from the 1850s until the 1930s, when it abruptly shrank, and then started to grow again in the 1950s (Philippon and Reshef, 2013, pp. 73–74). Greenwood and Scharfstein (2013, p. 5) attribute recent financialization in the USA to the rise of asset management and to the growth in household credit. According to Rajan (2010), the latter change, whereby households borrowed either to purchase homes or consumer goods, helped to mitigate some of the political tensions associated with rising income inequality (see also Prasad, 2012). Streeck (2014) similarly views the rise of private household credit as a means to deal with distributional tensions in democratic capitalist countries, and notes that bond markets (and bond rating agencies) have become an important constituency for indebted democratic states.

Whatever the causes of financialization, the growth in financial markets has changed bankruptcy, and created financial entities of such importance, that they escape the possibility of failure altogether. Consequently, it is no longer possible to view bankruptcy as a kind of neo-Darwinian mechanism that weeds out poor performers. And financial developments like securitization actually make it harder for solvent but illiquid borrowers to renegotiate their loans and stave off bankruptcy: bargaining becomes complicated as creditor interests disperse through the pooling and tranching process. Other developments, like the spread of credit derivatives, allow corporate creditors to hedge risks so completely that they no longer fulfil the role envisioned for them by the architects of bankruptcy law.

In addition, global financial markets have been marked by deregulation and the rise of private regulation. In the USA, bank consolidations produced a more concentrated banking industry (Calomiris and Haber, 2014, pp. 201–202) that could deploy considerable political influence (Kroszner and Strahan, 1999; Riles, 2011, p. 78), and this reinforced a neo-liberal ideological shift favouring market-based economies. These changes affected the fundamental rules of the financial markets and reduced democratic accountability. Thanks to financialization, certain types of information have become central to the governance of global markets, and any problems ramify quickly and widely. Due to the difficulties in protecting ratings as intellectual property (prompted by the invention of the photocopier), the bond rating agencies

changed their business model from 'user pays' to 'issuer pays' in the 1970s. Case law also established that the creators of other market information (whether individual prices or market indices like the 'S&P 500') owned that information (Banner, 2011, p. 83, 92). The continuous innovation in the financial sector drove demand for more information, which until very recently was privately produced and with little public oversight. Financialization has also reinforced the trend towards intangible property. Two hundred years ago, most property consisted of land or other tangible assets. Today, considerable wealth involves financial assets: intangible claims on cash flows in the form of stocks, bonds, pension funds, annuities, swaps or similar instruments. Yet, as widely as the definition of property has been stretched to include various kinds of intangible assets, it still does not encompass much that large financial institutions do, and so the latter must constantly innovate in order to maintain de facto the kind of monopoly rents that a patent could otherwise bestow (Awrey, 2013).

## 6. Conclusion

The institutional changes described above are particularly relevant to 'financialized' capitalism. Intangible contractual claims on intangible cash flows are an increasingly important basis for wealth, whether directly through household ownership of financial assets or indirectly through pension funds, insurance companies and other institutional investors. In the USA, for example, financial assets were worth 37.9% of total family assets in 2010 (Bricker *et al.*, 2012, Table 5). And the range of financial assets has broadened from old-fashioned stocks and bonds to securitized instruments, derivatives and swaps of extraordinary complexity. Freedom of contract has been fully exploited in the financial sector as innovators devise new ways to bundle and calibrate cash flows, and to hedge risks. The rules that helped to impart order to this growing volume of financial activity shifted their locus, from public to private.

Many of these changes started as local solutions to specific problems, but unintentionally engendered complexity and path dependency. They manifest a pattern identified by Streeck and Thelen (2005, p. 9) as '. . . incremental change with transformative results'. In complex systems, small causes can produce big (and unanticipated) effects. Bond ratings, for example, were originally devised as a summary measure sold to subscribers and used to guide investment choices in US railroad bonds, and decades later they were adopted into US bank regulations as means to provide regulatory forbearance for troubled banks during a national economic emergency. Other regulatory agencies followed suit and incorporated ratings into various prudential regulations. Later on, ratings were incorporated into private financial contracts as an easily available 'market-based' measure of risk. Large political forces did not intentionally drive this diffusion process, but by the end of the twentieth century ratings had inadvertently become a 'master signal' that synchronized and coordinated investment, regulatory constraints and contractual actions around the globe. Similarly, ISDA was founded in order to systematize the contractual language for what at the time was a small financial market (Harding, 2010, p. 18), but as the market grew, ISDA became an incumbent private regulatory body for a vast global market. LIBOR was devised as a simple aggregate interest rate measure for syndicated loans in the London market, but over time became a key benchmark that calibrated millions of financial contracts around the world. And widespread securitization, originally enacted by Ginnie Mae to encourage home ownership, turned into a technique that transformed lending activities from 'originate and hold' to

'originate to distribute', allowing financial institutions to undertake extensive 'off balance sheet' activities, and making it even more important for rating agencies to satisfy their clients by issuing high ratings to tranches of financially engineered securities. Path-dependent processes unfolded in ways where history mattered, and change did not reflect functional necessity.

Some changes were more deliberate, however. It is hard to overlook the unstinting political pressure coming from large financial institutions to keep the OTC derivatives market unregulated. Despite the clear precedent set by public regulation of exchange-traded derivatives, core participants in the OTC market successfully resisted repeated attempts to regulate, including one notable effort by the head of the CFTC following the collapse of Long-Term Capital Management in 1998 (Carruthers, 2013, pp. 394–395). These deregulatory pressures culminated in the Commodity Futures Modernization Act of 2000, and reinforced deregulation and consolidation within the banking system, as well as the efflorescence of the 'shadow' banking system (Gorton and Metrick, 2010; Hanson *et al*., 2011). The absence of public regulation bolstered private control over the market and was justified on the grounds that sophisticated private risk management (using credit ratings and value-at-risk models) would combine with self-interest to ensure market stability (e.g. Kroszner, 1999). Recent experiences associated with financial deregulation, particularly the expensive public bailout that followed the savings-and-loan crisis of the late 1980s, were brushed aside (Pontell and Calavita, 1993; White, 1993; Calavita *et al*., 1997).

Whether by accident or not, flexibility in the basic institutions of capitalism has helped to create modern economies that privilege the widespread use of high volumes of new types of information, although the fidelity of such information cannot be assumed; that are in some respects less bound by the physical limits of the natural world because of the extensive commodification of intangible goods; that are regulated both privately and publicly in ways that often do not serve the public interest and where bankruptcy, the terminus of market competition, is itself a malleable process shaped by politics. Collectively, these institutional changes have bolstered the process of financialization. Some will be difficult to reverse given how political power accumulates around economic wealth. The extension of intellectual property and the growth of derivatives markets have each created powerful constituencies that will guard against their diminution. Nevertheless, in capitalist democracies, the distribution of political and economic power is not perfectly correlated, and loose couplings can hold out the possibility for reversals and further change.

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