



# Empirical Legal Studies in Financial Markets: What Have We Learned?

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# Empirical Legal Studies in Financial Markets: What Have We Learned?

Julia Black \*

**Abstract:** In the wake of the financial crisis, the natural impetus of many is to assume that the markets can be ‘fixed’ by changing the rules governing their structure and the conduct of those participating in them. The implicit assumption, thus, is that law can and does shape markets. This assumption accords well with the arguments which are perhaps the natural inclination of policy makers and legal academics, which is that ‘law matters’. On this view, the reformists’ task in the wake of the crisis is relatively straightforward: find the right rules, ensure they are properly enforced, and the markets will alter accordingly. However, the alternative view is that regulation and law, rather than leading markets, follows them and more often than not serves to recognize and authorise activities which already exist. Markets matter; law is simply an instrument, a gift (or irritation) of the state which market actors lobby for, deploy, avoid, or simply ignore in the pursuit of their own interests. This paper considers the current state of empirical research into the interaction of law, regulation and financial markets and asks what can we take from this research that can help us going forward?

## INTRODUCTION

The global financial crisis was arguably not global, but it was certainly a crisis. We are still reeling in its aftermath, and it is clear that the crisis will set the agendas of politicians, regulators, and indeed academics for some considerable time to come. It may even have an impact on banks’ behaviour, but that prognosis is more tentative. The natural impetus of policy makers, and to an extent of regulators, is to assume that the markets can be ‘fixed’ by changing the rules governing their structure and the conduct of those participating in them. The implicit assumption,

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thus, is that law can and does shape markets. This assumption accords well with the arguments which are perhaps the natural inclination of legal academics, which is that ‘law matters’. Law is not simply a facilitator of personal transactions; it shapes and structures those transactions, and moreover provides the essential framework for them to occur. In the extreme version of this thesis, markets could not happen without legal institutions to create and facilitate the exchange of property rights and interests and to provide a stable institutional environment in which those transactions can be honoured. On this view, the reformists’ task in the wake of the crisis is relatively straightforward: find the right rules, ensure they are properly enforced, and the markets will alter accordingly. However, the alternative view is that regulation and law, rather than leading markets, follows them and more often than not serves to recognise and authorise activities which already exist. Markets matter; law is simply an instrument, a gift (or irritation) of the state which market actors lobby for, deploy, avoid, or simply ignore in the pursuit of their own interests.

As the numerous prescriptions for reform of the regulation of financial markets pour forth, it is worth reflecting on what we already know about the relationship between law, regulation, and markets from empirical research into their interaction. The aim of this paper is not to add to the rapidly growing mound of much needed work diagnosing the causes of the crisis and prescribing proposals for reform. Rather it is to map the current state of empirical studies concerning the interaction of law, regulation, and financial markets. All maps need boundaries, here trebly so. A boundary is needed first to delineate the object of inquiry (financial law and regulation); secondly, to delineate what counts as ‘empirical’ work; and thirdly to delineate what counts as ‘legal study’. As an object of inquiry, ‘financial markets’ covers a potentially wide area, but there is emerging a discrete body of financial law,<sup>1</sup> and indeed financial regulation, one which covers securities, debt, and derivative instruments, and the markets in which they are traded, and extends to banking and insurance. It merges at its edges with corporate law (as both are concerned with equity investors), takeover law (as both deal with trading securities), insolvency law (as both are concerned with debt investors), and commercial law (as many financial instruments are used and created to facilitate commercial trade). As to what counts as empirical work, the paper focuses on that work which uses primary source evidence relating to the operation of the financial markets which has been collected using quantitative or qualitative techniques. This is a potentially broad field, and so is limited by the third boundary: what constitutes ‘legal studies’. This boundary is delineated by an understanding of what constitutes law and regulation, both contestable. Here, law is taken both in an essentially positive sense to mean formal law that is enacted in accordance with a ‘grundnorm’ or rule of recognition, including common law, and in a more pluralistic sense to include the rules and precedents which are the

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<sup>1</sup> J. Benjamin, *Financial Law* (Oxford: Oxford University Press, 2008).

products of state or non-state regulators and the legal profession. Regulation is taken to be organised attempts to influence behaviour, using any combination of rules, monitoring, incentives, and sanctions, which may or may not have legal status. Where, in an imaginary Venn diagram, these three areas of financial law, empirical work, and legal studies meet thus defines the boundaries of inquiry.

This paper considers the main research trajectories in this area with respect to four distinct but related meta-level research questions. These are: what is the impact of law and regulation on financial markets; what is the impact of financial markets on law and regulation; what are the impacts of different understandings of behaviour of actors within the markets for using law and regulation as an instrument to affect the operation of markets; and finally, what are the dynamics of the regulatory regimes for financial markets.

If these questions seem to be simply four ways of asking the same thing, it is because they are at this level of abstraction closely related; however, in their details they have moved into quite distinct areas of research, areas which rarely interact. If they also seem too broad to be manageable, this is probably true, but it should be noted that one distinct area has been omitted simply for reasons of space, and that is the dynamics of deviance, of financial crime itself. Finally, because scholars from so many disciplines have engaged with these research questions, in some instances it is necessary to set out the theoretical assumptions which underpin the different empirical studies which have been conducted: after all, theory needs empirical work to test and validate its arguments, and empirical work needs theoretical analysis to ground its questions and to interpret the answers it finds.

### **THE IMPACT OF LAW AND REGULATION ON THE DEVELOPMENT OF FINANCIAL MARKETS**

The first two research questions focused on here, the impact of law and regulation on the markets, and the impact of the markets on law and regulation, have dominated recent empirical research by lawyers in corporate law and securities markets. The issue at stake is whether and how law and regulation can be used to promote the development of financial markets, and in turn, to promote economic growth. There is clearly a great deal politically riding on the answer to this question. However, separating out the impact of law and regulation on the markets from the impact of the markets on law and regulation is a complex task, and the two are probably more accurately described as being in a reflexive relationship, in which each influences the other simultaneously or in turn. Nevertheless, the distinction provides a useful starting point, even if the ultimate analysis the relationship is more complicated than the neat division of ‘influence of law on markets’ versus ‘influence of markets on law’ might suggest.

The question of what impact law and regulation have on the development and operation of markets may be disaggregated into a series of nested questions.

At the outer edge, or macro-level, is the question of the deep structural influences institutional structures (including law and regulation) have on the development of economies and markets. Moving in to the mid-range or mezzo-level, is the question of the influence of particular laws on particular markets, in this context of particular sets of rules relating to corporate governance and (to a lesser extent) trading in financial instruments, to the overall development of financial markets. Moving further to the micro-level, the question being researched is what is the influence of a particular legal rule on the efficiency of the market and the behaviour of those in it? With respect to each question, research and debate are conducted by scholars from a number of different disciplines and operate at different levels of abstraction and analysis, and although inquiry at each level is informed by empirical research, the debates rarely interact.

This section looks at empirical legal research at each of these levels. Not all of this research has a normative dimension, but where it does, the direction is to law reform: how should financial (or more particularly securities and corporate) law and regulation be reformed so as to stimulate market development? This highly instrumentalist view of law, in which success is usually assumed, is a common approach, particularly for non-lawyers. Dealing in gross generalisations is always dangerous, but the conception that scholars in other disciplines have of law is often at once formalistic and instrumentalist: in which the law in the books is equivalent to law in action, and in which law is either an obstacle or impediment to markets, or an enabling tool which can facilitate their development, but which is always exogenous to the markets. Most legal scholars tend to have a more complex and nuanced approach to law, but the normative assumptions of 'reform through law' can also dominate. After considering empirical research relating to each of the nested questions in turn, this section introduces a small cautionary note, therefore, by looking at some of the unintended impacts of law and regulation on the market.

#### MACRO-LEVEL QUESTIONS: WHAT IS THE ROLE OF LAW IN THE CONSTITUTION AND DEVELOPMENT OF MARKETS?

The question 'does law matter to markets' is framed and answered quite differently depending on the researcher's view of both law and markets. Conceptions of law can be highly formalistic or more substantive and sociological: the familiar distinction of 'law in the books' and 'law in action'. They can also be either positivist or pluralist. There are also significant differences in how markets are perceived. Recognising these different theoretical assumptions and conceptions is necessary for lawyers engaged in empirical legal research, for different theoretical starting points will lead to different framing, methodologies, and interpretation of the empirical research conducted, and go some distance to explaining some of the criticisms that each has of each others' work.

The main dividing line in the conception of markets is between neo-classical economists on the one hand, and sociologists and political economists on the others. Legal researchers adopt either conception, depending largely on whether they are law and economics scholars or tend more to socio-legal approaches. For classical economists, markets are composed of the interactions of buyers and sellers acting rationally to pursue their preferences (we will look at the behavioural assumptions of economists further below). Markets can then be viewed abstractly, and in empirical terms, can be measured quantitatively and on a macro-level. How law interacts is therefore a question of how it interacts with the actions of a mass of unconnected buyers and sellers. In this conception, law is not integral to the ability of markets to function, however, though it can facilitate or impede them by reducing or creating transaction costs or opportunism. But it is an external factor that markets respond to as they may to other external factors.

For institutionalist political economists and economic sociologists, however, markets are constituted by institutions, including law, social structures, and social relations. Research by these scholars at the macro level therefore involves looking at how social institutions affect firms' strategies across entire industries or economies. These institutions include, but are not limited to, the internal corporate governance structures of firms, the industrial relations systems, the financial markets, the structure of the state, and the norms, principles, rules (including law), and 'recipes for action' of its participants.<sup>2</sup> Different economic systems exhibit different combinations of systems of coordination: markets, hierarchies, networks, communities and associations, and so on, each of which is grounded in different institutional rules of exchange and compliance,<sup>3</sup> and indeed in different 'varieties of capitalism'.<sup>4</sup>

To those taking an institutionalist approach to markets, law is neither an obstacle nor an instrument which is external to the markets, but is intrinsic to their constitution and operation. A similar conception of the relationship of law and markets operates at the micro level. Here, sociologists and anthropologists tend to dominate.<sup>5</sup> For these scholars, markets are constituted by micro-level social interactions; understanding the formation and operation of a market empirically therefore requires a close examination of the emergence of social structures that affect the strategy, structure, and practices of a particular firm or group of firms. There has been a growing interest by such scholars in the last decade in financial

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<sup>2</sup> eg J. Hollingsworth and R. Boyer (eds), *Contemporary Capitalism: The Embeddedness of Institutions* (Cambridge: Cambridge University Press, 1997); P. Hall and D. Soskice, 'An Introduction to Varieties of Capitalism' in P. Hall and D. Soskice (eds), *Varieties of Capitalism: The Institutional Foundations of Comparative Advantage* (Oxford: Oxford University Press, 2001); H. Kitschelt, 'Industrial Governance, Innovation Strategies, and the Case of Japan: Sectoral or Cross-National Analysis?' (1991) 45 *International Organization* 4, 453-493.

<sup>3</sup> J.R. Hollingsworth and R. Boyer, 'Coordination of Economic Actors and Systems of Production' in J.R. Hollingsworth and R. Boyer (eds), *Contemporary Capitalism: The Embeddedness of Institutions* (Cambridge: Cambridge University Press, 1997).

<sup>4</sup> Hall and Soskice, n 2 above.

<sup>5</sup> eg M. Callon, (ed). *The Laws of the Markets* (Oxford: Blackwell, 1998). K. Polanyi, *The Great Transformation* (New York: Beacon Press, 1944); M. Abolafia, *Making Markets* (Harvard: Harvard University Press, 1997).

markets.<sup>6</sup> How law interacts with markets is therefore a question of how particular legal rules, or legal understandings and practices affect the behaviour of these particular actors at this micro-level.

The work done by non-legal scholars understandably does not necessarily focus on the impact of law in particular, as distinct from other social institutions. For example, the work of political economists and economic sociologists on the impact of social institutions on economic development rarely examines the impact of law as a variable distinct from other variables such as the system of industrial relations or the structure of the state. Lawyers have engaged in empirical research at this macro level, although the work does not necessarily refer to the more theoretical institutionalist literature with which it has a strong affiliation. In the area of financial markets, one of the main examples is work by legal scholars into transition economies and law reform. This research suggests that there is a need to have effective legal institutions in place before financial markets (and indeed other economic sectors) can develop. Changing securities laws without having these foundations in place will have little effect.<sup>7</sup>

MEZZO LEVEL QUESTIONS: WHAT IS THE RELATIONSHIP BETWEEN PARTICULAR SETS OF LEGAL RULES OR REGULATORY PRACTICES AND THE DEVELOPMENT OF FINANCIAL MARKETS?

At the macro-level, saying that there needs to be a developed system of private law and well-functioning legal institutions is clearly important, but policy makers, and researchers, often seek more fine-grained answers which identify which legal rules or regulatory practices in particular can facilitate or hinder the development of financial markets. Clearly, for policy makers, an assumption that law can be used to stimulate financial market development is a helpful one to adopt, and it is just this assumption which has underlain the EU's extensive legislative programme for financial market regulation over the last decades, and particularly since the 1990s.<sup>8</sup> Lawyers may be more sceptical than policy makers of the likely success of this

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<sup>6</sup> eg Abolafia, n 5 above; D. MacKenzie, 'Long-Term Capital Management and the Sociology of Arbitrage' (2003) 32 *Economy and Society* 3, 349-380; id, 'How a Superportfolio Emerges: Long Term Capital Management and the Sociology of Arbitrage' in K. Knorr-Cetina and A. Preda (eds) *The Sociology of Financial Markets* Oxford: Oxford University Press, 2005); id, 'Opening the Black Boxes of Global Finance' (2005) 12 *Review of International Political Economy* 4, 555-576; id, *An Engine, Not a Camera: How Financial Models Shape Markets* (Mass.: MIT Press, 2006); D. MacKenzie and Y. Millo, 'Constructing a Market, Performing Theory: The Historical Sociology of a Financial Derivatives Exchange' (2003) 109 *American Jnl of Sociology* 1, 107-145.

<sup>7</sup> See eg K. Pistor, M. Raiser, and S. Gelfer, 'Law and Finance in Transition Economies' (2000) EBRD Working Paper no 48; B. Black, 'The Legal and Institutional Preconditions for a Strong Securities Market (2000) *UCLA Rev* 781.

<sup>8</sup> See <[http://ec.europa.eu/internal\\_market/finances/actionplan/index\\_en.htm](http://ec.europa.eu/internal_market/finances/actionplan/index_en.htm)> for details. N. Moloney, *EC Securities Regulation* (Cambridge: Cambridge University Press, 2nd ed, 2008); E. Ferran, *Building an EU Securities Market* (Cambridge: Cambridge University Press, 2004); Final Report of the Committee of Wise Men on The Regulation of the EU Securities Market (Brussels, 2001) (Lamfalussy report); CRA International, *Evaluation of the Economic Impact of the FSAP* (London, 2009).

venture. As Ferran acutely observes, ‘It would be truly remarkable for reform of the legal system to be the key to securing the Holy Grail of economic growth fostered by financial development.’<sup>9</sup> Nonetheless, Holy Grails promote fervent searches and intense battles, and this one is no exception. The key question which this line of research and policy development asks is thus: ‘Where well developed legal systems exist, which laws in particular matter to the development of financial markets, and if so why, how, and to what extent?’

For the last decade or so, the agenda has been set in this area by the work of a group of financial economists – La Porta, Lopez-de-Silanes, Shleifer, and Vishny, and colleagues – whose work is referred to collectively as LLSV. Whether lawyers agree with it or not, their work is now the reference point in the field and has had a significant impact on the research questions that are now asked by legal scholars. Much of their work is focused on issues which lawyers traditionally define as relevant to corporate law, but it does also have implications for scholars of financial markets, as well.<sup>10</sup> This body of research sits between that of the macro-level work of institutional economists and sociologists, and the micro-level analysis of the impacts of individual rules, such as short selling rules considered below, or micro-level social processes.

LLSV’s work and the work which it has prompted are good examples of the type of empirical work conducted by financial economists and law and economics scholars into the impact of law on the operation of the markets. There is a standard over-arching methodology, which is to correlate different indices of market performance with the presence or absence of particular legal rules. Only some areas of financial markets lend themselves to this type of analysis, however, as it relies on the availability of significant amounts of data, for example, on prices and trading. The long history of organised securities markets and their disclosure requirements mean that data on these markets is the most easily available; the greatest concentration of this type of research occurs in securities markets, therefore, rather than in the off-exchange (and so more opaque) bond and derivatives markets.

#### *LLSV – The main arguments*

The central question that La Porta and colleagues ask is why there are such different patterns of the use of debt or equity (shares) to finance companies in different countries. Why is there, for example, wide dispersed ownership in the UK and US; narrow shareholding dominated by banks in Germany; or very few

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<sup>9</sup> Ferran, *ibid*, 25.

<sup>10</sup> There is a crossover here between financial and corporate law. Financial law and corporate law are artificial boxes. Much of what in US is classified as securities law is classed in UK as company law. This difference in classification has more to do with the allocation of legislative responsibility in the US than it has to do with the presence of a ‘defining essence’ of what constitutes securities law and what constitutes company law. In the US, states are responsible for corporate law, but the federal regulator, the SEC, is responsible for securities law. Using securities law to make provisions relating to shareholder rights is thus a convenient way for the federal government to set the agenda, rather than the individual states (M. Roe, ‘Political Preconditions to Separating Ownership from Corporate Control’ (2000) 53 *Stanford Law Review*, 539-606).

public companies in Italy? They argue that the answer is to be found in the degree to which shareholders and creditors are protected by the legal system.<sup>11</sup>

LLSV argue that patterns of law, enforcement, and accounting standards have significant implications for corporate form and financial market development.<sup>12</sup> The less investor rights are protected, on their index, and the less they are enforced, the higher is the concentration of ownership, and vice versa.<sup>13</sup> Moreover, they argue that higher degrees of investor protection are associated with higher corporate valuations.<sup>14</sup> They have done more specific work on particular rules, and argue, for example, that self-dealing by corporate insiders is best regulated by full disclosure and approval by disinterested shareholders, and that public enforcement matters little.<sup>15</sup> Overall, they argue that securities laws which are based on disclosure and private enforcement facilitate stock market development, whereas the amount of public enforcement of securities laws has little or no impact.<sup>16</sup>

Much of the work which has developed either directly or indirectly in response to LLSV's analysis focuses on the classic question in corporate law, which is how legal mechanisms can be used to address the principal-agent problem of how shareholders can control managers, expanded to include now consideration of how smaller shareholders can control managers and dominant

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<sup>11</sup> R. La Porta, F. Lopez-de-Silanes, A. Shleifer, and R. Vishny, 'Law and Finance' (1998) 106 *Jnl of Political Economy*, 1113-1155; id, 'Investor Protection and Corporate Governance' (2000) 58 *Jnl of Financial Economics*, 3-27; R. La Porta, F. Lopez-de-Silanes, and A. Shleifer, 'What Works in Securities Laws?' (2006) LXI *Jnl of Finance*, 1-32 (hereafter referred to collectively as LLSV).

<sup>12</sup> Their starting point is to group all commercial legal systems into two 'families': common law and civil law. Within civil law, they further distinguish three main camps: French, German, and Scandinavian. They argue that these systems of law have spread to other countries through processes of imperialism, conquest, borrowing, and imitation (R. La Porta, F. Lopez-de-Silanes, A. Shleifer, and R. Vishny, 'Legal Determinants of External Finance' (1997) LII *Jnl of Finance* 3, 1131-1150; La Porta, et al (1998), *ibid*; id (2000), *ibid*). They examine the company and insolvency laws protecting shareholders and creditors in 49 countries. With respect to shareholders, they looked at voting rights and protection from expropriation by management, for example. With respect to creditors, they looked at the degree of legal protection given for the security, the ability of the creditor to seize assets in the case of default, and whether management could seek protection from creditors unilaterally. They developed an index of what they saw to be all the relevant rules in company law and insolvency law which protected investors from the ability of managers and controlling shareholders to divert the profits or assets of the firm for their own use, and scored them for degree of protection. They also looked at the quality of the legal system (in terms of efficiency of the judicial system, rule of law, corruption, and risk of appropriation of assets or repudiation of contracts by the government), as measured by credit rating agencies, and the quality of accounting standards, as measured by separate comparative studies. They found that in all countries there was a high correlation between the protection given to shareholders and that given to creditors. Common law countries gave both sets of investors the highest degree of protection. Within the three groups of civil law countries, the French gave the least, and German and Scandinavian countries were in between. With respect to enforcement and accounting standards, German and Scandinavian traditions have the highest quality, followed by the common law countries, with those in the French family trailed at the end again.

<sup>13</sup> La Porta, et al (1997), *ibid*; id (1998), n 11 above; id (2000) n 11 above.

<sup>14</sup> R. La Porta, F. Lopez-de-Silanes, A. Shleifer, and R. Vishny, 'Investor Protection and Corporate Valuation' (2002) LVII *Jnl of Finance*, 1147-1170.

<sup>15</sup> Djankov, S., La Porta, R., Lopez-de-Silanes, F., Shleifer, A., 'The Law and Economics of Self-Dealing' (2008) *Jnl of Financial Economics* 88, 430-465.

<sup>16</sup> La Porta, et al, n 11 above.

shareholders, and what impact corporate governance rules have on corporate value.<sup>17</sup> As such, it falls into the disciplinary ‘box’ of corporate law and internal corporate governance.

Of more relevance to scholars of financial markets is how their work links with the work of law and economics scholars on the development of securities markets. Securities markets are themselves only one part, and arguably one of the least complex parts, of the financial markets, but there is a long tradition of law and economics scholarship on the impact of law on the operation of this part of the markets. This work is dominated by analysis of the US securities laws, and in particular the mandatory disclosure requirements applying to listing.

Dating from the 1930s and the opposition to mandatory disclosure rules for securities markets, the debate has divided principally into two camps.<sup>18</sup> First, there are those who argue that there is no need for securities laws as the market, supported by private law, will provide the most optimal disclosure arrangements, either through contracting arrangements, the use of third parties to verify information (such as auditors), or the rules of private stock exchanges.<sup>19</sup>

Second, there are those who argue that government regulation is required, as incentives for firms to disclose complete and verifiable information are too weak, and private law arrangements are too inefficient and expensive to use in practice.<sup>20</sup> In turn, this group divides on whether government intervention should provide certain standard disclosure provisions and liability rules, so structuring the framework for private contracting, and rely principally on private enforcement,<sup>21</sup>

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<sup>17</sup> See eg L. Bebchuk, A. Cohen, and A. Ferrell, ‘What Matters in Corporate Governance?’ (2009) 22 *Jnl Financial Studies* 2, 783-828.

<sup>18</sup> See also La Porta, et al (2006), n 11 above.

<sup>19</sup> See R. Coase, ‘The Problem of Social Cost’ (1960) 3 *Jnl of Law and Economics*, 1-44; id, ‘Economists and Public Policy’ in J.F. Weston (ed), *Large Corporations in a Changing Society* (New York: New York University Press, 1975); G. Stigler, ‘Public Regulation of the Securities Market’ (1964) 37 *Jnl of Business*, 117-142; G. Benston, ‘Required Disclosure and the Stock Market: An Evaluation of the Securities Market Act of 1934’ (1973) 63 *American Economic Review*, 132-155; id, ‘The Market for Public Accounting Services: Demand, Supply and Regulation’ (1985) 4 *Jnl of Accounting and Public Policy*, 33-79.; D. Fischel and S. Grossman, ‘Customer Protection in Futures and Securities Markets’ (1984) 4 *Jnl of Futures Markets*, 273-295; M. Miller, *Financial Innovations and Market Volatility* (Cambridge: Blackwell, 1991); J. Macey, ‘Administrative Agency Obsolescence and Interest Group Formation: A Case Study of the SEC at Sixty’ (1994) 15 *Cardozo Law Review*, 909-949; R. Romano, ‘The Need for Competition in International Securities Regulation’ (2001) 2 *Theoretical Inquiries in Law*, 1-179).

<sup>20</sup> eg J. Coffee, ‘Market Failure and the Economic Case for a Mandatory Disclosure System’ (1984) 70 *Virginia Law Review*, 717-753; id, ‘The Mandatory/Enabling Balance in Corporate Law: An Essay on the Judicial Role’ (1989) 89 *Columbia Law Review*, 1618-1691; id, ‘Understanding Enron: It’s About the Gatekeepers, Stupid’ (2002) 57 *Business Lawyer*, 1403-1420; P. Mahoney, ‘The Exchange as Regulator’ (1997) 83 *Virginia Law Review*; M. Fox, ‘Retaining Mandatory Disclosure: Why Issuer Choice is not Investor Empowerment’ (1999) 85 *Virginia Law Review*, 1335-1419; B. Black, ‘The Legal and Institutional Preconditions for Strong Securities Markets’ (2001) 48 *UCLA Law Review*, 781-858; W. Reese and M. Weisbach, ‘Protection of Minority Shareholder Interests, Crosslistings in the United States, and Subsequent Equity Offerings’ (2002) 66 *Jnl of Financial Economics*, 65-104).

<sup>21</sup> eg F. Easterbrook and D. Fischel, ‘Mandatory Disclosure and the Protection of Investors’ (1984) 70 *Virginia Law Review*, 669-715; B. Black and R. Kraakman, ‘A Self-Enforcing Model of Corporate Law’ (1996) 109 *Harvard Law Review*, 1911-1981.

or whether the weaknesses of private enforcement in practice are such that, in addition, government should play an active role in enforcing securities laws.<sup>22</sup>

LLSV argue firmly that public enforcement has no effect on stock market development. Instead, they maintain that facilitating private enforcement through mandatory rules on disclosure, liability rules, and directors' self-dealing rules is the way to promote the development of securities markets. Their methodology and argument has been highly influential, and is now reflected in the work of key policy makers, notably the World Bank, the IMF and the European Central Bank.<sup>23</sup>

### *Criticisms and refinements of LLSV*

As noted, the work of LLSV and colleagues has defined the agenda for empirical legal research in corporate law and to an extent financial regulation. Nonetheless both their methodology and their findings have been subjected to a number of criticisms, both from those working within the law and economics tradition, and by those who are critical of it. Criticisms focus on a number of aspects of LLSV's methodology and assumptions. The rules they select to comprise the index are criticised on the grounds that they fail to take into account functionally equivalent rules in other jurisdictions, leading to misleadingly low scores.<sup>24</sup> The scoring method is criticised as being too crude and exhibiting a US bias.<sup>25</sup> Further, the same regimes have received different scores using the same rules and scoring system as LLSV,<sup>26</sup> suggesting interpretive bias is hard to eliminate. In particular,

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<sup>22</sup> See M. Polinsky and S. Shavell, 'The economic theory of public enforcement of law' (2008) 38 *Jnl of Economic Literature*, 45–76 for a classic economics analysis of the optimal role of public enforcement.

<sup>23</sup> H. Jackson and M. Roe, 'Public and Private Enforcement of Securities Laws: Resource-Based Evidence' (2009) Harvard University Law School, Public Law and Legal Theory Research Paper Series No 0-28 and John M. Olin Center for Law and Business Law & Economic Research Paper Series, Paper No. 638 at [www.law.harvard.edu/programs/olin\\_center](http://www.law.harvard.edu/programs/olin_center), 4; World Bank, *Doing Business in 2006: Creating Jobs* (Washington DC, World Bank Publications, 2006); V. Bruno and S. Claessens, 'Corporate Governance and Regulation: Can There Be Too Much of a Good Thing?' (2008) CEPR Discussion Paper No DP6108; P. Hartmann, F. Heider, E. Papaioannou, and M. Duca, 'The Role of Financial Markets and Innovation in Productivity and Growth in Europe' (2007) European Central Bank Occasional Paper No 72.

<sup>24</sup> See eg J. Armour and P. Lele, 'Law, Finance, and Politics: The Case of India' (2008) ECGI–Law Working Paper No. 107; J. Coffee, 'Privatization and Corporate Governance: The Lessons from Securities Market Failure' (1999) 25 *J. Corp. L.* 1; id, 'The Rise of Dispersed Ownership: The Roles of Law and the State in the Separation of Ownership and Control' (2001) 111 *Yale L.J.* 1; M. Siems, 'What Does not Work in Comparing Securities Laws: A Critique on La Porta, et al's Methodology' (2005) 16 *International Company and Commercial Law Review* 7, 300-305.

<sup>25</sup> Siems, *ibid*; Jackson and Roe, *ibid*. So in developing their indices of variables and their scoring system, for example, they assume that the features of the US system of corporate and securities law are the most important, and the most efficient: highest scores go to disclosure regimes, for example, rather than merit regulations for listing, or requirements for approval by independent directors or a supervisory board of related-party transactions with directors (Siems, *ibid*). Highest scores also are given for single function securities regulators (as found in the US) rather than integrated regulators (as found elsewhere). Although the home bias remains, in their later research, more fine grained scores have been introduced which allows scoring to be more nuanced, and thus more accurate (eg Djankov, et al, n 15 above).

<sup>26</sup> H. Spamann, 'Law and Finance Revisited' (2008) Harvard Law School John M Olin Centre Discussion Paper No. 12 at <[http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1095526](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1095526)>.

Spamann has undertaken a systematic study of 46 of the countries in the original LLSV anti-director rights index to verify the index values used. Unlike the LLSV work, Spamann asked locally trained and qualified lawyers to perform the verification. With a more detailed knowledge of the relevant legal provisions, the re-valuation found errors in 33 of the 46 observations. Once re-valued, the correlations found by LLSV with respect to common law and civil law countries, dispersed ownership and stock market development are no longer found. This is clearly a significant finding, suggesting that the LLSV data and their conclusions are deeply flawed.

These criticisms have led to further methodological refinements.<sup>27</sup> However, their research can nonetheless still be criticised as having an overly formalistic conception of law, focusing only on formal rules and assuming that the mere presence (or absence) of a particular legal rule means that effective protection is (or is not) being provided.<sup>28</sup> They neither analyse how the different rules operate in practice, nor how they interact with other private law provisions which may have an impact on their application, nor how and whether they are enforced.<sup>29</sup> Further, as their research sees only disclosure, liability, and anti-director rights as the relevant rules to measure, their work can be criticised for pinning an analysis of financial market development on only a relatively few rules. Moreover, although these rules may be pertinent to the question of shareholder control of managers, they are less relevant to the development and operation of securities markets generally as they do not address some of the main aspects of trading.<sup>30</sup> Nor are they relevant to the broader question of investor participation in markets, as they focus only on individual decisions to invest directly in equities. They neither focus on issues of portfolio design,<sup>31</sup> nor on the regulation of the pervasive and potentially pernicious conflicts of interest between intermediaries and investors which permeate the investment markets.

LLSV's classification of all legal systems into one of four legal 'families' can also be criticised as being too crude, masking significant heterogeneity within 'families' and similarities between them. In particular, it takes no account of the impact of EU law on domestic legal structures of member states. UK securities law is now fundamentally shaped by EU law, which in turn is shaped by international codes and norms. Further, transnational harmonisation of legal provisions in the area of securities law in particular makes it difficult to put the different regimes into the different 'boxes'. In a detailed historical and comparative study tracing developments in shareholder, creditor, and labour protections from 1970-2005, Armour, Deakin, Lele, and Seims show that there has been considerable convergence in shareholder protection laws in the last 10-15

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<sup>27</sup> eg S. Djankov, R. La Porta, F. Lopez-de-Silanes, and A. Shleifer, 'The Law and Economics of Self-Dealing' (2008) 88 *Jnl of Financial Economics*, 430-465.

<sup>28</sup> eg Coffee (2001), n 24 above.

<sup>29</sup> *ibid*; Siems (2005), n 24 above.

<sup>30</sup> Jackson and Roe, n 23 above.

<sup>31</sup> H. Jackson, 'To What Extent Should Investors Rely on Mechanisms of Market Efficiency: A Preliminary Investigation of Dispersal in Investor Returns' (2002) 28 *Jnl Corp Law*, 681.

years in particular, far more than with respect to creditor or labour laws.<sup>32</sup> In addition, Coffee, for example, finds that there is considerable variance of stock market development within legal families that cannot be explained by significant variations in rules, but rather by variations in public enforcement;<sup>33</sup> a point to which we will return below.

Finally, and related to the point above, the LLSV research, and in particular the conclusion they draw as to the direction of causality (that law causes market developments), is criticised as being ahistorical, as they base their analysis only on the rules as they exist at a certain point in time. As such, critics argue, this leads them to mistake correlation with causation. LLSV argue that the legal systems predate the development of securities markets, and are therefore essential to them. Rather, an empirical, historical analysis of the evolution of particular rules suggests that changes in the law followed changes in the markets, not the other way around.<sup>34</sup>

*Rebutting LLSV – the relative roles of public and private enforcement of law*

Much of the research which the LLSV work has prompted focuses on the extent to which different legal rules do or do not favour managers and / or majority shareholders. This is of considerable interest to corporate law scholars, but of less direct relevance to those interested in the interaction of law, regulation, and the financial markets more broadly. However, one area of the LLSV research which has attracted the particular attention of those interested in financial regulation is with respect to the question of the relative roles public and private enforcement should play in ensuring vibrant securities markets.

In basing their analysis on the presence or absence of particular legal rules, the LLSV research assumes first, that these will facilitate private litigation, and second, that private litigation will therefore result. The view most lawyers have of the effectiveness of private litigation is considerably less rosy, and to many, their assumptions are heroic. Although LLSV note the transaction costs entailed in litigation, their assumptions take no real account of their significance. They also ignore the impact of other institutional barriers to litigation, for example procedural rules such as those relating to class actions, an inexperienced or corrupt judiciary, or the high economic costs of litigation and the ability of plaintiffs to manage these costs through, for example, contingency fees or cost rulings. In particular, in addition to the general problems related to private enforcement (collective action problems, intermittent and ad hoc nature, problems of proving loss or causality), research suggests that private litigation of securities law yields only small returns to plaintiffs, does not lead to costs on the wrongdoers, who can

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<sup>32</sup> J. Armour, S. Deakin, P. Lele, and M. Seims, 'How Do Legal Rules Evolve? Evidence from a Cross-Country Comparison of Shareholder, Creditor, and Worker Protection' (2009) *57 Am Jnl Comparative Law* 3, 579-629.

<sup>33</sup> Coffee (1999), n 24 above.

<sup>34</sup> Coffee (1999) and (2001), n 24 above; Armour, et al, n 32 above.

simply transfer the costs to others, and often just transfers losses from one innocent group of shareholders to another, with lawyers being the main winners.<sup>35</sup>

Further, the comparison LLSV make of public with private enforcement ignores the economic arguments for public enforcement and the fact that critical elements of private enforcement depend in practice on public enforcement. One of the key problems for anyone bringing litigation is securing information, first that a harm has been suffered, and secondly establishing the causal link between the defendant's actions and the plaintiff's harm.<sup>36</sup> Further, in securities litigation (as indeed in environmental litigation), most litigants use information which has been disclosed as a result of publicly enforced disclosure rules.<sup>37</sup> Private enforcement can therefore be dependent on prior public enforcement for its effectiveness.

Arguably, only when the analysis of formal rules is supplemented by actual data on the level and intensity of litigation can it be categorically stated that private enforcement is occurring at all, rather than simply existing as a theoretical legal possibility, and thus can its relationship with securities markets' development be assessed. The UK, for example, scores relatively high on their index for private enforcement, and yet there is almost no private litigation on the basis of the securities laws (though there is more litigation with respect to internal shareholder-manager disputes). The vast preponderance of enforcement action relating to securities laws in the UK is public.<sup>38</sup>

There has been work which has used indicators based on the practice of public enforcement, however, not just formal indicators of the presence of rules. Despite the huge volume of theoretical literature debating whether or not insider dealing should be allowed at all,<sup>39</sup> Bhattacharaya and Daouk's empirical research into the impact of insider dealing rules, found that simply enacting insider dealing legislation had no effect on the cost of equity. In contrast, where those rules were accompanied by intensive and credible public enforcement (even just one successful prosecution sufficed), the cost of equity was reduced.<sup>40</sup>

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<sup>35</sup> See Jackson and Roe, n 23 above, 5 for review; see also S. Choi, 'Do the Merits Matter Less After the Private Securities Litigation Reform Act?' (2007) 23 *J Law Econ and Org*, 598; S. Choi, K. Nelson, and A. Pritchard, 'The Screening Effect of the Private Securities Litigation Reform Act' (2009) 9 *Jnl Empirical Legal Studies*, 35-68.

<sup>36</sup> See eg Polinsky and Shavell, n 22 above.

<sup>37</sup> J. Cox, R. Thomas, and D. Kiku, 'SEC Enforcement Heuristics: An Empirical Inquiry' (2003) 53 *Duke Law Jnl*, 737; Jackson and Roe, n 23 above.

<sup>38</sup> See I. MacNeil, 'The Evolution of Regulatory Enforcement Action in the UK Capital Markets: A Case of 'Less is More'?' (2007) 2 *Capital Markets Law Jnl* 4, 345-369; K. Cearns and E. Ferran, 'Non-Enforcement-Led Public Oversight of Financial and Corporate Governance Disclosures and of Auditors' (2008) 2 *Jnl Corporate Law Studies* 2, 191-224 for discussion.

<sup>39</sup> For overview, see H. McVea, 'What's Wrong with Insider Dealing' (1995) 15 *Legal Studies*, 390.

<sup>40</sup> U. Bhattacharya and H. Daouk, 'The World Price of Insider Trading' (2002) 57 *Jnl of Finance*, 75-108; see also L. Beny, 'A Comparative Empirical Investigation of Agency and Market Theories of Insider Trading' (2004) University of Michigan Law School, The John M. Olin Center for Law & Economics Working Paper Series No 4-2004 at

<<http://law.bepress.com/cgi/viewcontent.cgi?article=1003&context=umichlwps>>; 'Insider Trading Laws and Stock Markets Around the World: An Empirical Contribution to the Theoretical Law and Economics Debate' (2006) 32 *Jnl Corporation Law*, 237.

It could be argued that their research did not refute La Porta et al's work, as the insider dealing laws which were the subject of measurement may not have facilitated private enforcement. Comparing them, in other words, is like comparing apples and pears. Bhattacharaya and Daouk's work focused on the relative importance of formal legal rules relating to public enforcement and actual public enforcement, not formal legal rules relating to public enforcement and formal legal rules relating to private enforcement. La Porta et al's argument has never been that formal law alone is sufficient; it is that private enforcement of formal laws is superior to public enforcement in stimulating stock market development.

However, recent work by Jackson and Roe, two law and economics scholars, has criticised La Porta et al's work on its own terms. They have used La Porta et al's data on stock market development to compare their findings on the effects of private enforcement with public enforcement. Critically, however, to measure public enforcement, Jackson and Roe do not use the formal indicators of La Porta et al, but develop resource-based measures of enforcement intensity. In other words, they attempt to measure not law in the books, but law in action. Using securities' regulators resources as a proxy for enforcement intensity, they analyse the significance of public enforcement practice, as opposed to the presence of formal rules, on securities markets.<sup>41</sup>

Their research shows, first, that there can be a significant disparity between the number of formal enforcement powers that a regulator has, and a regulators' resources. In contrast, LLSV's work implicitly assumes that enforcement activity

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<sup>41</sup> Jackson and Roe, n 23 above. As they admit, the input measure which they use as a proxy for enforcement intensity is imperfect for a number of reasons, not least because it may not be the case that resources are used towards enforcement in equal proportion in each regulator. For example, in Nigeria they found a significant disparity between regulators' resources and stock market development, which they suggest indicates corruption or other diversion of regulatory resources away from enforcement (*ibid*, 19). An alternative would be to use measures of actual enforcement actions taken, as Jackson has done in previous work: H. Jackson, 'Variation in the Intensity of Financial Regulation: Preliminary Evidence and Potential Implications' (2007) 24 *Yale J. on Reg.*, 253). Output measures such as these also have own limitations, however, not least because different regulators have very different enforcement styles. Some prefer compliance based approaches (for discussion in the UK context, see MacNeil, n 38 above; Cearnas and Ferran, n 38 above. Others, notably the US, prefer formal actions (H. Jackson, 'Variation in the Intensity of Financial Regulation: Preliminary Evidence and Potential Implications' (2007) 24 *Yale Jnl on Reg.*, 253). Similar contrasts in regulatory style have been found between the US and the UK in the area of environmental regulation (eg D.Vogel, 'National Styles of Regulation: Environmental Enforcement in Great Britain and the US' (1986) 65 *Public Administration* 108. The move away from output measures represents a methodological refinement, as Jackson's earlier work tended to assume that formal enforcement actions were more effective than informal approaches. However, there is a longstanding debate in the regulatory literature on whether a formal, deterrence-based approach to enforcement is more effective at stimulating compliance than an informal, 'compliance'-based approach (see I. Ayres and J. Braithwaite, *Responsive Regulation* (Oxford: Oxford University Press, 1992). Assessing which style is the more effective in promoting compliance requires a different set of research methodologies, however, and although empirical work on enforcement styles and/or motivations for compliance has been done in other areas such as railways, environment, food safety, pulp paper industry, and dairy farming, there is much less systematic work of this nature done in the financial services context (for an exception, see C. Ford and D. Hess, 'Can Corporate Monitorships Improve Corporate Compliance?' (2009) 34 *The Jnl of Corporation Law* 3, 680-737).

will be in proportion to the powers that the regulator has available, its independence, and its institutional structure, as noted above. Instead, Jackson and Roe's research indicates that some countries, in particular France, score highly on the La Porta, et al index of formal powers, but devote very few resources to enforcement in comparison with other financial regulators, allowing for the size of the market. In contrast, the Netherlands securities' regulator, which has only a low score on the index of formal powers, devotes a high level of resources to enforcement activity relative to the size of the markets. Formal powers, in other words, cannot be used as a proxy for enforcement intensity.

Jackson and Roe systematically demonstrate that public enforcement is significantly correlated with financial market development and performance around the world,<sup>42</sup> and moreover is as strongly correlated as the best performing index of private enforcement (disclosure rules) and substantially more strongly associated with robust capital markets than several other indices of private enforcement, including liability rules and anti-director rights.<sup>43</sup> However, it is disclosure rules rather than public enforcement which are more significant in determining ownership structures.<sup>44</sup> Moreover, disclosure rules correlate more strongly with ease of market access than public enforcement.<sup>45</sup> Finally, however, neither the private enforcement index nor the resource-based index of public enforcement correlates significantly with either market stability or efficiency.<sup>46</sup>

Their findings have significant policy implications, suggesting that countries that want to facilitate the development of stock markets are not handicapped from the start by their legal tradition, but rather need to put in place effective disclosure rules and have real-resource public enforcement regimes. They argue that this is directly contrary to the current policy recommendations of the key international financial institutions, suggesting that that policy is based on a fragile empirical base.<sup>47</sup>

Their findings are also relevant to the question posed above – which comes first: stock markets or legal institutions? Financial economists had assumed that because the common law supported financial markets, and because common law

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<sup>42</sup> They measure market capitalisation, trading volumes, the number of domestic firms, and the number of initial public offerings (Jackson and Roe, n 23 above).

<sup>43</sup> *ibid.*, 13; see also Jackson (2007), n 41 above; J. Coffee, 'Law and the Market: The Impact of Enforcement' (2007) Centre for Law and Economic Studies, Columbia University School of Law, Working Paper No. 304.

<sup>44</sup> Jackson and Roe, n 23 above, 21.

<sup>45</sup> Although see Coffee, n 43 above.

<sup>46</sup> Jackson and Roe also examined the correlation between the 'families' of law, common law and civil law, with both enforcement intensity and stock market development. Controlling for real resources and private law indices, they found no correlation between common law and civil law countries and stock market development; indeed, they found a negative correlation between common law countries and stock market development, contrary to the arguments of LLSV. Furthermore, they found that contrary to the widespread assumptions of financial economists, and others, that civil law countries are associated with higher enforcement, they found the reverse to be the case (Jackson and Roe, n 23 above, 22-24). So, they conclude, rather than it being the traditional features of the common law which support robust securities markets, such as rules on fiduciary duties or judicial enforcement, it is regulatory institutions which matter (*ibid.*, 23).

<sup>47</sup> *ibid.*

predated financial markets, that it was legal institutions which structured the market, not the other way around. Moreover, financial economists have argued that common law systems supported stock market development to a greater degree than civil law systems, as noted above.<sup>48</sup> As they did not regard public regulation as relevant, they did not see any public regulation as being relevant to how the market developed, regardless of whether it pre-dated or post-dated the development. As Jackson and Roe argue, their own findings put the question of causality firmly back into play,<sup>49</sup> as indeed does the historical empirical analysis of Coffee, Cheffins, and others.<sup>50</sup> Jackson and Roe conclude the relationship between law, regulation, and markets is ‘bi-directional’, though sociologists would prefer the term ‘reflexive’.

MICRO-LEVEL QUESTIONS: WHAT ARE THE IMPACTS OF PARTICULAR LEGAL RULES ON MARKET EFFICIENCY? THE EXAMPLE OF SHORT SELLING

The question of causality is one to which we will return below. But first we move on to look at another stream of law and economics research, this time focusing on the micro-level, empirical analysis of the impact of particular trading rules on markets: short selling. Short selling is of considerable interest to financial economists as it is intrinsically linked to the ability of traders to arbitrage, and thus to the efficiency of capital markets, and thus in turn to the efficient capital market hypothesis on which much financial economic theory has been built (discussed further below). The debate on short selling forms part of a wider debate on market efficiency, and in particular on whether and how legal regulation can prevent market bubbles and market crashes.<sup>51</sup> Whether and under what conditions to allow short selling has thus been one of the most hotly debated issues in the regulation of market trading in recent years.

This research also provides a good example of a particular type of micro-level research, one which is characteristic of financial economists and law and economics scholars and which is based in quantitative techniques which seek to find a correlation between different indicators of market ‘health’ and the presence or absence of particular legal rules, and from those correlations to draw conclusions as to causation. It is a methodology akin to that used by LLSV, discussed above, but here the focus is on one particular legal rule rather than a set of rules, and further the issue of enforcement is not really considered. Although legal scholars have not always been authors of the primary research, they have been users of it, and there has been a longstanding debate, particularly amongst

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<sup>48</sup> La Porta, et al (1998), n 11 above; Djankov, et al, n 27 above.

<sup>49</sup> Jackson and Roe, n 23 above, 24.

<sup>50</sup> Coffee (1999) and (2001), n 24 above.

<sup>51</sup> For discussion, see E. Gerding, ‘Laws Against Bubbles: An Experimental Asset Market Approach to Analyzing Financial Regulation’ (2007) *Wisconsin LR*, 977.

US legal scholars, on the benefits or otherwise of regulation of short selling.<sup>52</sup> A brief overview of recent research is thus included here for two reasons: first, because it has a bearing on the research questions which legal scholars are interested in, viz the interaction of markets and law; and secondly because, as with the LLSV research discussed above, it illustrates the very direct impact that this type of empirical research has on policy formation.

Short selling is the practice of selling securities, including derivatives, which the seller does not own. In order to be able to deliver the stocks, the seller enters into an arrangement to 'borrow' those stocks from a third party, returning them at a specified date. In a falling market, the seller hopes to profit by selling the securities at a higher price than that for which she would have to buy them in the market at a later time when they are due to be returned to the lender. The trader may have put in place arrangements to ensure delivery (such as having an option) at the time of sale, or may not. The latter is referred to as 'naked' short selling, and is generally regarded with more opprobrium by opponents of short selling than other short selling practices.<sup>53</sup>

Short selling has strong supporters and equally strong critics. Those in support of short selling argue that although as a trading strategy it can be used to profit from a declining market, it is also used to hedge risk, improve price discovery, provide liquidity, and, for market makers, to manage order flow.<sup>54</sup> For many years, financial economists had argued that bans on short selling promoted inefficiency in the markets as they prevented prices being aligned with their fundamental values, thus allowing prices to rise above their intrinsic value,<sup>55</sup> although others argue that prices may in fact be driven down by restrictions on short selling as the market knows some information is not priced and demands a risk premium.<sup>56</sup> Financial economists argue that short selling improves the price

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<sup>52</sup> See eg L.A. Stout, 'Why the Law Hates Speculators: Regulation and Private Ordering in the Market for OTC Derivatives' (1999) 48 *Duke LJ*, 701.

<sup>53</sup> Debates on this practice have raged since the 19<sup>th</sup> century; see R. Cranston, 'Law Through Practice: London and Liverpool Commodity Markets c.1820-1975' (2007) LSE Law Department Working Paper, at <[http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1021952](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1021952)>; for more recent discussion, see IOSCO *Short Selling – Consultation Report* (2008); FSA, *Short Selling* (2009) Discussion Paper 09/1, FSA.

<sup>54</sup> For review, see E. Avgouleas, 'A New Framework for the Global Regulation of Short Sales: Why Prohibition is Inefficient and Disclosure is Insufficient' (forthcoming Spring 2010) *Stanford Jnl of Law, Business and Finance*; M. Clifton and M. Snape, 'The Effect of Short-Selling Restrictions on Liquidity: Evidence from the London Stock Exchange' (2008) London Stock Exchange, 18<sup>th</sup> December 2008 at <<http://www.londonstockexchange.com/about-the-exchange/regulatory/short-selling-restriction-market-quality-december-2008.pdf>>; LSE Law Department Working Paper, at <[http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1021952](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1021952)>; A. Curtis and N. Fargher, 'Does Short Selling Amplify Price Declines or Align Prices with their Fundamental Values' (2008) at <<http://ssrn.com/abstract=817446>>.

<sup>55</sup> Although others argue that prices may in fact also be driven down by restrictions on short selling as the market knows some information is not priced and demands a risk premium (Y. Bai, E. Cheung, and J. Wang, 'Asset Prices Under Short-Sale Constraints' (2006) Working Paper, MIT, at <<http://194.90.30.6/CAESAREASITE/Uploads/ES/Events/Files/159.pdf>>; Curtis and Fargher, *ibid*.

<sup>56</sup> Bai, Chang, and Wang, *ibid*.

discovery process,<sup>57</sup> facilitates execution,<sup>58</sup> and improves liquidity.<sup>59</sup> There is significant empirical evidence suggesting that securities which are subject to a ban on short selling have consistently lower returns than those which are not.<sup>60</sup> The empirical evidence also suggests that short selling does not increase market volatility, but can reduce it. For example, in an analysis of 111 markets, comparing those in which short selling was restricted with those where it was not, Charoenrook and Daouk found that in markets where short-selling is possible, the volatility of aggregate stock returns is lower, and liquidity is higher. They also found that when countries lift restrictions on short selling, aggregate stock price increases, implying that the cost of capital is lower. Further, they found no evidence that short-sale restrictions affected the level of skewness of returns or the probability of a market crash occurring.<sup>61</sup>

In contrast, critics argue that short selling itself increases volatility, is associated with manipulative practices, allows market participants to stimulate bear markets, and leads to market crashes.<sup>62</sup> Empirical evidence does suggest that short selling moves prices down.<sup>63</sup> However, financial economists argue that these price movements serve to align prices with fundamental values, thus aiding market efficiency.<sup>64</sup> Most short selling is conducted by informed investors acting for a range of reasons.<sup>65</sup> But Curtis and Fargher found that although not all short positions appear to be motivated by perceptions regarding firm value, ‘a significant concentration of short positions following price declines appear to align prices with fundamentals rather than force prices below fundamental values’.<sup>66</sup>

Historically regulators were, and to an extent still are, divided on whether and how to allow short selling, and around the world legal rules varied. In 1938, the SEC introduced a ban on short selling in securities whose prices were declining,<sup>67</sup> only removing the ban in 2007.<sup>68</sup> Outside the US, other exchanges, including the

<sup>57</sup> D. Diamond and R. Verrechia, ‘Constraints on Short-Selling and Asset Price Adjustment to Private Information’ (1987) 18 *Jnl of Financial Economics* 2, 277-311; E. Boehmer and J. Wu, ‘Short Selling and the Informational Efficiency of Prices’ (2009), at <http://ssrn.com/abstract=972620>.

<sup>58</sup> G. Alexander and A. Petersen, ‘Short Selling on the New York Stock Exchange and the Effects of the Uptick Rule’ (1998) 8 *Jnl of Financial Intermediation*, 90-116; id, ‘The Effect of Price Tests on Trader Behavior and Market Quality: An Analysis of Reg SHO’ (2008) 11 *Jnl of Financial Markets*, 84-111.

<sup>59</sup> A. Charoenrook and H. Daouk, ‘A Study of Market-Wide Short-Selling Restrictions’ (2008) 32 *Jnl of Banking and Finance* 7, 1255-1268.

<sup>60</sup> See eg G. D’Avolio, ‘The Market for Borrowing Stocks’ (2002) 66 *Jnl of Financial Economics*, 271-306; P. Asquith, A. Pathak, and J.R. Ritter, ‘Short-Interest, Institutional Ownership, and Stock Returns’ (2005) 78 *Jnl of Financial Economics*, 277-309; A. Ali and M.A. Trombley, ‘Short Sales Constraints and Momentum in Stock Returns’ (2006) 33 *Jnl of Business Finance and Accounting* 3-4, 587-615; E. Boehmer, C.M. Jones, and X. Zhang, ‘Which Shorts are Informed?’ (2008) 63 *Jnl of Finance* 2, 491-527.

<sup>61</sup> Charoenrook and Daouk, n 59 above.

<sup>62</sup> For review, see Curtis and Fargher, n 54 above.

<sup>63</sup> eg A. Briss, W. Goetzmann, and N. Zhu, ‘Efficiency and the Bear: Short Sales and Markets Around the World’ (2008) 62 *Jnl of Finance*, 1029.

<sup>64</sup> Curtis and Fargher, n 54 above.

<sup>65</sup> eg *ibid.*

<sup>66</sup> *ibid.*

<sup>67</sup> The ‘uptick’ rule SEC rule 10a-1.

<sup>68</sup> SEC Reg SHO.

Toronto Stock Exchange and the Australian Stock Exchange, restricted short selling, though many others, notably the London Stock Exchange and Tokyo Stock Exchange, did not.<sup>69</sup> Further, as noted above, many jurisdictions had recently relaxed their rules on short selling, the SEC doing so in 2007.

Short selling came under populist and political fire in the autumn of 2008, when in the wake of the collapse of the investment bank, Lehman Brothers, the prices of shares in financial institutions fell dramatically. Many policy makers and commentators at the time blamed short sellers, and the academic debates moved directly into the policy arena in late 2008-9, with regulators engaging with them at length.<sup>70</sup> Many regulators introduced temporary restrictions on short selling in specified securities.<sup>71</sup> Much to the irritation of market participants, these varied significantly in their details, timing, and scope, putting into sharp relief the contrast between the globalised equity markets and the national bases of their regulation, even across the EU.<sup>72</sup>

The uneven pattern of restrictions did however provide a fertile ground for comparative empirical research into the impact of short selling restrictions on market performance. However, that research gives no clear picture as to whether or not short selling restrictions had adverse effects on the market.<sup>73</sup> A number of studies conducted in the wake of the restrictions suggested that the restrictions negatively affected various measures of liquidity, including bid-ask spreads and trading volume.<sup>74</sup> Research on the impacts of the restrictions in Australia also suggested that 'naked' short selling (where the seller has no arrangements in place for delivery at the time of sale) leads to a deterioration in liquidity and an increase in volatility.<sup>75</sup> In contrast, studies of market falls in the UK and US markets in the autumn of 2008 found that the steep decline in prices was primarily due to selling

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<sup>69</sup> For a full survey, see Charoenrook and Daouk, n 59 above.

<sup>70</sup> See FSA, SEC, IOSCO, n 53 above; CESR, *Measures Recently Adopted by CESR Members on Short Selling* (2009) CESR 08/742, 22<sup>nd</sup> September 2008, updated 9<sup>th</sup> Jan 2009 and 31 March 2009.

<sup>71</sup> See Avgouleas, n 54 above, for review.

<sup>72</sup> For detailed comparisons of the restrictions, see C. Chance, 'Client Briefing - New Short Selling Rules: Global Review' (21 October 2008) at <<http://www.cliffordchance.com/expertise/publications/details.aspx?FilterName=@URI&LangID=UK&contentitemid=14499>>, and updated; CESR, n 70 above.

<sup>73</sup> For an excellent review, see Curtis and Fargher, n 54 above. The question as to whether short selling is associated with insider dealing also remains moot (contrast S. Christophe, M. Ferri, and J. Angel, 'Short Selling Prior to Earnings Announcements' (2004) 59 *Jnl of Finance*, 1845 and M. Kahn. and H. Lu, 'Do Short Sellers Front Run Insider Sales?' (2009) MIT Sloan Research Paper No 4706-08 at <[http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1140694](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1140694)> (who argue it is) with H. Daske, S. Richardson, and A. Tuna, 'Do Short Sales Transactions Precede Bad News Events?' (2005) Wharton School Working Paper, April 2005 (who argue it is not).

<sup>74</sup> E. Boehmer, C. Jones, and X. Zhang, 'Shackling Short Sellers: the 2008 Shorting Ban' (2009) Johnson School Research Paper Series No 34-09 at <[http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1412844](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1412844)>; T. Boulton and M. Braga-Alves, 'The Skinny on the 2008 Naked Short Sale Restrictions' (2009) at <[http://www.frbatlanta.org/news/CONFEREN/09short\\_sell/Boulton.pdf](http://www.frbatlanta.org/news/CONFEREN/09short_sell/Boulton.pdf)>; Clifton and Snape (2008), n 54 above; Financial Services Authority, 'Short Selling' (January 2009) DP 09/1.

<sup>75</sup> S. Lecce, A. Lepone, and R. Segara, 'The Impact of Naked Short-Sales on Returns, Volatility and Liquidity: Evidence from the Australian Securities Exchange' (2008), at <[21st Australasian Finance and Banking Conference 2008 Paper](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1253176)> and <[http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1253176](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1253176)>.

by holders of long positions.<sup>76</sup> In a similar vein, a comparative study of prices of securities affected by restrictions in seventeen countries found that the restrictions had no impact on overall returns of the securities affected by them, and moreover that differences in the details of the restrictions also had no impact on returns.<sup>77</sup>

Thus although the predominant argument of financial economists is that short selling improves market quality, evidence on the effects of the temporary restrictions imposed in various countries in October 2008 is mixed. In addition, experimental research suggests that restricting short selling is unlikely to have an impact on preventing, bursting, or dampening bubbles.<sup>78</sup> These findings suggest that other factors may be in play which may affect the practice of short selling, such as transaction costs,<sup>79</sup> the broader institutional context in which information is produced and disseminated,<sup>80</sup> or the presence of other legal rules relating to disclosure,<sup>81</sup> or stock lending. Further, although there may be correlations, albeit ones which are disputed, between short selling restrictions and market behaviour, the findings of both empirical and experimental research suggests that the causation effects of the presence or absence of any single legal rule on market bubbles or crashes remain ill-understood.<sup>82</sup> Further, as the autumn of 2008 illustrated clearly, law and regulation can affect market behaviour, but market behaviour can also prompt regulatory interventions to change the law in an attempt to affect that performance.

#### THE UNINTENDED IMPACTS OF LAW AND REGULATION ON THE MARKETS

The question of whether law matters is clearly relevant to the development of regulatory policy on financial markets. As noted above, much empirical research has a normative message, which is often either that law can either act as an obstacle to market development and so should be removed (a common prescription by financial economists) or that it can be used as an instrument directly to facilitate market development and behaviour (a natural inclination of policy makers).

Law has been a significant source of inspiration and innovation for the development of at least some new financial instruments. But although in the following examples, law has prompted financial, and in turn legal, innovation, this innovation is of little comfort to instrumentalists. For innovation has not taken

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<sup>76</sup> Office of Economic Analysis, *Analysis of a Short Sale Price Test Using Intraday Quote and Trade Data* (17 December 2008); FSA, n 53 above).

<sup>77</sup> I. Marsh and N. Neimer, 'The Impact of Short Sales Restrictions' (2008) London Investment Banking Association, at <<http://www.liba.org.uk/issues/2009/Feb/theimpactofshortsalesrestrictions.pdf>>.

<sup>78</sup> Gerding, n 51 above.

<sup>79</sup> R. Shiller, 'From Efficient Markets Theory to Behavioural Finance' (2003) 17 *Jnl of Economic Perspectives* 1, 83-105.

<sup>80</sup> R. Gilson and R. Kraakman 'The Mechanisms of Market Efficiency Twenty Years Later: The Hindsight Bias' (2003) *J. Corp. Law*, 715.

<sup>81</sup> eg Beny (2006), n 40 above.

<sup>82</sup> See eg Gerding, n 51 above.

the form of a direct implementation of legal provisions. Quite the opposite. It is a manifestation of unintended consequences and avoidance strategies. Law and regulation have prompted innovation in financial instruments not because law itself has been innovative, though it often has been, but because markets have been innovative in avoiding legal restrictions.

There is little systematic empirical research on the incidence or dynamics of such ‘gaming’ innovation. The examples that are documented usually appear in what would otherwise be considered ‘black letter’ texts on financial law. But a brief review of some of the examples of such gaming innovation suggests that a broader empirical project could be fruitful in understanding both the relationship of law and the markets, and indeed how market actors respond to law. One of the chief characteristics of financial markets is that their products are legal creations; as such they can be easily manipulated to avoid legal requirements.

Avoidance strategies can lead to the development of particular financial instruments, and indeed to entire markets. For example, it is well documented that the Eurobond market (in which corporate bonds issued in a foreign currency, initially US dollars, are traded outside that country) developed in London largely to avoid US interest equalisation tax introduced in 1963 which imposed a tax penalty on US investors buying foreign bonds, and to avoid US restrictions on overseas direct investments by US corporations, also introduced in the 1960s, which forced US foreign subsidiaries to borrow abroad.<sup>83</sup> Standby letters of credit developed in the US because of prohibitions on national banking associations from issuing bonds by way of guarantees.<sup>84</sup> Several forms of financial derivatives also owe their origins to avoidance strategies. Swaps were originally developed from the back-to-back loans that were devised to avoid exchange controls in the 1970s.<sup>85</sup> Derivatives can also be used to avoid regulatory restrictions. Provisions in takeover rules which required disclosure of actual equity positions once these reached a certain level have prompted the use of derivatives to build up positions prior to a takeover bid, prompting regulators to then try to plug the loophole by requiring disclosures of derivative positions as well as actual positions.<sup>86</sup>

Finally, and notoriously, capital adequacy rules introduced in 1988 are widely credited as being responsible for the development of the asset-backed securities market. This dynamic of producing financial instruments to avoid regulatory requirements was observed by regulators as early as 1992,<sup>87</sup> a fact which itself is a good illustration of ‘regulatory lag’ (the time difference between regulators becoming aware of an issue and actually acting to address it). These securities could be developed and traded off-balance sheet, and so did not have to figure in

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<sup>83</sup> P. Wood, *International Loans, Bonds and Securities Regulation* (London: Sweet and Maxwell, 1995), 10; Benjamin, n 1 above.

<sup>84</sup> R. Jack, A. Malek, and D. Quest, *Documentary Credits* (London: Butterworths, 3rd ed, 2001), 342, cited in Benjamin, n 1 above, 506.

<sup>85</sup> Wood, n 83 above.

<sup>86</sup> Benjamin (2007), n 1 above; Panel on Takeovers and Mergers, *Equity Derivatives Guidance Note* (London, 2008).

<sup>87</sup> Basle Committee on Banking Supervision (BCBS), *Asset Transfers and Securitization* Basle (BIS, 1992).

the calculation of the amount of capital that a bank needed to set aside to offset its risks.<sup>88</sup> Banks also set up separate corporate structures to house their derivative assets, ensuring that credit lines advanced to them fell short of the one-year rule which would have required their disclosure.<sup>89</sup> Avoidance strategies can thus have significant negative impacts: it was the development, structure, and operation of these markets which led directly to the financial crisis of 2007-9. So law clearly can affect markets, but not in the linear manner that instrumental policy makers and ‘reform through law’ scholars would find comforting.

## **THE IMPACT OF MARKETS ON THE DEVELOPMENT OF LAW AND REGULATION**

### MARKETS AS A SOURCE OF LAW

The response of law reformists to avoidance strategies adopted by market practitioners is often to change the law. This brings us then to the question of the impact of the markets on law and regulation. As we have seen above, the argument that law shapes the development of financial markets is being questioned. Many legal historians and commercial and financial law scholars argue that financial law and regulation is constituted and developed through market practices. Market developments can lead to changes in the regulatory provisions governing markets.<sup>90</sup> Indeed, as the short selling example above illustrated, the relationship, certainly of regulatory rules and market behaviour, is not one of linear causality in either direction, but rather is a complex dance in which market behaviour and regulatory action shadow, anticipate, and react to each others’ moves in turn.

The complex regulatory-market dance is one familiar to regulatory scholars. Where legal scholarship tends to bifurcate, however, is between those who focus on private law, and those who focus on regulatory provisions. There is far more empirical research on the regulatory-market dance, as indicated above, than there is in scholarship in private law of the interrelationship of market practices and the development of financial law by the courts. To the extent that observations are made by private law scholars on the relationship, this work tends to be micro-level, focusing on the development of particular legal rules as a result of particular market practices. It has more in common with historical or sociological

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<sup>88</sup> See G. Tett, *Fools Gold* (London: Free Press, 2009) for discussion.

<sup>89</sup> *ibid.*

<sup>90</sup> See eg Coffee (1999) and (2001), n 24 above; B. Cheffins, ‘Law, Economics and the UK’s System of Corporate Governance: Lessons from History?’ (2001) 1 *Jnl of Corporate Law Studies*, 71–89; B. Cheffins, ‘Law as Bedrock: The Foundations of an Economy Dominated by Widely Held Public Companies’ (2003) 23 *Oxford Jnl of Legal Studies*, 1–23.

methodologies than with the macro-level, large 'n', quantitative studies which characterise economic research. Further, the research focus tends to be quite different. As Cranston has observed, private lawyers rarely study markets; they study particular legal doctrines.<sup>91</sup> It is thus hard to make direct comparisons between the writings of private lawyers and the often macro-level and quantitative research of financial economists and law and economics scholars discussed above. The debates operate at different levels of abstraction, have quite different conceptions of law, and moreover are often from either side of the social science divide in the conception of markets that they implicitly or explicitly adopt.

Nevertheless, the research of private lawyers on the manner and extent to which market practices are adopted by the (English) common law is clearly relevant to the overall question of the relationship between law, regulation, and markets, and one which is ripe for further empirical investigation. Many of the law merchants' innovations remain unseen by the courts, at least for some considerable period of time. Unless one of the parties chooses to resolve a dispute through litigation rather than informal settlement or private arbitration, the courts are blind, deaf, and dumb: blind because market practices are not brought for them to see, deaf as they do not hear what practices the markets are adopting, and dumb as they have no opportunity to speak on them. At best courts sit on the sidelines; for the most part they are excluded from watching the game until the players call them in.

It is only on the relatively rare occasions when disputes are litigated that the courts have an opportunity to formulate or determine the law. When the courts are called upon to adjudicate, the practice of using market practices and standard forms as a source of customary law is so entrenched, certainly in English common law, and so expected by the market, that Goode argues that in effect that the markets have 'legal power'. He argues that in major markets, the consequences of the court not accepting market participants' view of the legality of their dealings could have such commercially catastrophic consequences, and result in such a loss of confidence in English law, that it would be 'surprising indeed' if the courts did not uphold them.<sup>92</sup> Similarly, Benjamin argues that 'where a leading trade association publishes a clean legal opinion, it would be surprising for a judge to reject it'.<sup>93</sup> Indeed, market practices and standard forms have been described by Lord Goff as having the effect of codifying norms, norms which are then given legal recognition by the courts.<sup>94</sup>

The courts are not always so obliging, however, and can refuse to recognise widespread market practices as having legal effect, such as refusing to allow fixed charges over book debts save in certain circumstances, despite widespread market

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<sup>91</sup> Cranston, n 53 above.

<sup>92</sup> R.M. Goode, *Commercial Law* (Oxford: Oxford University Press, 2004), 189.

<sup>93</sup> Benjamin, n 1 above, 515.

<sup>94</sup> Lord Goff, 'Coming Together – the Future' in B. Markesinis and Clifford Chance (eds), *Millenium Lectures* (Oxford: Hart, 2000), 243-244.

practice.<sup>95</sup> However, because a market practice may have been so widespread prior to its litigation, refusal by courts to recognise contracts which have been extensively entered into and traded on the markets can have significant commercial repercussions, not only for the parties involved but, in the financial markets, on London's reputation as a financial centre, and thus of the 'competitiveness' of English law itself. For these reasons, the refusal of the courts to recognise derivatives contracts entered into by local authorities in the *Hammersmith and Fulham* case led directly to the formation of the Financial Law Panel under the auspices of the Bank of England. The Panel's function was, and through its successor still is, to identify areas of legal uncertainty in the practices and instruments of the financial markets and consider how these might be addressed, and to keep the judiciary up to date in developments in financial markets practices, as there can be a considerable time lag between a market practice being adopted and its consideration by the courts.<sup>96</sup>

In the courts' absence, the financial markets develop and innovate, facilitated by the 'law merchants' of the legal profession.<sup>97</sup> The dynamics of the production of contemporary financial 'merchant' law are under-researched, however. Historical research suggests that lawyers have been absent in the development of some financial markets,<sup>98</sup> but the more contemporary example of ISDA suggests that they are strongly prevalent in today's financial markets, and can themselves play a key role in the development of 'legal' financial instruments. These law merchants sell (literally) legal opinions and standard form precedents which provide innovative ways in which to allocate rights and risks. Their wares can found entire markets. A key example is the Opinion of Robin Potts QC, which is the base on which the credit derivatives market is built. Credit derivatives functionally operate like insurance contracts: they are contracts which are designed to cover the credit risks on loans, debt securities, or other assets. The seller of the credit protection agrees to cover losses on certain assets or entities on the occurrence of certain specified events ('credit events'), much as an insurer would pay you to cover the cost of repairs to your car if someone ran into it (subject of course to the terms of the insurance contract). Insurance contracts are ringed with certain obligations, however, such as the need for good faith, and often, a requirement to be authorised by a statutory regulator before the protection seller can issue such contracts. These requirements, which have their source in common law and statute, can be inconvenient to the markets. It is much easier for business if credit derivatives can stay outside the legal box marked 'insurance contracts'. This is just what has happened, but it has not happened as the result of any judicial

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<sup>95</sup> *Re Spectrum Plus* [2005] UKHL 41; [2005] AC 680 (HL). See eg R. Chorley 'The Conflict of Law and Commerce (1932) 48 *LQR* 51 - for other examples.

<sup>96</sup> The Panel was replaced by the Financial Markets Law Committee in 2002, still run by the Bank of England: see <<http://www.fmlc.org/history.html>>.

<sup>97</sup> Benjamin, n 1 above.

<sup>98</sup> eg the futures markets, see Cranston, n 53 above.

or government intervention. The Potts Opinion asserted that credit derivatives were not insurance contracts as the seller did not have an insurable interest and because the payment obligation is not contingent on the payee having a loss or risk of a loss. As such they are not subject to the rules, such as good faith, which applied to insurance contracts. Although the Opinion has never been approved in court or in statute, and has been questioned by the UK financial regulator, the FSA,<sup>99</sup> it is the basis on which the trillion dollar credit derivative markets are built.

Benjamin argues that other new law merchants have developed in the form of major international law firms and international trade associations. She argues that through the widespread use of standard form legal precedent, the major law firms exert a considerable influence in shaping market practice.<sup>100</sup> Further, trade associations provide the market with a system of rules through legal opinions, commentaries, protocols, and standard form documentation. The International Swaps Dealers Association (ISDA) is a notable example. It commissioned the Potts Opinion, which it has since defended strongly. ISDA creates the standard form contracts for many types of derivatives and has emerged as central coordinator of private law contracting in the derivatives markets. It has also been highly successful in promoting harmonised netting and financial collateral laws at the national level.<sup>101</sup>

#### MARKETS IN THE ABSENCE OF LAW

The fact that market practices can continue for some time without legal recognition raises the question of what institutions are necessary for exchange relations (markets) to be established, maintained, and expanded, and in particular whether legal institutions are necessary for this to occur. Institutionalists, legal historians, and legal theorists have all engaged with the question of how markets can operate as a source of ordering, of rules and practices which may then be formalised into law. Although, as noted, institutionalist scholars argue that law, as an institution, constitutes markets, they also argue that market practices (institutions) themselves emerge as a way of minimising transaction costs and resolving coordination problems, often in the absence of law.<sup>102</sup> Milgrom, North, and Weingast, for instance, provide a wonderful example of the development of norms for market ordering in the medieval champagne fairs in France. Traders would only meet annually at the fairs, and as the champagne had to lie in bottles for over a year before it could be traded, each side to the transaction needed some way of ensuring that the other would keep to the bargain. So norms developed relating to trading and payment, enforced through ‘merchant courts’, which were

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<sup>99</sup> Law Commission, *Insurance Contract Law: Issues Paper No 4, Insurable Interest* (London: HMSO, 2008).

<sup>100</sup> Benjamin, n 1 above, 515.

<sup>101</sup> *ibid*; J. Black and D. Rouch, ‘The Development of the Global Markets as Rule-Makers: Engagement and Legitimacy’ (2008) 2 *Law and Financial Markets Review* 3, 208.

<sup>102</sup> *eg* O. Williamson, ‘The Theory of the Firm as Governance Structure: From Choice to Contract’ (1985) 16 *Jnl of Economic Perspectives* 3, 171-195; D. North, *Institutions, Institutional Change and Economic Performance* (Cambridge: Cambridge University Press, 1990).

non-legal institutions. Those who broke the terms of the bond would not be traded with again.<sup>103</sup> Merchant courts thus supported impersonal exchange relationships conducted over time, providing incentives for gathering information, honouring agreements, reporting disputes, and adhering to judgments. Studies of other markets ranging from diamond markets,<sup>104</sup> to the cotton markets,<sup>105</sup> medieval guilds,<sup>106</sup> and 11<sup>th</sup> century Maghribi traders,<sup>107</sup> all show similar findings. These markets operated, and in many cases currently operate, in the absence of law. Rather they are or were based on social, often familial, infrastructures and coordinated communication channels which enable traders to harness the force of reputation. They are characterised by multi-lateral information and reputation mechanisms, and the sanction for breach of their norms is loss of reputation, and ultimately expulsion. Trading on the basis of non-legally binding agreements is moreover not confined to particular organised markets: Macaulay's seminal study of non-contractual relations in business drew attention to the irrelevance of law to many commercial dealings even when the parties had a formal legal contract in place.<sup>108</sup>

It requires a particular methodology to investigate the substantive role law plays in structuring commercial relationships. A quantitative study of contractual relationships between businessmen which adopted a formalised conception of law would not have revealed the disparity between the formalised legal situation and the substantive social relationships which studies such as Macaulay's reveal. In financial markets, the greatest amount of research into this question has been conducted with respect to the futures markets. Here, researchers differ as to the role that law has played in their development. Some empirical research on the development of futures markets suggests that the primary reason for the emergence of futures markets in the US was legal recognition of futures contracts, which was essential for their liquidity.<sup>109</sup> Futures contracts where settlement was by payment of differences rather than in physical delivery have been viewed as gambling contracts in many countries and therefore as illegal. Legislation and litigation have been necessary to overcome this view, both in the initial period of

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<sup>103</sup> P. Milgrom, D. North, and B. Weingast, 'The Role of Institutions in the Revival of Trade: The Law, Merchants, Private Judges and the Champagne Fairs' in K. Basu (ed), *Readings in Political Economy* (Malden MA: Blackwell Publishing, 2002).

<sup>104</sup> L. Bernstein, 'Private Commercial Law in the Cotton Industry: Creating Cooperation through Rules, Norms and Institutions' (2001) 99 *Michigan LR* 7, 1724-1790.

<sup>105</sup> *ibid.*

<sup>106</sup> A. Greif, P. Milgrom, and B. Weingast, 'Coordination, Commitment, and Enforcement: The Case of the Merchant Guild' (1994) 102 *Jnl of Political Economy* 4, 745-776.

<sup>107</sup> *ibid.*

<sup>108</sup> S. Macaulay, 'Non-Contractual Relations in Business' (1963) 28 *American Sociological Review* 1, 55.

<sup>109</sup> J. Williams, *The Economic Function of Futures Markets* (Cambridge, Cambridge University Press, 1986), 174, cited in D. Campbell and S. Picciotto, 'The Justification of Financial Futures Exchanges' in A. Hudson (ed) *Modern Financial Techniques, Derivatives and Law* (The Hague: Kluwer, 2000)

establishment of commodity futures, and more recently for financial futures.<sup>110</sup> This work has led legal scholars Campbell and Picciotto to conclude that ‘indeed, the emergence of futures trading has everywhere and repeatedly hinged on whether and on what terms it could obtain legal legitimacy’.<sup>111</sup>

In contrast, Collins argues that futures markets provide an excellent example of markets which exist without law. Futures markets are an example of what he terms ‘club markets’.<sup>112</sup> Club markets are constituted by traders for their mutual protection and benefit. Membership confers a right to trade, and the markets are characterised by rules of trading, with which members are required to comply. Ordering is achieved through mutuality, trust and non-legal sanctions. Although contracts play a considerable role in that they are the vehicle for the club’s rules, they are upheld informally. Club markets facilitate the development of new products, such as standard form futures contracts, which are then traded on the organised markets, and mechanisms for their clearing and settlement. Contrary to Goode, he argues that the courts often rejected innovative market practices, at least in this area, though this has had little impact on market practice, as they are upheld through non-legal means.<sup>113</sup> Similar findings as to the role of trust, mutuality, and non-legal sanctions have also been found, again writing quite separately, by Gunningham, discussed briefly below.<sup>114</sup>

The thesis advanced, thus, is one of ‘markets in the absence of law’. The use of social norms to enforce market arrangements is well illustrated in more recent times by the provisions of takeover law for public companies in the UK. For over 40 years, the Panel on Takeovers and Mergers, a non-statutory body, devised and implemented the rules for takeovers of public companies, entirely without legal underpinning, or as Donaldson MR notoriously put it ‘without visible means of legal support’.<sup>115</sup>

However, at least in the case of futures markets, in a detailed historical study of the development of futures markets in Liverpool and London in the 19<sup>th</sup> century, Cranston argues that although the ‘markets in the absence of law’ arguments have some validity, it is not entirely the case that law was entirely irrelevant to the development of the futures markets. Although lawyers were largely absent in their development, law ‘entered in the way the markets were constituted and governed, the system of rules for transactions and how these were cleared and settled, the standard form contracts used for dealing, and the arbitration procedures used for dispute settlement’.<sup>116</sup> Law enabled the markets by

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<sup>110</sup> F.R. Edwards, ‘The Regulation of Futures Markets: A Conceptual Framework’ (1981) 1 *Jnl of Futures Markets* supplement, 417; P.M. Johnson, *Futures Markets: An Overview of the AEI Studies* (Washington DC: American Enterprise Institute for Public Policy Research, 1986), cited in Campbell and Picciotto, *ibid*

<sup>111</sup> Campbell and Picciotto, n 109 above.

<sup>112</sup> H. Collins, *Regulating Contracts* (Oxford: Oxford University Press, 1999).

<sup>113</sup> *ibid*, 212-218; A. Simpson, ‘The Origins of Futures Trading in the Liverpool Cotton Markets’ in P. Cane and J. Stapleton (eds), *Essays in Honour of Patrick Atiyah* (Oxford: Clarendon Press, 1991).

<sup>114</sup> N. Gunningham, ‘Private Ordering, Self Regulation and Futures Markets: A Comparative Study of Informal Social Control’ (1991) 13 *Law and Policy* 1, 287.

<sup>115</sup> *R v Panel on Takeovers and Mergers*, ex p *Datafin* (1987) QB 815.

<sup>116</sup> Cranston, n 53 above, 34.

permitting unregulated association and freedom of contract. However, whilst law provided the framework, markets themselves did provide the detailed mechanics of their operation. Even if the courts were not always as obliging as Goode suggests, market practices did provide a significant source of law, and it ‘provided a rare barrier to the pursuit of profit in their preferred way by the practical men working in the London and Liverpool commodity markets’.<sup>117</sup>

Cranston’s work is notable for its detailed, historical empiricism. Although many commercial law scholars have noted the incorporation of market practices into law, and some, such as Benjamin, have drawn attention to the role of contemporary ‘law merchants’ in producing new ‘legal’ instruments,<sup>118</sup> there is little sustained and systematic empirical analysis of how and where these norms are produced by the markets. This absence of work is in contrast to the far more numerous studies of the dynamics of norm production by the international committees of financial regulators which produce, and to an extent monitor, the global ‘soft law’ norms for financial market regulation. These international committees of financial regulators are regarded as prime examples of ‘governance’, and regulation beyond the state, and have been studied by lawyers, sociologists and political scientists alike.<sup>119</sup>

In contrast, there have been almost no detailed studies of micro-processes of the ‘bottom up’ systems of norm production (excluding arbitration): the dynamics of the legal ‘shadow land’ of financial market practices, in which the ‘legal’ instruments of private contracting are ‘legal’ only because all who use them believe them to be so. There are scatterings of empirical research into how these norms develop: Flood and Skordaki, for example, have conducted an empirical analysis of how accountants and lawyers resolve conflicts between national rules in large cross-border insolvencies, where there are simply no legal solutions that can be applied to resolve the problems such insolvencies pose.<sup>120</sup> Their study shows how solutions are crafted by a small but global community of professionals rather than through the application of established legal rules. There is also work which begins to map the practices of the legal shadowland.<sup>121</sup> But the dynamics of this legal shadowland, the extra-judicial development of the private ‘law’ of financial markets, have so far proved largely impervious to empirical legal analysis. Perhaps this is because of an impoverished conception of law: after all, suggesting that

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<sup>117</sup> *ibid*, 35.

<sup>118</sup> Benjamin, n 1 above.

<sup>119</sup> see eg J. Braithwaite and P. Drahos, *Global Business Regulation* (Oxford: Oxford University Press, 2000); A. Slaughter, *The New World Order* (Princeton: Princeton University Press, 2004); E. Kapstein, ‘Between Power and Purpose: Central Bankers and the Politics of Regulatory Convergence’ (1992) 46 *International Organisation* 1, 265-287; G. Underhill, ‘Theorizing Governance in a Global Financial System’ in P. Mooslechner, H. Schuberth, and B. Weber (eds), *The Political Economy of Financial Market Regulation: The Dynamics of Inclusion and Exclusion* (Cheltenham: Edward Elgar, 2006).

<sup>120</sup> J. Flood and E. Skordaki, ‘Normative Bricolage: Informal Rule Making by Accountants and Lawyers in Mega-Insolvencies’ in G. Teubner G. (ed) *Global Law Without a State* (Dartmouth: Aldershot, 1997).

<sup>121</sup> eg J. Benjamin and D. Rouch, ‘The International Markets as a Source of Global Law: The Privatisation of Rule-making?’ (2008) 2 *Law and Financial Markets Review* 2, 78; Black and Rouch, n 101 above.

private orders of contracts and associations can produce valid law without authorisation and control of the state, even given the doctrine of freedom of contract, is an unsettling notion for lawyers trained in the traditions of positivism.<sup>122</sup> That, however, should make the dynamics of norm production in the financial markets an even more fertile source of analysis by empiricists and theoreticians alike.

#### BEHAVIOUR, MARKETS, LAW AND REGULATION

Moving into analysis of the dynamics of legal norm production within the markets leads to consideration of broader dynamics of market operation, and their implications for the normative, instrumental function of law and regulation. The question here is not how do law and financial markets influence each other, but how do those within financial markets behave already, and what can we learn from this about how to regulate those markets. As noted above, the study of the micro-processes of financial markets tends to be the preserve of sociologists and anthropologists and to a far lesser extent of lawyers, even of lawyers who share the same disciplinary sympathies. However, with the growing recognition of behavioural economics, some financial economists have also moved into this area of research in recent years, and there are signs that some legal scholars are following them.

Again, a brief discussion of the theoretical context is necessary for the empirical work to be understood. As is well known, in the classic economic model of behaviour, actors act rationally to maximise their utility. They possess full information, and their preferences are stable, exogenously formed, and transitive (if they prefer apples to pears and pears to oranges, they will always prefer apples to oranges). Actors are also assumed to make unbiased forecasts about the future. In contrast, economic sociologists understand economic behaviour to be strategic, but embedded in institutional structures.<sup>123</sup> Rational maximising is not an inherent human trait, but a socially and culturally constructed strategy of action, enacted in the context of social relationships, cultural idioms, and institutions.<sup>124</sup> Markets, even globalised financial markets, are not the interactions of atomised buyers and sellers, but rather comprised of patterns of interaction between individuals within them, patterns which are micro-social in character, but which assemble and link global domains'.<sup>125</sup> Market bubbles and crashes are not the results of the uncoordinated interactions of atomised individuals, but of processes of organising which involve strategic action by speculators, brokers, bankers, media, and regulators, who engage in a conflict over the norms and rules of transactions.

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<sup>122</sup> See also G. Teubner, 'Legal Pluralism in the World Society' in Teubner G. (ed) *Global Law Without a State* (Dartmouth: Aldershot, 1997).

<sup>123</sup> See eg Knorr-Cetina and Preda, n 6 above.

<sup>124</sup> Abolafia, n 5 above.

<sup>125</sup> K. Knorr-Cetina, and U. Brügger, 'Traders' Engagement with Markets: A Postsocial Relationship' (2002) 19 *Theory Culture Society* 5-6, 161.

Abalafia and Kilduff, for example, analysed the dynamics of a the ‘bubble’ in silver prices in the 1980s, arguing that the crisis was the outcome of a struggle between competing coalitions, each seeking to promote its own parochial interest, and was resolved by the carefully orchestrated actions of institutional actors concerned with preventing further damage to specific participants in this market and related markets.

Regulation is integral to this conflict. Market behaviour, Abolafia argues, moves in cycles of unbridled opportunism and collective self-restraint.<sup>126</sup> In an analysis which acutely captures the regulatory response during the financial crisis, they argue that during routine times, regulation operates as a background restraint. However, during periods of crisis,

...the retained memory of how markets work becomes equivocal. Participants begin to doubt that existing norms and rules are adequate to ensure either their own solvency or the market's survival. Under routine conditions, the existence of the committees and regulatory agencies serves as a latent constraint on the behavior of market members. In crises, these authorities actively begin to reduce the regulatory ambiguity by altering the rules of trade. Everyday rules of transaction are found inadequate and extraordinary action is demanded...The invisible hand of self-regulation...is replaced by the visible hand of exchange committees, regulatory agencies, and the banking community.<sup>127</sup>

Although institutional economists and economic sociologists have always opposed the economic model of the rational actor, it is the insights of cognitive psychology which have had a bigger impact on economists’ understanding of their own assumptions. In the late 1980s and 1990s, some financial economists began to question the precepts of the rational actor model, and behavioural finance became recognised as a key movement in economic analysis.<sup>128</sup> The financial crisis of 2007-9 has led to a serious questioning of economists’ understanding of market behaviour by policy makers, as well.

The literature on behavioural finance is as vast as it is fascinating, and cannot be covered in any depth here.<sup>129</sup> Briefly, the argument of behaviouralists is that

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<sup>126</sup> Abolafia, n 5 above.

<sup>127</sup> M. Abalafia and M. Kilduff, ‘Enacting Market Crisis: The Social Construction of a Speculative Bubble’ (1988) 33 *Administrative Science Quarterly* 2, 177-193, 181-182.

<sup>128</sup> eg F. Black, ‘Noise’ (1986) 41 *Jnl of Finance*, 529-543; R. Shiller, *Market Volatility* (Cambridge: MIT Press, 1989).

<sup>129</sup> For review, see A. Shleifer, *Inefficient Markets: An Introduction to Behavioral Finance* (Oxford, U.K.: Oxford University Press, 1999); H. Shefrin, *Beyond Greed and Fear: Understanding Behavioral Finance and the Psychology of Investing* (Boston, MA: Harvard Business School Press, 1999); R. Thaler, ‘The End of Behavioural Finance’ (1999) 55 *Financial Analysts Jnl* 6, 12-19; R. Thaler (ed), *Advances in Behavioural Finance II* (Princeton: Princeton University Press, 2003); Shiller, n 79 above; G. Akerlof and R. Shiller, *Animal Spirits: How Human Psychology Drives the Economy and Why it Matters for Global Capitalism* (Princeton: Princeton University Press, 2009).

individuals do not conform to the rational actor model of behaviour, and that market movements can only be understood if a more realistic model of behaviour is adopted. This work is clearly relevant for law and regulation, particularly in the financial sector, given the dominance of economic analysis in this area. Basing legal rules on the assumptions of classical financial economists can lead to significant policy errors by both market actors and regulators, as the financial crisis demonstrated.

Inroads into the rational actor model were first made by the theory of 'bounded rationality' propounded by Simon.<sup>130</sup> He argued that individuals rarely act on the basis of perfect information, nor are they in reality choosing from fixed and known alternatives to each of which is attached known consequences. Cognitive limitations require people to construct simplified models of the world, and moreover to 'satisfice' rather than 'optimize'. This work was developed in the context of decision-making by firms by Cyert and March,<sup>131</sup> and separately in the context of government policy-making by Lindblom,<sup>132</sup> who argued that rather than reviewing all options, policy makers employ a method of limited comparisons, assessing only those policies which differ marginally from the status quo, formulating policy incrementally, or 'muddling through'.

The most significant empirical work which called into question the core assumptions of rational actor theory, however, was that of cognitive psychologists, in particular Kahnemann and Tversky's Prospect Theory.<sup>133</sup> Their empirical work demonstrated that people's preferences are far from stable, and that preferences are shaped by the way in which information and options are presented. In particular, people's perception of the risk associated with different decisions can vary considerably depending on the way questions or options are framed. There is now a considerable body of empirical work by cognitive psychologists on decision-making behaviour which shows that actual decision-making differs in significant and important respects from that assumed in the rational actor model.<sup>134</sup>

In particular, this empirical work shows that people make decisions in accordance with certain heuristics or 'rules of thumb', and moreover that these heuristics are routinely made and are therefore predictable (one of the key requirements of economists for a theory of behaviour, for without predictability, modelling is far more open to error). These heuristics may be 'rational' in the sense that they reduce the amount of time a person spends making a decision, but they may not result in the person maximising their utility. Certain well observed heuristics and decision biases include loss aversion and also aversions to extremes

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<sup>130</sup> H. Simon, 'A Behavioural Model of Rational Choice' (1955) 69 *Quarterly Jnl of Economics* 99; id, *Models of Man: Social and Rational* (New York: John Wiley and Sons, Inc., 1957).

<sup>131</sup> R. Cyert and J. March, *The Behavioural Theory of the Firm* (New York: Prentice Hall, 1963).

<sup>132</sup> C. Lindblom, 'The Science of Muddling Through' (1959) 19 *Public Administration Review* 2, 79.

<sup>133</sup> D. Kahneman and A. Tversky, 'Prospect Theory: An Analysis of Decision Under Risk' (1979) 47 *Econometrica*, 263-291.

<sup>134</sup> See eg P. Slovic, *Perceptions of Risk* (Virginia: Earthscan, 2000); C. Sunstein (ed), *Behavioural Law and Economics* (Cambridge: Cambridge University Press, 2000).

(for example, always choosing middle ranking options when given a range to choose from). People also exhibit what Douglas calls ‘subjective immunity’,<sup>135</sup> also referred to as an ‘optimism bias’, or ‘disaster myopia’: a belief that a risk will not materialise to adversely affect them.<sup>136</sup> People also have a ‘hindsight bias’, often thinking that the events of the past were inevitable. Related to this is the ‘availability heuristic’: that people will think that the probability of a risk occurring is greater if they can readily call an incident to mind, (eg people slow down after seeing a road accident), and vice versa, leading them to under-estimate risks which have not recently occurred (people speeding up again once they have driven on).<sup>137</sup> Many of these decision biases or heuristics demonstrate people’s difficulty in understanding probabilities. Another example in this vein is the ‘gambler’s fallacy’ or the ‘negative recency effect’, which concerns people’s poor conception of randomness. Thus when people are asked to predict the outcome of a series of coin tosses (which will be random), they are more likely to assume that a ‘head’ will come up if there has been a recent run of ‘tails’.<sup>138</sup>

In addition to these heuristic biases, of particular relevance to understanding behaviour in financial markets is understanding behaviour with respect to two central elements of decision making: decision making with respect to risk, and decision making with respect to value. Generally speaking, people’s perception of risk is affected by the familiarity of the person with an activity or natural hazard (eg living next to a river), the degree to which they are (or feel they are) in control, the nature of the consequences (the ‘dread’ factor), the distribution of the impact, the ‘availability heuristic’ (the perceived probability of an event is affected by the ease with which relative instances are remembered or imagined), whether they have exposed themselves voluntarily to the risk or not, and the perceived benefits of the activity.<sup>139</sup>

With respect to value, and to evaluation, experimental work on how people make decisions shows that people are averse to suffering a loss, and that moreover, contrary to the assumptions of rational actor theory, that they do not evaluate actual losses and opportunity costs the same.<sup>140</sup> As a result, their behaviour may not be ‘rational’: they will be unwilling to give up what they have, even if what they have is due to a windfall.<sup>141</sup> People will exhibit behaviour which is more risk-preferring if they are seeking to avoid a loss than to realise a gain.

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<sup>135</sup> M. Douglas, *Risk Acceptability According to the Social Sciences* (London: Routledge & Kegan Paul, 1985).

<sup>136</sup> eg P. Slovic, ‘Do Adolescent Smokers Know the Risks?’ (1998) 47(6) *Duke LJ*, 1138.

<sup>137</sup> A. Tversky and D. Kahneman, ‘Judgement Under Uncertainty: Heuristics and Biases’ (1974) 185 *Science*, 4157, New Series, 1124.

<sup>138</sup> P. Slovic, H. Kunreuther, and G. White, ‘Decision Processes, Rationality and Adjustment to Natural Hazards’ 11, in Slovic, n 134 above.

<sup>139</sup> P. Slovic, B. Fischhoff, and S. Lichtenstein. ‘Facts and Fears: Understanding Perceived Risk’ in Slovic, n 134 above; id, ‘Response Mode, Framing and Information-Processing Effects in Risk Assessment’ in Slovic, n 134 above.

<sup>140</sup> D. Kahneman and A. Tversky, ‘Subjective Probability: A Judgement of Representativeness’ (1972) 3 *Cognitive Psychology*, 430-454.

<sup>141</sup> See further Sunstein, n 134 above, ch 8.

Moreover, people exhibit a ‘status quo’ bias (people will evaluate options on the basis of their relation to a reference point based on their current situation and require a significant amount of justification to depart from it; for example, they hold onto investments which are falling in value even when ‘rationally’ they should sell), and make judgments of the probability of an event occurring based on an initial value for which they do not make sufficient adjustment (anchoring).

Further, as Lindblom observed in the context of government policy-making, noted above, people tend to reason by analogy (the representativeness heuristic), but in doing so tend only to compare situations on the basis of relatively few attributes, which can lead to evaluation errors. These errors can be enhanced due to cognitive illusion (people extrapolate from trends where there is no element of conjunction or linkage) and cognitive dissonance (people filter out information that is inconsistent with pre-existing views).<sup>142</sup> Extrapolation can also be a problem because people (including scientists) tend to extrapolate from small samples (the ‘law of small numbers’), and assume that the properties exhibited on the small scale will be exhibited on a much larger scale.<sup>143</sup>

As Slovic, Fischhoff, and Lichtenstein, some of the leading researchers in this area, point out, a ‘particularly pernicious’ aspect of heuristics is that people are typically very confident about judgments based on them.<sup>144</sup> However, as they comment, we rarely realise how little we know about the risks and problems that we face. This overconfidence can be dangerous, as the financial crisis so clearly demonstrated.

## **BEHAVIORAL FINANCE, LAW, AND FINANCIAL REGULATION**

Legal academics and increasingly policy makers are showing significant and increasing interest in behavioural economics and in the implications its insights might have for financial regulation, so much so that it deserves several books in its own right. The aim here is to focus on two areas in particular where the related insights of cognitive psychology, sociology, and others contribute to the growing discipline of behavioural economics, experimental economics, and neuro-economics: the role of quantitative models in financial stability regulation and investor protection.

### **FINANCIAL STABILITY REGULATION: MODELING RISK AND UNCERTAINTY**

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<sup>142</sup> See D. Kahneman, P. Slovic, and A. Tversky (eds), *Judgement Under Uncertainty: Heuristics and Biases* (Cambridge: Cambridge University Press, 1982) for discussion.

<sup>143</sup> A. Tversky and D. Kahneman, ‘Belief in the Law of Small Numbers’ (1971) 76 *Psychological Bulletin*, 105-110; Kahneman and Tversky, n 140 above.

<sup>144</sup> In Slovic, n 134 above, 109.

One of the critical aspects of the financial crisis was the spectacular failure of the risk models used by both banks and regulators in their attempts to manage banks' financial risk. Risk models pervade the financial markets, and where markets have led, regulators have largely followed.<sup>145</sup> As a result, financial stability regulation, notably the setting of capital requirements for banks, has changed radically over the last two decades. There have been two main 'moments' in the development of techniques of prudential regulation: the introduction of 'Value at Risk' assessments, and the introduction of stress testing. Value at Risk assessments assess the risk to the bank's proprietary trading portfolio. They had been initially developed by JP Morgan in the wake of the October 1987 crash and became increasingly used by investment banks to monitor the risk of their proprietary trading portfolios. In a good example of regulators drawing on and 'juridifying' market practices (markets shaping regulation), and indeed of 'regulatory lag', in 1996 they were incorporated into the 1988 Basle Capital Accord, issued by the Basle Committee on Banking Supervision. Stress testing was primarily introduced by regulators, who required banks to 'stress test' their risk models to cope with adverse market conditions, largely prompted by the near collapse of Long Term Capital Management in 1998.<sup>146</sup> Stress testing requires modellers to imagine different futures, different scenarios that may happen, and to test what would happen to the bank's portfolio of assets in those conditions. They are meant to address the 'fat-tail': the 1-in-100-year events which may nonetheless have a significant impact: Taleb's notorious 'black swans'.<sup>147</sup> In fact, there is no accurate basis for estimating their probability: the models are cased in the language of risk, but to employ Knight's seminal definitions, they are in practice attempting to model uncertainty: by its nature an impossible task. Stress tests by their nature are as prey to the limitations of the modellers' imaginative skills (and experiences) as to the chain of events that might occur and the impacts these events may have on correlations between the values of the components of their portfolios and between the different risk 'baskets' that are used to assign risks (credit, market, liquidity) as they are to limitations in their quantitative skills.

The strong presence of both VAR models and stress testing in banking regulation, as well as the reliance on credit rating agencies to assess the risks of securitised products, illustrate the extensive reliance of financial regulators on risk models produced by market actors.<sup>148</sup> The financial crisis showed starkly the

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<sup>145</sup> E. Gerding, 'The Subprime Crisis and the Outsourcing of Financial Institutional Risk Models: Code, Crash and Open Source' (2009) paper presented at Warwick conference, April 2009, for an excellent discussion.

<sup>146</sup> For discussion see eg A. Haldane, 'Why Banks Failed the Stress Test', speech given at the Marcus-Evans Conference on Stress-Testing, 9-10 February 2009, at <<http://www.bankofengland.co.uk/publications/speeches/2009/speech374.pdf>>.

<sup>147</sup> N. Taleb, *The Black Swan: the Impact of the Highly Improbable* (London: Penguin, 2004).

<sup>148</sup> See S. Schwarcz, 'Private Ordering of Public Markets: The Rating Agency Paradox' (2002) 1 *Univ Illinois LR*; id, 'Understanding the Subprime Financial Crisis' (2009) 60 *Sib Carolina LR* 3; id, 'Protecting

extent to which that reliance was misplaced. The problem was only partly due to poor model design in the technical sense. It was largely due to the failures of imagination and of understanding of market behaviour. Both the experience of Long Term Capital Management and the financial crisis provides a dramatic illustration of the consequences of assuming that the models that are built are actually built in accordance with the economists' model of decision-making, rather than that of real decision-making. In the case of Long Term Capital Management, its arbitraging strategy was based on assumptions as to the relative correlations between the movements of prices of different assets. However, personal interactions, the reputation and status of individuals in the market, and the fear of losing led to 'herding',<sup>149</sup> in which others in the market imitated LTCM's arbitraging strategies. This in turn affected the correlations between asset prices and the statistical distributions of price changes, with the result that the probability of extreme events was far higher than assumed in the financial models, and correlations were far closer.<sup>150</sup>

In the case of the financial crisis, in August 2007, even before the most intense periods of the crisis, the Chief Financial Officer of Goldman Sachs, David Viniar, was reported as commenting that events that were in most models assumed to happen only once in several billion years (once every  $6 \times 10^{124}$  lives of the universe to be precise) were happening several days in a row.<sup>151</sup> Clearly the models were wrong. Models will always be wrong to an extent, but as Andrew Haldane, a deputy governor of the Bank of England commented, these models failed Keynes' test, which is that it is better to be roughly right than precisely wrong. 'With hindsight, these models were both very precise and very wrong'.<sup>152</sup>

Cognitive psychology provides one explanation for why this is so. As noted above, one of the key tools of financial stability regulation is scenario analysis. Typically these require estimates of the upper and lower levels of failure rates or other values to be made within a 98 or 99% confidence level (ie so that there is a 98-99% chance that the true value lays between them). However, experiments with diverse groups of people making decisions demonstrate that rather than only 1 or 2% of estimates falling outside the given range, 20-50% do so.<sup>153</sup> The financial crisis demonstrated that even this error rate in constructing financial models would have been better than those which in fact were manifested in the crisis. In fact, once the models were analysed properly by regulators, it became clear that they demonstrated many of the limitations noted above. The models tended only to look at events over the last 10 years, a particularly benign period for the markets. They thus excluded the October 1987 stock market crash and the

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Financial Markets: Lessons from the Subprime Mortgage Meltdown' (2008) 93 *Minn LR* 2; Gerding, n 145 above.

<sup>149</sup> Shiller, n 128 above.

<sup>150</sup> MacKenzie (2003) and (2005), n 6 above; *Report of the Presidents Working Group Financial Markets Hedge Funds, Leverage, and the Lessons of Long-Term Capital Management* (Washington DC: US Treasury, April 1999).

<sup>151</sup> Haldane, n 146 above.

<sup>152</sup> *ibid.*

<sup>153</sup> Slovic, Fischhoff, and Lichtenstein, n 139 above, 109.

severe recession of the last 1970s-80s, for example, thus exhibiting problems of small sample size and the availability heuristic (or ‘disaster myopia’). Haldane constructed a model with data going back three centuries to show that over this period, ‘measures of kurtosis – the fatness of the tails – of UK house price inflation are 6 times larger over the full sample than over the Golden Decade; for UK bond yields 10 times larger; and for UK equity returns 16 times larger.’<sup>154</sup>

These limitations in the models’ construction led to significant over-confidence, and so to considerable under-estimation (and so under-pricing) of risk. There were also other technical problems, notably the difficulty of modelling network externalities, illustrating again findings of Simon and Lindblom, and subsequently of cognitive psychologists, that in constructing models of the world, people simplify. Finally, there were significant incentive problems, something economists can understand. In practice, there was no incentive for individuals in banks to run difficult stress tests, and banks could operate in the assurance that if it all went wrong, governments would bail them out; which they did. In fact, when regulators asked banks to conduct stress tests, they discovered that these were in fact only run on an annual basis to satisfy regulators; they were not something banks did on a regular basis. As Haldane commented, stress testing had not been a way to manage risks, but to manage regulators.<sup>155</sup>

Cognitive psychology focuses on the decisions of individuals. One of the critical issues is how those individual decisions interact. Classical economics argues that they operate in a linear manner to produce an equilibrium. This assumption is upset by work in two areas. First, economic sociologists argue that market actors are adaptive, and preferences are formed endogenously, a phenomenon termed the performativity of economics and markets. Economic predictions turn out to be true because all in the markets believe them to be so and alter their behaviour in such a way that they become true.<sup>156</sup> A more radical challenge to the theory of equilibrium comes from complexity science. Complexity scientists study the adaptive interactions of individual sub-units within systems, both natural (ecosystems) and social (markets). Individuals respond to how others are behaving in the market and adapt their behaviour accordingly, with unpredictable and non-linear results. Risk models which assume linear patterns of behaviour in markets are thus bound to fail.<sup>157</sup>

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<sup>154</sup> Haldane, n 146 above.

<sup>155</sup> *ibid.*

<sup>156</sup> see eg Callon, n 5 above; Mackenzie and Millo, n 6 above; Mackenzie (2006), n 6 above; contrast D. Miller, ‘Turning Callon the Right Way Up’ (2002) 31 *Economy and Society* 2, 218-233. Lawyers may be interested in the fact that the use of the term ‘performativity’ in this context comes from jurisprudence: Austin’s notion of ‘performative utterances’ which become true by their uttering: see Callon, n 5 above; MacKenzie and Millo, n 6 above.

<sup>157</sup> Gerding, n 145 above.

The implications of complexity theory for regulation have been drawn by Ruhl.<sup>158</sup> They need drawing out for financial regulation as well.<sup>159</sup> The implications of the adaptive behaviour of actors in complex systems pose significant challenges for regulators. Moreover, as discussed above and highlighted, and as every regulatory scholar knows, regulated firms adapt to legal and regulatory requirements in unpredictable ways, giving rise to unintended consequences, to which regulators in turn react and respond, to which firms in turn adapt and respond in a dynamic, never-ending, iterative process. In the particular case here, of risk models, the mutual adaptation both of market actors within markets and of market actors to regulators can lead to significant consequences, as the crisis illustrated.

#### EFFICIENT CAPITAL MARKETS HYPOTHESIS AND REGULATION THROUGH DISCLOSURE

Behavioural economics also makes inroads into two other classic tenets of financial economists and on which the regulatory strategy of disclosure is built. These are the efficient capital market hypothesis (ECMH), and the presumption that investors (including retail investors) are rational actors who simply need to be given sufficient information for them to be able to make an investment decision which maximises their utility. They revolve essentially around the same assumptions, but research occurs at different levels of abstraction, with research into the investment decisions of individuals being, by its nature, more sociological and ethnographic in methodology than the more abstract, macro-level, and quantitative studies of behavioural economists.

Turning first to the ECMH, the central claim of the ECMH is that in a well-functioning market, the prices of securities will reflect predictions based on all relevant and available information. The strong form of the ECMH is that share prices reflect all information available or otherwise. The ‘semi-strong’ form is that they reflect all available information; and the weak form is that they reflect the information provided by the historical sequence of prices.<sup>160</sup> As a result, even sophisticated investors cannot systematically profit by trading on newly available information as this will already be incorporated into the price. Moreover, as rational actors make decisions about the future in an unbiased manner, any price movement tomorrow will only reflect new information available today, and thus cannot be predicted. Stock market movements will thus exhibit a ‘random walk’, with no predictable trends. The theory has been modified over time, and Fama

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<sup>158</sup> J.B. Ruhl, ‘Thinking of Environmental Law as a Complex Adaptive System: How to Clean Up the Environment by Making a Mess of Environmental Law’ (1997) 34 *Houston LR*, 933.

<sup>159</sup> See for example K. Pistor and C. Xu, ‘Incomplete Law – A Conceptual and Analytical Framework and its Application to the Evolution of Financial Market Regulation’ (2003) 35 *J. Int’l L. & Pol.*, 931; M. Polinsky and S. Shavell, ‘The Economic Theory of Public Enforcement of Law’ (2000) 38 *Jnl of Economic Literature*, 45-76.

<sup>160</sup> E. Fama, ‘The Behavior of Stock Market Prices’ (1965) 38 *Jnl of Business*, 34-105; id, ‘Efficient Capital Markets: A Review of Theory and Empirical Work’ (1970) 25 *Jnl of Finance* 2, 383-417.

has accepted that prices do follow certain predictable patterns,<sup>161</sup> but the central tenets of the theory are still strongly held.<sup>162</sup>

The ECMH had been strongly adhered to by many economists until the financial crisis (indeed it was headline news recently in the UK *Financial Times* when economists started suggesting publicly that it should be revisited). However, some economists had been suggesting for some time that the model was flawed. Although Fama and adherents to the ECMH, at least in its semi-strong form, accepted that there are those who trade ‘irrationally’, they argued that these could be ignored as rational actors would trade against them, driving prices to their fundamental values.<sup>163</sup> Opponents argued that if all traders were trading on the basis of information, and prices reflected all available information, few people would trade, and moreover there would be no markets for futures and options.<sup>164</sup> In practice, however, Black argued that people traded on the basis of expectations, which they may think is information, which Black termed ‘noise’. However, the scale on which they trade may mean that rational traders may not want to trade against them, or at least not in significantly large positions, as this could expose the rational traders to risk in that the market may in fact move in the way that the noise traders expected. As a result, the trading of the rational traders would not affect the prices, and so prices would reflect ‘noise’ as well as information. However, it would be impossible to tell in any one instance what proportion was due to ‘noise’ and what to ‘information’ because it would be impossible to tell how many traders were ‘information traders’ and how many were ‘noise’ traders.<sup>165</sup> Prices may move closer to value over time, but ultimately ‘all estimates of value are noisy, and so we can never tell how far a price is away from value’.<sup>166</sup>

The stock market crash of October 1987, the near collapse of Long Term Capital Management in 1999, and the dot.com boom and bust of at the turn of the 21<sup>st</sup> century provided a wealth of empirical data for behavioural financial analysts, and the financial crisis of 2007-9 has added to that pile. Briefly, the most notable work is Robert Shiller’s analysis of ‘herding’ and ‘irrational exuberance’.<sup>167</sup> His empirical work demonstrated that all information was not accurately reflected in prices. Rather markets exhibit significant price volatility and trading patterns which cannot be explained on the basis of company-specific information alone. Moreover, even when trading is mainly on the basis of available information, the inherent unpredictability of dividends and earnings for most companies means

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<sup>161</sup> E. Fama, ‘Market Efficiency, Long Term Returns and Behavioural Finance’ (1998) 49 *Jnl of Financial Economics* 3, 283-206; B. Malkiel, ‘The Efficient Capital Markets Hypothesis and its Critics’ (2003) 17 *Jnl of Economic Perspectives* 1, 59-82.

<sup>162</sup> See eg Thaler (2003), n 129 above; Malkiel, *ibid*, for review.

<sup>163</sup> Fama (1965), n 160 above.

<sup>164</sup> Black, n 128 above.

<sup>165</sup> *ibid*.

<sup>166</sup> Black, n 128 above, 533.

<sup>167</sup> Shiller (1989), n 128 above; *id*, *Irrational Exuberance* (Princeton: Princeton University Press, 2000); *id*, n 79 above.

even ‘smart money’ behaviour is largely guesswork and intuition and so unlikely to be a predictor of value even when all agree. Furthermore, he argued that decision-making by investors does not conform to the calculated rationality that economists assume, but exhibits many of the cognitive biases and heuristics noted above. Moreover, most investors (not just retail investors) have limited capacity or inclination to make comparative investment decisions independently, so rely on the views of peers. Investors are linked in communication networks and are heavily influenced by others in their trading decisions. As a result, there is a group dynamic to decision-making process – the result is herd behaviour, and trading on the basis of fashions and fads.<sup>168</sup> Decision-making is reflexive, and herd behaviour creates endogenous risk: ie predictions about market movements become self-reinforcing and self-fulfilling as all act on them in the expectation that everyone else will, too.<sup>169</sup>

Behaviouralism is taking its hold in the legal academy, and although legal scholars are not producers of this research, they are becoming key users of it. Much of this work again has a normative agenda, and is concerned to understand what lessons behaviouralism has for regulatory policy-making with respect to financial markets. However, whether the insights of behavioural economics should cause regulators to fundamentally re-think their policies depends not only on the validity of its arguments, but also on the extent to which financial regulation is indeed predicated on the assumptions of classical economists. A good example of research of this nature is Langevoort’s analysis of the role of ECMH in US securities regulation. His research suggested that the theory was employed in regulatory and judicial decision-making, but mainly as a façade.<sup>170</sup> His argument suggests that widespread theoretical debates on the appropriateness of using neo-classical economic arguments as the basis for regulation may be interesting normatively, but may miss the point if regulation is not in fact premised on neo-classical economic theories, a question which itself merits empirical analysis.

Nevertheless, behaviouralism can offer some key insights into market operation, and thus can have normative implications for regulation. One of the key areas in which behavioural economics has attracted the attention of legal scholars is with respect to the role of disclosure requirements in regulation for investor protection. Behaviouralism clearly calls into question the extent to which disclosure of information about products can lead investors, of varying degrees of sophistication, to make utility-maximising, or even satisficing, investment decisions. Analyses of the use of disclosed financial information with respect to sub-prime mortgages and credit derivatives in the period leading up to the

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<sup>168</sup> *ibid*; Akerlof and Shiller, n 129 above.

<sup>169</sup> See Callon, n 5 above; G. Soros, *The New Paradigm for Financial Markets: The Credit Crisis of 2008 and What it Means* (London: Perseus Book Group, 2008).

<sup>170</sup> D. Langevoort, ‘Theories, Assumptions and Securities Regulation: Market Efficiency Revisited’ (1992) 140 *U. Pa. L. Rev.*, 851.

financial crisis demonstrate that both sophisticated and unsophisticated investors can fail to read the information they are given about complex products, to understand it if they do, and to act on the basis of it even if they have understood it.<sup>171</sup> Further, as Jackson points out, even when investing in relatively straightforward financial instruments, ie equities, failures by investors to appreciate the value of portfolio diversification, together with agency costs, can lead them to make poor financial decisions.<sup>172</sup>

These and similar findings have led legal scholars to call both for simplified disclosure and for additional regulation such as product regulation for a wider range of complex financial products including derivatives, and extension of restrictions on which products investors can purchase.<sup>173</sup> However, as noted above, these behaviouralism-based criticisms of financial regulation are only valid to the extent that regulation in fact is premised on the rational actor model. In many financial regulatory regimes, it is not, or at least disclosure has never been the sole plank on which investor protection has rested. The regulatory regime in the UK and the EU, for example, contains product regulation for collective investment schemes and restrictions on the type of investments which can be marketed to retail consumers. In addition, it requires financial advisers to advise retail investors to purchase only products which are suitable or appropriate for them, based on their financial circumstances and their attitude to risk. As such, the regulation does not assume that investors are competent actors who simply need sufficient information on which to base their own investment decisions.

Much of the initial focus of behavioural finance was on decision-making by active traders in the equity markets. There is a growing body of work which seeks to understand the behaviour of individual, retail investors in the financial markets. For example, Kingsford Smith and Williamson have conducted qualitative empirical research on the behaviour of a sample of on-line investors in Australia, to understand how and where they obtained information about the securities in which they were investing.<sup>174</sup> This work found that investors use a wide range of sources of information, and confirmed the findings of behavioural economists that the views of peers were highly significant in motivating investment decisions. Moreover, investors' strategies varied from the 'diligent' to the 'dilettante', revealing patterns of behaviour which demonstrated that some investors traded for the 'play' of trading, treating on-line investing as a leisure activity akin to

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<sup>171</sup> eg S. Schwarcz, 'Understanding the Subprime Financial Crisis' (2009) 60 *Stb Carolina LR* 3; see also J. Black and R. Nobles, 'Personal Pension Misselling: The Causes and Lessons of Regulatory Failure' (1998) 61 *Modern Law Review*, 789-820 for discussion with respect to pensions misselling in the UK.

<sup>172</sup> Jackson, n 31 above.

<sup>173</sup> eg Schwarcz, n 171 above; E. Avgouleas, 'The Global Financial Crisis and the Disclosure Paradigm in Financial Regulation: The Case for Reform' (2009) 6 *En Company and Financial Law Review* 4; id, 'The Global Credit Crisis, Behavioural Finance and Financial Regulation: In Search of a New Orthodoxy' (2009) 9 *Jnl of Corporate Law Studies* 1, 23.

<sup>174</sup> D. Kingsford Smith and K. Williamson, 'How Do Online Investors Seek Information, and What Does This Mean for Regulation?' (2004) 2 *Jnl of Information, Law and Technology*.

gambling. These investors, they argued, were far from the rational investors that regulation assumed, but instead were particularly vulnerable to the risks of online trading. In the mortgage market, where the products are more complex and the role of intermediaries more pronounced, Schwarcz has analysed reports of behaviour of those who took out sub-prime mortgages, arguing that the reasons why investors make poor investment decisions is due to a range of behavioural factors, and due to the complexity of the products and markets themselves. As a result, he argues, disclosure alone cannot serve either to protect them, nor, for similar reasons, can it serve to protect the financial system from systemic risk.<sup>175</sup>

However, although there are some examples of empirical legal research in these areas, there is as yet no systematic empirical research conducted by lawyers looking at how market actors behave and what implications this has for their legal regulation, with the notable exception of work on legal deviance and white collar crime. Regulators themselves are filling the gap which academic analysis has left. Regulators, particularly in the UK, Canada, and Australia, are beginning to learn more precisely how investors make investment decisions, how they perceive risk, and the degree to which they can understand information about the financial products in which they want to invest. One Canadian securities regulator (the British Columbia Securities Commission) has even commissioned research into the victims of frauds to understand why they fell for fraudulent schemes.<sup>176</sup> Some regulators are also increasingly 'road testing' the disclosure documents that they require firms to provide with consumer focus groups. The UK Financial Services Authority has been conducting this kind of research since 2000. In Canada, the Canadian Securities Association embarked on this kind of work in 2006-7.<sup>177</sup> In a welcome development, the EU has determined that it too will start testing consumers' understanding of proposed disclosure documents for authorised unit trusts.<sup>178</sup> Greater empirical work in this area again is needed if we are to understand the ways in which individual investors engage in the financial markets, and thus to develop a sound basis on which to develop regulatory policies with respect to them. However, the need for a better understanding of consumer behaviour has wider implications than simply investor protection. As the credit crisis demonstrated, the implications of the aggregate behaviour of individual investors can have global repercussions: a crisis originating in the Florida dream ended up in a global nightmare. Understanding individual investor behaviour is relevant not only for investor protection, but for the stability of the financial system as a whole.<sup>179</sup>

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<sup>175</sup> Schwarcz (2008), n 141 above.

<sup>176</sup> J. Black, *Involving Consumers in Financial Regulation: A Report for the Taskforce on Regulatory Reform* (Toronto: Ontario, 2006)

<sup>177</sup> For discussion, see *ibid.*

<sup>178</sup> European Commission (2008) *IFF Research and YouGov, Executive Summary: Research on KII Disclosures for UCITS Products, Prepared for European Commission*, 28 October 2008.

<sup>179</sup> See also Gerding, n 145 above.

## THE DYNAMICS OF REGULATION

So how do regulators respond to, and thus in turn have a role in shaping, the operation of the financial markets? The fourth and final area of empirical legal research to be considered focuses on the dynamics of regulatory regimes themselves.

Political scientists clearly have an interest in the dynamics of financial regulation, and international committees of financial regulators have attracted considerable academic attention. This work focuses on the political dynamics of the global system of financial services regulation, analysing the principal actors, the coordination challenges, and the ‘democratic deficit’ which exists in global financial regulation.<sup>180</sup> These international committees of financial regulators are also regarded as prime examples of ‘governance’ and regulation beyond the state, and have been studied by lawyers, sociologists, and political scientists alike.<sup>181</sup> Further, at the national level, both political scientists and lawyers have analysed the development of national regulatory systems and their changing character.<sup>182</sup>

If we focus principally on empirical work by lawyers, or that by non-lawyers which appears in law journals, then we find that work here focuses in three main areas: regulatory competition; dynamics of the regulatory regime and the relative role of state and non-state regulation; and regulation inside the financial institutions.

### REGULATORY COMPETITION

There is a significant literature on regulatory competition both by regulatory scholars and by corporate lawyers, though the two very rarely interact. In US corporate law, the central preoccupation has been on the competition between states for corporate charters and the ‘Delaware’ effect: whether this leads to a race to the bottom, and how the ‘bottom’ is defined. Much of this work is theoretical, but there are also a number of empirical studies looking at the numbers and types of firms that choose to incorporate in Delaware, and more recently qualitative work which looks at the reasons why they choose to do so.<sup>183</sup>

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<sup>180</sup> eg T. Porter, ‘The Democratic Deficit in Institutional Arrangements for Regulating Global Finance’ (2001) 7 *Global Governance* 4, 423; Underhill (ed) (2006), n 119 above; G. Underhill (ed), *The New World Order in International Finance* (London: Macmillan, 1997); D. Kerwer, ‘Rules that Many Use: Standards and Global Regulation’ (2005) 18 *Governance* 4, 611-32.

<sup>181</sup> See eg Braithwaite and Drahos, Slaughter, Kapstein, Underhill, n 119 above.

<sup>182</sup> eg M. Moran, *The Politics of Banking* (London: Macmillan, 2nd ed, 1986); M. Condon, *Making Disclosure: Ideas and Interests in Ontario Securities Regulation* (Toronto: University of Toronto Press, 1998); J. Black *Rules and Regulators* (Oxford: Oxford University Press, 1997).

<sup>183</sup> eg R. Romano, ‘Law as Product: Some Pieces of the Incorporation Puzzle’ (1985) 1 *Jnl Law, Econ and Org.* 225; R. Daines, ‘Does Delaware Law Improve Firm Value?’ (2001) 62 *J. Fin. Econ.*, 525; L. Bebchuk and A. Ferrell, ‘A New Approach to Takeover Law and Regulatory Competition’ (2001) 87 *Virginia Law Review* 111; S. Choi, ‘Law, Finance, and Path Dependence: Developing Strong Securities Markets’ (2001) 80 *Texas Law Review*, 1657-1727 for review.

With respect to financial markets, most analysis has focused recently on the implications of demutualisation of stock exchanges and on competition between them for listings. This work is both national (within the US) and cross-national, comparing IPOs and secondary listings between the UK and the US markets in particular,<sup>184</sup> and comparing listings to the regulatory regimes. This work suggests that exchanges whose regulators use formal enforcement action are less attractive to close held corporations than those which use a more informal enforcement approach.<sup>185</sup>

#### REGULATORY PRACTICES

There has been a range of work on the design and practice of different financial regulatory regimes. There is a significant tradition in many countries of self regulation in financial markets, stemming largely from the history of the formation of organised securities and futures markets. Gadinis and Jackson's survey of the allocation of regulatory responsibilities with respect to securities exchanges in eight jurisdictions found three distinct patterns. These were a 'government-led' model, that preserves significant authority for central government control over securities markets regulation, albeit with a relatively limited enforcement apparatus (France, Germany, Japan); a 'flexibility' model that grants significant leeway to market participants in performing their regulatory obligations, but relies on government agencies to set general policies and maintain some enforcement capacity (UK, Hong Kong, Australia); and a 'cooperation model' that assigns a broad range of power to market participants in almost all aspects of securities regulation, but also maintains strong and overlapping oversight of market activity through well-endowed governmental agencies with more robust enforcement traditions (US, Canada).<sup>186</sup>

The long history of self regulation in the markets has itself attracted empirical attention. The futures markets in particular have been the object of research by lawyers and sociologists, as noted above. Gunningham's study of the futures markets of Hong Kong, Chicago, and Sydney reinforces many of these.<sup>187</sup> Gunningham found that informal methods of social control were more critical to maintaining order and preventing market abuses than the formal rules either of government or the exchanges. Peer group pressures; fears of being ostracised, the leverage of large institutional clients, and the transparency of market dealings all affected the definition, motivations, and opportunities for abuse. Abolafia's sociological and ethnographic study of the dynamics of traders in three US markets, stocks, bonds, and futures, produced similar findings.<sup>188</sup>

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<sup>184</sup> Coffee, n 43 above; Jackson (2007), n 41 above.

<sup>185</sup> Coffee, n 43 above.

<sup>186</sup> S. Gadinis and H. Jackson, 'Markets as Regulators: A Survey' (2007) 80 *Southern California Law Review*, 1239.

<sup>187</sup> Gunningham (1991) n 114 above.

<sup>188</sup> Abolafia, n 5 above.

Moving to state regulation and ‘co-regulators’, empirical work has focused here on the dynamics of rule making;<sup>189</sup> on the incidence and use of formal and informal enforcement techniques;<sup>190</sup> and on the practices of monitoring, particularly the growth of risk-based systems of monitoring and supervision in a number of different countries.<sup>191</sup> It has also looked at the reasons for regulatory failure, for example with respect to mis-selling of financial products.<sup>192</sup> The financial crisis led to further work on how and why regulators fail,<sup>193</sup> and should prompt much more.

Research into financial regulators has also focused on how they attempt to define their institutional position. This work shows how regulators are active in constructing their own perception of their role, and their appropriate institutional position vis a vis other actors in the regulatory system; not just firms, but other state and non-state regulators. Black and Gilad’s work separately shows how, in an iterative process, they develop their own perceptions of their role, and seek strategically to manage the competing role perceptions and demands for legitimacy that others make through this interpretation and articulation of their role and relative institutional position. In Black’s research, this was achieved through the strategic use of rule type, in which the use of Principles was used in part to define the regulator’s role in the institutional structure as the mega or ‘uber’ regulator, overseeing the other regulators.<sup>194</sup> Gilad’s work demonstrates that in the case of the Financial Ombudsman, it defined its institutional domain through defining its role as one of individual dispute resolution, rather than as having a broader, systemic role within the regulatory regime.<sup>195</sup> By focusing on its individual dispute resolution role, she argues it enabled the Ombudsman to expand its discretion in remedying individual grievances, whilst alleging to have no coercive impact on firms’ handling of similar complaints and future transactions. Further, it deliberately developed a ‘therapeutic’ role in handling complaints, strategically seeking to manage claimants’ expectations.<sup>196</sup> Much of this work uses regulation of financial markets as a case study in which to explore dynamics of wider

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<sup>189</sup> Black, n 182 above.

<sup>190</sup> Jackson (2007), n 41 above; M. Condon and P. Puri, *The Role of Compliance in Securities Regulatory Enforcement* (Toronto: Taskforce to Modernize Securities Regulation in Canada, 2006); MacNeil, n 38 above.

<sup>191</sup> J. Black, ‘The Emergence of Risk-based Regulation and the New Public Risk Management in the United Kingdom’ (2005) 512 *Public Law*; id, ‘Tomorrow’s Worlds: Frameworks for Understanding Regulatory Innovation’ in J. Black, M. Lodge, and M. Thatcher (eds), *Regulatory Innovation*. (Cheltenham: Edward Elgar, 2005); id, ‘Managing Regulatory Risks and Defining the Parameters of Blame: The Case of the Australian Prudential Regulation Authority’ (2006) 28 *Law and Policy* 1; id, *Risk-Based Regulation: Choices, Practices and Lessons Being Learned* (Paris: OECD, 2008), SG/GRP(2008)4.

<sup>192</sup> Black and Nobles, n 171 above.

<sup>193</sup> eg Schwarcz (2007), n 148 above.

<sup>194</sup> Black, n 182 above.

<sup>195</sup> S. Gilad, ‘Exchange Without Capture: the UK Financial Ombudsman’s Struggle for Accepted Domain’ (2008) 86 *Public Administration* 4, 907-924.

<sup>196</sup> S. Gilad, ‘Accountability or Expectations Management? The Role of the Ombudsman in Financial Regulation’ (2008) 30 *Law and Policy* 2, 227-253.

relevance to those interested in understanding the nature and complexity of regulatory processes in other domains.

Moving from regulators to firms, there has been some empirical work on compliance within firms. Again this work is of broader relevance to regulatory scholars as well as those interested in financial regulation. Weait's study of compliance officers in UK financial institutions found that to be effective, the compliance function had to have status within the organisation and senior management support; it was perceived as standing in opposition to business, and in order to gain acceptance, it had to show how compliance could be 'good for business' if it was to persuade employees to comply.<sup>197</sup> This work is now quite dated, but the findings accord with those of others who have explored the role of compliance officers in the same or different areas.<sup>198</sup>

The focus on compliance within firms links well to the increasing use of compliance audits as an enforcement tool in a number of countries. Recent empirical research into the conduct of such audits does not make for reassuring reading, however. Compliance audits, also known as monitorships, are a type of enforcement action whereby the regulator or a court imposes on a firm a requirement to have a 'compliance audit', or similar. These are not unique to financial regulation. Their precise terms always vary, but the main structure is that the corporation is required, at its own expense, to retain a monitor or compliance auditor to oversee its compliance with settlement agreements and the implementation of specified reforms, such as the development and implementation of an improved compliance programme. The monitor continues to review the corporation's implementation of the reforms for a period ranging from 18 to 36 months and to report back to the relevant government agents on the firm's progress.<sup>199</sup> Ford and Hess recently examined the role of the monitor in monitorships imposed on financial firms in the US. They found that in practice, 'monitorships that have the goal of reforming corporations are at a risk of falling short'.<sup>200</sup> This is because the incentives and motivations of the three main actors involved (regulator, firm, and monitor) can coalesce in a way that the monitorship process settles for considerably less in terms of operation and ambition than might be hoped. The corporation wants a monitorship report that is just rigorous enough to satisfy the regulator. The monitor wants to write a report which is just rigorous enough to maintain her professional credentials with both firms and the regulator without offending her client and threatening future business. And the

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<sup>197</sup> M. Weait, 'The Role of the Compliance Officer in Firms Carrying on Investment Business' (1994) 9 *Butterworth's Jnl of International Banking and Financial Law* 8, 381-383; see also Black and Nobles (1998), n 171 above.

<sup>198</sup> D. McCaffrey and D. Hart, *How Wall Street Polices Itself: How Securities Firms Manage the Legal Hazards of Competitive Pressures* (New York: Oxford University Press, 1998), (equal opportunities); A. Hopkins, *Making Safety Work: Getting Management Commitment to Occupational Health and Safety* (New South Wales: Allen and Unwin, 1995); F. Haines, *Corporate Compliance: Beyond Punish or Persuade* (Oxford: Oxford University Press, 1997), (occupational health and safety).

<sup>199</sup> Ford and Hess, n 41 above; J. O'Hare, 'The Use of the Corporate Monitor in SEC Enforcement Actions' (2006) 1 *Brooklyn Jnl Corporate, Financial and Commercial Law* 45.

<sup>200</sup> Ford and Hess, *ibid*, 728.

regulator does not push the monitor to go beyond ensuring the stipulated requirements are met (at least on paper) as it needs to close the file and move onto the next case. ‘The result can be that relatively conservative monitorships focused on technical compliance with policies and procedures.’<sup>201</sup>

Finally, there has been detailed, again qualitative analysis of financial firms’ ‘legal consciousness’ and their response to law. This work illustrates well the contrasting conceptions of law, markets, and behaviour between sociological approaches and more economic and formalistic approaches, and their association with qualitative and quantitative methodologies respectively. Larson explored the extent to which securities brokers’ behaviour in Fiji and Ghana was structured by the legal and regulatory rules, or by norms within the social field, here the securities market itself. In both cases, the size and trading patterns of the markets were similar, as were the legal rules. In contrast to the quantitative nature of the LLSV studies examined above, the question was not ‘what is the impact of legal rules on markets’, ie their liquidity, volatility, etc, but ‘what is the impact of legal rules on the *behaviour* of actors within markets’, ie how and to what extent do legal rules shape their conduct. He found that the nature of the day-to-day interaction of the regulator with market actors had a significant effect on the extent to which behaviour was structured by formal legal rules or social norms. Where regulators were physically more present and more involved in the day-to-day operations of the market, legal rules dominated; where they were more distant, and monitoring was based principally on annual audits, the norms of the ‘social field’, ie the trading floor, dominated.<sup>202</sup> Linking with the discussion above on the relationship between law and markets, this work illustrates how markets may operate substantively in the absence of law, even where law is formally present.

## SUMMARY AND CONCLUSIONS

The four distinct but related research questions which have been used to frame this paper impose a false coherence on what is in practice an incredibly diverse and disparate set of research. There are some debates which closely interact: notably the debates around the LLSV arguments on the relationship of law and the market, or the growing core of work by legal scholars on the implications of behavioural economics for the design of regulation. But the work is otherwise quite disparate. Moreover, research often reflects the fundamental tensions in social science between different understandings of behaviour, different conceptions of the market, different conceptions of law, and different empirical

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<sup>201</sup> *ibid*, 729.

<sup>202</sup> E. Larson, ‘Institutionalizing Legal Consciousness: Regulation and the Embedding of Market Participants in the Securities Industry in Ghana and Fiji’ (2004) 38 *Law and Society Review* 4, 737.

methodologies. Lawyers are often users of empirical and experimental research conducted by others, notably financial economists and cognitive psychologists. However, there are signs of an increasing scepticism and questioning by lawyers of some of this work, notably that of the LLSV school of financial economics, and that this questioning is having an impact on the latter's methodology.

There are notable gaps in research, some of which this paper has highlighted. There is very little empirical research on the dynamics of the 'legal shadow-land' – for example, on how financial instruments are developed and traded in the absence either of organised exchanges or of legal confirmation. There is no systematic study of the unintended consequences of regulatory or legal interventions or of avoidance of legal rules through gaming. Much of the empirical work which has been conducted revolves around the core theme of the relationship between law and financial market development, but the disparate strands are rarely brought together to inform one another. Partly this is because different strands of empirical research are rooted in different methodologies and social science traditions. The 'box' of LLSV-related research, for example, which is predominantly quantitative and rooted in law-and-economics, rarely if ever interacts with the more micro-level, qualitative work which is rooted in, or at least more sympathetic to, the traditions of sociology or anthropology. The latter in turn highlights the complexity of interactions within the market, and between markets, law, and regulation, but in turn is disassociated from complexity theory, with which it nevertheless shares certain themes. Both emphasise the complex inter-adaptivity of behaviour between market actors and regulators, but again are often quite divorced from work by regulatory scholars, to whom such a theme is the bread and butter of their work. These three groups in turn are quite distinct from the work of private lawyers, who can document the detailed instances in which market practices are juridified, or in which market practices create new products and structures to avoid legal rules, but who lack a broader theoretical framework in which to place this analysis.

Academic silos are nothing new, and there is evidence that those analysing financial markets and their regulation are attempting to break them down as much as possible. Nonetheless, their prevalence is striking. What can we take from the state of current empirical research on the relationship between law, markets, and regulation that can help us going forward? First, we should be aware of the methodological biases and cognitive assumptions of the researchers themselves. As noted above, researchers construct and deploy quite different conceptions of markets, of law and regulation, of individual behaviour, and of the characteristics of financial systems. Secondly, that as a result, their findings are almost impossible to draw together as they are often expressed in fundamentally different languages and exhibit quite distinct logics. Thirdly, that silos remain, but that greater mutual learning across silos is necessary, and that lawyers have to engage in this process of inter-disciplinary arbitrage. Understanding the general context in which law and regulation operate, and in particular the dynamics of the financial markets, deepens our understanding of the nature, potential, and limits of law and

regulation themselves. Moreover, to the extent that the observations of experts in other disciplines are based on an impoverished conception of law, lawyers can offer a far more nuanced and critical set of reflections than others often recognise and from which they can benefit. Finally, decades of research into markets, behaviour, regulatory dynamics, and policy-making shows us that formal, linear, and absolute understandings of behaviour and of the relationships between law and markets are bound to be wrong. What we have instead is contingency, complexity, dynamic adaptability, and unpredictability. Any models of financial markets or of behaviour and any policy prescriptions as to how to regulate either which are not based on the acceptance of these assumptions are bound to fail.