The Behavioral Paradox: Why Investor Irrationality Calls for Lighter and Simpler Financial Regulation

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Oskari Juurikkala*

Abstract

It is widely believed that behavioral economics justifies more intrusive regulation of financial markets, because people are not fully rational and need to be protected from their quirks. This Article challenges that belief. Firstly, insofar as people can be helped to make better choices, that goal can usually be achieved through light-touch regulations. Secondly, faulty perceptions about markets seem to be best corrected through market-based solutions. Thirdly, increasing regulation does not seem to solve problems caused by lack of market discipline, pricing inefficiencies and financial innovation; better results may be achieved with freer markets and simpler rules. Fourthly, regulatory rule-makers are subject to imperfect rationality, which tends to reduce the quality of regulatory intervention. Finally, regulatory complexity exacerbates the harmful effects of bounded rationality, whereas simple and stable rules give rise to positive learning effects.

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I. Introduction

The recent financial crisis fostered lively debates about fundamental issues in financial law and regulation, with many commentators blaming the crisis on “animal spirits” and the “irrationality” of investors.\(^1\) Such sentiments are supported by behavioral economics, which challenges standard economic assumptions about rational human behavior.\(^2\) From a legal and regulatory viewpoint, the ordinary perception is that neoclassical economics emphasizes the importance of competition, whereas the behavioral paradigm strengthens the case for paternalist and interventionist policies, as it highlights the limits of human rationality and will-power.\(^3\)

The debate on behavioral law and economics has often led to a simplistic division in which proponents of the behavioral paradigm advance pro-regulation arguments and the advocates of the neoclassical paradigm make anti-regulation critiques.\(^4\) Critics of the interventionist tendencies of behavioral law and economics have also sought to point out the theoretical and empirical

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\(^1\) This view follows the famous saying, attributed to J.M. Keynes, that “the markets are moved by animal spirits, and not by reason.” The original quotation is somewhat less eloquent: “Even apart from the instability due to speculation, there is the instability due to the characteristic of human nature that a large proportion of our positive activities depend on spontaneous optimism rather than mathematical expectations, whether moral or hedonistic or economic. Most, probably, of our decisions to do something positive, the full consequences of which will be drawn out over many days to come, can only be taken as the result of animal spirits—a spontaneous urge to action rather than inaction, and not as the outcome of a weighted average of quantitative benefits multiplied by quantitative probabilities” (John Maynard Keynes, The General Theory of Employment, Interest and Money 161-162 (London: Macmillan 1936).) For more recent work along the same lines, see George A. Akerlof & Robert J. Shiller, Animal Spirits: How Human Psychology Drives the Economy, and Why It Matters for Global Capitalism (2009).


weaknesses of the behavioral apparatus in its entirety. It may be argued that some of the opposition to behavioralism may be motivated by the political implications it has, or seems to have.

This Article proposes a different perspective. While accepting some of the criticism of behavioral economics, it argues that the behavioral paradigm is broadly valid, but it does not imply a systematically interventionist policy. In fact, a number of reasons can be found why behavioralism may have markedly anti-regulatory implications. In other words, there may be good reasons to regulate certain financial activities, but the behavioral perspective specifically seems to favor light-touch regulations and regulatory simplicity.

This thesis is based on five arguments. First, it is shown that behavioral economics does not automatically imply the need for heavier regulation, because it also reveals the possibility of so-called light-touch regulations along novel lines that would not be plausible within the neoclassical, rational-choice framework. The principal forms of light-touch regulation examined here are default rules, targeted information disclosure, and cooling-off regulations. While it is not entirely clear whether the overall effect of these light-touch regulations is more or less intervention, there clearly is the possibility of replacing certain intrusive regulations with lighter ones.

Second, it is argued that faulty market perceptions seem to be best corrected through market-based solutions. Behavioral economics implies that financial market participants tend to be misled by a range of factors about investment prospects, and some commentators have called for the establishment of regulatory tools to help “debias” faulty market perceptions. Such measures seem plausible, but the prospects of regulatory debiasing in financial markets are not too promising, because the track record of public authorities in predicting crises is poor, and their resources and incentives for doing so are weak in comparison with the private sector. Some private sector actors already provide plenty of high quality “debiasing” activity, and it seems that it would be better to reinforce and harness those activities.

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The third argument is that increasing regulation does not seem to solve problems caused by lack of market discipline, pricing inefficiencies and financial innovation. In fact, better results may be achieved through simpler rules and more freedom. This argument covers a wide range of issues that go to the heart of financial regulation; the objective is to pinpoint some crucial factors in light of behavioral economics.

Fourth, regulatory rule-makers are subject to imperfect rationality, which tends to reduce the quality of regulatory intervention. This has led to the pejorative term “behavioral bureaucrats”. The analysis here is an extension of the widely accepted public choice theory, which challenges the assumption of perfect and well-intentioned law-making. The findings of behavioral economics reinforce the tendencies identified by public-choice theorists, which means that in light of behavioralism, one ought to be even more skeptical about the prospects of regulatory intervention. There are also some possibilities of designing institutions to mitigate the harmful effects of human psychology in law-making.

Fifth, regulatory complexity exacerbates the harmful effects of limited rationality; in contrast, simple and stable rules give rise to positive learning effects. It may even be argued that, paradoxically, it is good to have some crises from time to time – but they should be relatively frequent and small. In terms of institutional solutions, this implies that the rules should not be excessively protective of investors, and that decentralized regulation has advantages not acknowledged by traditional theories of regulation.

The rest of the Article is structured as follows. Part II outline the behavioral approach and discusses critically its implications in the context of financial markets. Part III shows that it may be possible to mitigate the effect of certain behavioral imperfections through light-touch regulation in the contractual context. Part IV examines whether mistaken investor perceptions might be improved in non-contractual ways, and whether such a task should be given to the regulatory authorities. Part V analyzes a range of issues related to behavioral economics—market discipline, pricing efficiency, and financial innovation—and draws out their regulatory implications. Part VI notes the implications of behavioral theory for regulators and politicians, and argues that behavioralism should lead us to be more skeptical about the benefits of regulatory intervention. Part VII makes the case for legal and regulatory simplicity due to its positive learning effects.

II. Financial Markets and Behavioral Economics: An Overview

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In its essence, behavioral economics is a paradigm that applies experimental psychology to economic theory, highlighting departures from standard assumptions of rational choice.¹⁰ It does not seek to understand the psychology of human behavior in all its depth, but looks for regularities that can be incorporated into economic models in order to make those models more realistic.¹¹ One way of presenting behavioral economics is to divide the experimental findings in three categories: bounded rationality (people have limited cognitive powers), bounded will-power (people often fail to choose the options that they themselves would consider best) and bounded self-interest (people care about fairness and the well-being of others).¹² The present discussion focuses on bounded rationality and bounded will-power, because they imply that people tend to make systematically suboptimal choices; bounded self-interest will in fact be beneficial for the functioning of markets and societies.¹³

A. Bounded Rationality and Willpower: Heuristics and Biases

Bounded rationality refers to the fact that real human persons do not have infinite and perfect cognitive processing capacity, and they therefore do not always make optimal choices.¹⁴ Not only is it costly and sometimes difficult to have access to relevant information (this is incorporated in economic models of asymmetric information), but it is also costly, time-consuming and difficult to process whatever information is available. In a world of complex decisions and large amounts of

¹⁰ See supra note 2.

¹¹ The regularity aspect is important, because behavioral economics cannot build on chaos and irrationality. It highlights departures from the predictions of mainstream economic models, but departures that are in some way systematic and therefore predictable.

¹² See Jolls, Sunstein & Thaler, supra note 2 (using the three-part distinction). See also Bruno S. Frey & Matthias Benz, From Imperialism to Inspiration: A Survey of Economics and Psychology, in THE ELGAR COMPANION TO ECONOMICS AND PHILOSOPHY 61 (John B. Davis et al. eds. 2004) (adopting a similar distinction, with the addition of happiness research).


¹⁴ This idea was first systematically developed by HERBERT A. SIMON, ADMINISTRATIVE BEHAVIOR: A STUDY OF DECISION-MAKING PROCESSES IN ADMINISTRATIVE ORGANIZATIONS (1947); Herbert A. Simon, A Behavioral Model of Rational Choice, 69 Q. J. ECON. 99 (1955). See John Conlisk, Why Bounded Rationality?, 34 J. ECON. LITERATURE 669 (1996) for an extensive literature review. Note that there are important differences among the different authors in this field: Simon’s early contribution focused on the costs of information processing, and the emphasis was on choice involving complex data. The more recent behavioral economics attempts to create a more universal account of departures from mainstream economic theory.
relevant data, bounded rationality implies that people often make choices that are suboptimal relative to some ideal world—and to standard economic models.

In order to reduce the costliness of information processing, people resort to what cognitive psychology calls heuristics.\textsuperscript{15} These “rules of thumb” are mental devices, which help to simplify cognitive tasks. However, the result often departs from the ideal decision. For example, people find it very difficult to estimate risks and probabilities accurately; the availability heuristic relies on intuitive impressions of what can more easily be called to mind, and thus most people consider those risks more likely of which they have a vivid mental image. Probability judgments also rely on reference or “anchor” values, which are used as a basis for adjustments in different circumstances; the anchoring heuristic often helps to make more reasonable estimates of probabilities, but the final estimate significantly depends on the choice of initial value.\textsuperscript{16}

Imperfect cognitive powers and the reliance on heuristics tend to give rise to behavioral biases—also sometimes called anomalies—i.e. choices which systematically depart from the predictions of standard rational choice models. The magnitude of departure varies depending on many factors, but the general direction of the biases is quite universal. Here is a summary of some of the most significant biases.

Salience and related biases. People tend to give relatively too much importance to salient, memorable and vivid evidence, even at the expense of rationally more weighty contrary evidence. The phenomenon is probably rooted in the availability heuristic.\textsuperscript{17} This explains many phenomena in financial markets, for example that people tend to underestimate the probability of a future crisis, although in light of economic history, financial crises are quite common. People also overreact to noticeable but isolated events, such as fiascos in individual companies.

Optimism bias and overconfidence. Most people tend to overestimate their chances of success, and to underestimate chances of failure and risk.\textsuperscript{18} For example, people tend to assume that they themselves are somehow more immune from risks that they consider likely to happen to other people. Optimism has its benefits, but it also implies that people often fail to take prudent precautions against predictable uncertainties.\textsuperscript{19} A related bias is overconfidence, which means that

\textsuperscript{15} See Amos Tversky & Daniel Kahneman, 

\textsuperscript{16} Matthew Rabin, 

\textsuperscript{17} See generally Amos Tversky & Daniel Kahneman, 

\textsuperscript{18} Neil Weinstein, 
\textit{Unrealistic Optimism about Future Life Events}, 39 J. PERSONALITY & SOC. PSYCHOL. 806 (1980); Neil Weinstein, 

\textsuperscript{19} The benefit of optimism is that it makes life easier, and enables bolder action: see Jeffrey J. Rachlinski, 
most people overestimate their ability to judge facts and circumstances. Interestingly, expertise and past successes seem to exacerbate overconfidence.\(^{20}\)

**Hindsight and confirmation bias.** People tend to give too much weight to events that really took place when assessing future probabilities, and to assume that what happened was nearly inevitable even if it did not seem so beforehand.\(^{21}\) Closely related is the confirmation bias, which means that people tend to emphasize information that supports their past decisions, and to downplay contrary evidence.\(^{22}\)

**Extremeness aversion.** People avoid extremes—or, more precisely, what they perceive as extremes.\(^{23}\) This has various consequences, such as *compromise effects*, whereby given different alternatives, people often seek a compromise or middle-ground option. It also leads to *framing effects*, because the choice of available options influences the outcome, even when some alternatives are seemingly irrelevant.\(^{24}\) Extremeness aversion may lead to suboptimal choices, but it can also be used to help people make better choices by framing the options differently.

**Status quo bias.** People are attached to the status quo and demand a great deal to justify departures from it.\(^{25}\) Reference levels of income, rights etc. have a significant impact on bargaining, because what matters most are the gains and losses from the reference point. Again, the choice of reference level can be seen as a framing effect. As will be shown, status quo bias may also be employed in law to create lighter regulations.

**Herding effects.** When it comes to choices involving complex information and significant uncertainty, many people, consciously or unconsciously, look to what the others are doing as evidence of what is optimal. Such *imitation* is an efficient heuristic in most circumstances, but it can have drastic consequences if most people imitate each other and few people bother to


\(^{24}\) This is well known by restaurants and other sellers which design a menu of available products or services. An interesting question is whether financial market participants unconsciously begin to accept higher levels of risk, when the overall riskiness of the available alternatives increases.

investigate their choices at a deeper level. Imitation is an important partial explanation of financial manias and bubbles, such as the 1990s dot.com boom, and the structured finance bubble of the early 2000s.\(^\text{26}\)

**Self-serving attribution bias.** Most people are not quite objective about their merits and guilt. On the one hand, we tend to take too much credit for real or supposed successes (self-enhancing bias); on the other hand, we tend to downplay and even deny our responsibility for failure (self-protective bias).\(^\text{27}\) This may happen at both individual and group levels. As will be shown, self-serving bias is important for understanding some of the dynamics of regulatory rule-making.

Finally, the notion of *bounded will-power* refers to the idea that people do not always choose optimally for lack of strength of will. This notion is closely related to that of bounded rationality, but it emphasizes the aspect of emotions and our imperfect control over them. For example, we sometimes find ourselves in powerful but transient emotional states, which almost seem to force us to choose something that we regret later on.\(^\text{28}\) For example, people wish to adopt healthier lifestyles in the interest of long-term well-being, but find themselves unable to quick smoking, eating too much etc. Two instances of bounded-will power are mentioned here.\(^\text{29}\)

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\(^{26}\) See Robert J. Shiller, *Irrational Exuberance* (2nd ed. 2005) (discussing financial market developments in the 1990s and early 2000s). See also Charles P. Kindleberger, *Manias, Panics, and Crashes: A History of Financial Crises* (4th ed. 2000) (discussing earlier financial crises). There may of course be some investors who realize what is going on; but they may benefit from the herding behavior of others, or they may simply be unable to stop it. While herding alone is unlikely to explain the existence of financial bubbles, it explains why they tend to be so large. Other psychological factors also contribute to financial bubbles, including the availability heuristic: see Martti Vihanto, *Extending Austrian Economics toward Psychology: Rules in Loan Decisions*, 17 Rev. Austrian Econ. 323, 337–339 (2004) (explaining how the availability heuristic reinforces upward and downward tendencies in good and bad times, respectively). Note also that herding is sometimes exacerbated by external incentives; from the viewpoint of personal gain, the optimal strategy for fund managers is usually to follow a commonly adopted investment strategy, so that unexpected losses will be attributed to systematic risk rather than to the fund manager’s incompetence. This creates a structural tendency for fund managers to move with the market and not against it. The “herding incentive” seems to be especially strong for young fund managers: see Judith Chevallier & Glenn Ellison, *Career Concerns of Mutual Fund Managers*, 114 Q. J. Econ. 389, 390–391 (1999).


\(^{28}\) See Camerer et al., *Asymmetric Paternalism*, supra note 7, at 1238 (“People buy cars they cannot quite afford after breathing in the intoxicating new-car smell during a test drive. Others get married in the heat of passion or commit suicide when depression is particularly intense.”).

Projection bias. One explanation of heat-of-the-moment behavior is projection bias, which means falsely projecting current transient preferences on to the future.\textsuperscript{30} We give too much importance to benefits available right now and downplay the costs that come later. In the realm of financial markets, an important instance of projection bias and weak self-control is the tendency for many people to spend beyond their means, for example with credit cards, which often pay very high effective rates of interest.\textsuperscript{31}

Procrastination. A different aspect of bounded will-power is procrastination, i.e. our tendency to leave for later tasks that we should carry out now.\textsuperscript{32} Procrastination seems to be rooted in present-based biases, when the costs of acting are incurred now and the benefits come later. A common day-to-day example of procrastination is the tendency of many to people to delay unpleasant tasks until the last minute. In a sense, procrastination (costs now, benefits later) is the converse of projection bias and heat-of-the-moment behavior (benefits now, costs later). Procrastination is one explanation of why many people find it difficult to save as much as they would like for “rainy days” and other future needs.\textsuperscript{33}

B. Behavioral Finance and Regulation: Does It Matter?

What all this means for financial regulation is far from settled. Proponents of regulatory intervention have invoked investor irrationality as a basis for existing and further regulation.\textsuperscript{34} It has been argued

\begin{flushleft}(available online 31 January 2012); Mark Grinblatt & Matti Keloharju, Sensation Seeking, Overconfidence, and Trading Activity, 64 J. Fin. 549 (2009).

\textsuperscript{30} See George Loewenstein, Ted O'Donoghue & Matthew Rabin, Projection Bias in Predicting Future Utility, 118 Q. J. ECON. 1209 (2003).


\textsuperscript{32} See George A. Akerlof, Procrastination and Obedience, 81 AM. ECON. REV. 1, 3–8 (1991) (discussing evidence and applications); Ted O'Donoghue & Matthew Rabin, Doing it Now or Later, 89 AM. ECON. REV. 03 (1999) (creating a model of present-based biases).


that the behavioral approach to law and economics has been markedly paternalistic and interventionistic.\textsuperscript{35} Regulatory skeptics have responded to these tendency by pointing out that the evidence on investor irrationality is inconclusive and its magnitude probably insignificant; that competitive markets will in tend to wipe out irrational actors; and that, in any case, regulators also suffer from imperfect rationality and cannot be relied on to correct the biases of others.\textsuperscript{36}

It may be that both sides to the debate probably have touched upon aspects of the truth, and it is not necessary to side with either extreme view.\textsuperscript{37} Note, for example, that the implications of bounded rationality among regulators may be very different from those of bounded rationality among investors. If regulators do suffer from behavioral biases, that certainly is an important factor to consider in designing good laws and regulations. It is not however a sufficient reason to conclude that regulation should be designed as if all the relevant actors—investors, regulators and others—acted according to the model of perfect rationality. The entire analysis has to be adapted.

Moreover, the opposition of competing visions of financial regulation is reinforced by psychological factors such as overconfidence and confirmation bias.\textsuperscript{38} Those biases lead researchers to overestimate their own infallibility, and to highlight evidence that supports their convictions, downplaying contrary evidence especially when there are strong ideological issues at stake.\textsuperscript{39} Sometimes even the terms of the debate get distorted: it is assumed that people are either perfectly rational or complete idiots, when in fact the behavioral approach only talks about bounded or imperfect rationality, will-power, and self-interest. The behavioral approach is best seen as a complement—not a rival—to alternative perspectives such as asymmetric information, principal-agent problems, and public choice theory. The model that most completely incorporates relevant factors (without becoming so complex that it no longer serves as a model at all) is likely to be the best model for explaining and predicting market and regulatory outcomes.\textsuperscript{40}

\textsuperscript{35} Choi and Pritchard, supra note 5, at 4–5.

\textsuperscript{36} See Choi and Pritchard, supra note 5 (making all these arguments). See also Stephen M. Bainbridge, \textit{Mandatory Disclosure: A Behavioral Analysis}, 68 U. CINCINNATI L. REV. 1023 (2000) (arguing that while herd behavior and status quo bias might result in a capital market failure, a mandatory disclosure system may not be necessary in highly evolved capital markets).

\textsuperscript{37} There are good reasons for this view, so this is not mere extremeness aversion.

\textsuperscript{38} See John Kay, \textit{Why Economists Still Stubbornly Stick to Their Guns}, FINANCIAL TIMES, Apr. 16, 2011 at 7 (arguing that after the financial crisis, “the lesson most people have learnt is that they were right all along”).

\textsuperscript{39} For example, Choi and Pritchard, supra note 5, at 71, argue that the proponents of behavioral securities regulation are guilty of confirmation bias. It is however not difficult to see the same bias at work in their own criticism of the behavioral approach; for example, they give significant importance to its theoretical weaknesses (at 9–11), forgetting that perfect-rationality economics is guilty of many similar defects, and certainly was more so in its earlier stages of development.

\textsuperscript{40} Economists tend to overemphasize the importance of model simplicity, even though explanatory power is normally a more important factor of model quality: see Andrew M. Yuengert, \textit{Model Selection and Multiple
However (and here is the twist), the mere existence of biases and other departures from the standard rational choice model does not necessarily justify more extensive regulation of financial markets. Instead, the behavioral approach calls for further reflection on the exact goals of regulation, and on the occasional failures of the existing set of rules. Perhaps there should be less regulation, but different and more targeted.

C. Some Doubts about the Precision and Application of Behavioral Law and Economics

Before proceeding to the substantive discussion, it is worthwhile to highlight some methodological challenges. The first one relates to the precision of behavioral theory, the second one to the application of behavioral explanations to concrete cases in financial markets.

Behavioral economics is not a deep and holistic theory of real, flesh-and-blood human behavior, but just like all economics, it is a simplification based on experimental findings, observations and the like. Also in psychology, there are various theories related to these findings, and our understanding of their deeper causes is limited. The practical effect (and even the existence) of various behavioral biases and anomalies depends on the person in question, the context and many other factors, so that the notion of bias is no more than a rough idea of a likely direction of departure from ideal choice—an interesting and sometimes useful idea, but not a very precise one. Moreover, bounded rationality does not equate with irrationality: heuristics are often sensible and helpful responses to limited cognitive capacity, and they help us make basically good choices most of the time.

This has important implications for the theory of regulation. Firstly, we do not fully appreciate why, when, and which people make suboptimal choices (and how suboptimal those choices really are). Thus we do not fully understand how to help people make better choices without

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Research Goals: The Case of Rational Addiction, 13 J. Econ. Methodology 77, 93 (2006) (“Empirical fit deserves its high rank among the goals economists seek. The principle of parsimony, however, should not be applied blindly to promote empirical fit, since it may retard the pursuit of other goals important to economists: understanding and policy usefulness.”). One also wonders whether those same economists practice what they preach, given the high complexity of most economics publications, as Matthew Rabin, A Perspective on Psychology and Economics, 46 Eur. Econ. Rev. 657, 673 (2002) points out: “Economists do not shy away from complicated models nearly as much as some claim when embroiled in the midst of abstract methodological debates. It is odd on the one hand to be told during such debates that economists must forego behavioral realism for the sake of keeping our models simple – when on the other hand we are holding a copy of Econometrica.”

41 Choi and Pritchard, supra note 5, at 9–11 (critically reviewing the literature).

harming their freedom to choose. Besides, lawyers (who usually have no training in behavioral sciences) should be especially wary about making sweeping law reform proposals based on an imperfect theory, the limits of which they may not appreciate.43

Secondly, the concept of suboptimality can be misleading, because it does not tell us if there is a serious problem, or whether the departure from perfect choice is so marginal that it makes no practical difference. This is a major issue to consider, because trying to assist people in one way or another may cause significant costs—especially indirect costs due to unintended consequences (this difficulty is aggravated by the limits of our understanding of these issues). Finally, the extent of biases and anomalies varies among persons, and people can learn and develop better strategies of behavior, often in response to past mistakes.44

The theoretical limits of behavioral law and economics also give rise to another challenge, which is evident when behavioral theory is employed to explain specific cases and events. For example, the recent crisis has often been blamed on the failure of markets, and heavy government intervention has been seen as the logical conclusion. Greed, short-sightedness and investor irrationality have been prominent explanations, especially in the popular media. But it is debatable whether that explanation is even nearly sufficient. For example, it has been widely argued that imprudent monetary policy was a major contributor to the crisis.45 A long period of unusually and artificially low interest rates contributed to a climate of short-term speculation and distorted credit markets and risk-management. Unwise monetary policy also boosted the development of the infamous subprime mortgage markets.46 It has also been demonstrated that a major cause of unhealthy subprime loans was a string of flawed government policies, which fostered and even ordered the growth of precise such loans without taking duly into account its inevitable unintended consequences.47 Of course, there have also been many other contributing causes behind the crisis,

43 Mitchell, supra note 42, at 127 (“legal scholars who have no training in the social sciences or who have only a superficial understanding of behavioral decision theory should refrain from the unaided application of behavioral decision theory to the law”).

44 See Part VII.


46 Taylor, supra note 45, at 11–13.

including insufficient and misleading accounting principles, inflexible and outdated principles of banking regulation, questionable bonus practices, problematic risk management, failed corporate governance, the distortion of credit rating practices due to their role in the regulatory system, and so on.\textsuperscript{48}

There is scope for legitimate disagreement and debate on the causes of the financial crisis (or earlier crises), but one implication for behavioral financial regulation is unavoidable: \textit{how are we to assess different regulatory responses, when we really do not know} to what extent those problems were caused by imperfect rationality as opposed to misguided government policies? It may be possible to device policies that help people make wiser choices. But we have little information about how people would have acted in a sounder monetary-economic and legal-regulatory environment.\textsuperscript{49} Perhaps “investor irrationality” is just a red herring—an easy explanation that in reality had only marginal explanatory power. Deviations from optimal choice might even be

\textsuperscript{48} See U.S. GOVT ACCOUNTABILITY OFFICE, FINANCIAL CRISIS HIGHLIGHTS NEED TO IMPROVE OVERSIGHT OF LEVERAGE AT FINANCIAL INSTITUTIONS AND ACROSS SYSTEM (2009), available at http://www.gao.gov/new.items/d09739.pdf (charting the problem of leverage in financial institutions); U.S. DEP’T OF THE TREASURY, FINANCIAL REGULATORY REFORM: A NEW FOUNDATION (2009), available at http://www.treasury.gov/initiatives/Documents/FinalReport_web.pdf (providing a range of policy recommendations); FINANCIAL SERVICES AUTHORITY, THE TURNER REVIEW: A REGULATORY RESPONSE TO THE GLOBAL BANKING CRISIS (2009), available at http://www.fsa.gov.uk/pubs/other/turner_review.pdf (investigating the causes of the crisis especially in the UK); HIGH-LEVEL GROUP ON FINANCIAL SUPERVISION IN THE EU, LAROSIÈRE REPORT (2009), available at http://ec.europa.eu/internal_market/finances/docs/de_larosiere_report_en.pdf (examining regulatory weaknesses in Europe and globally); COMMISSION OF INVESTIGATION INTO THE BANKING SECTOR IN IRELAND, MISJUDGING RISK: CAUSES OF THE SYSTEMIC BANKING CRISIS IS IRELAND (2011), available at http://www.bankinginquiry.gov.ie (examining the causes of the banking crisis in Ireland). Note, further, that many of these problems have been present in earlier financial crises: see, e.g., George A. Akerlof & Paul M. Romer, \textit{Looting: The Economic Underworld of Bankruptcy for Profit}, 1993 BROOKINGS PAPERS ON ECON. ACTIVITY 1 (1993) (providing a classic study on the “looting” of financial companies). In a comment attached to the same article, Gregory Mankiw interestingly argues, at 65: “The paper shows that the savings and loan crisis [of the 1980s] was the result not of unregulated markets, but of overregulated ones (or, at least, poorly regulated ones). After reading the paper, one is left with the impression that the policy mistakes that happened here are probably not isolated, and that the only good solution is to get the government out of this kind of business altogether.”

\textsuperscript{49} The crisis of the late 1920s was originally blamed on investor irrationality, but the standard revisionist explanation puts the blame on misguided monetary policy. The growth of financial regulation as a result of that crisis was generally justified on the basis of “market failure,” but in retrospect it is unclear to what extent such failure was intertwined with bad monetary policy.
so insignificant as to merit little discussion, and even the best-designed light-touch regulations would have some unintended side-effects that are difficult to determine in advance—or even to appreciate in retrospect, as much of the discussion on the causes of the recent crisis demonstrates. Importantly, even apparently light-touch regulations carry the risk of complicating the legal system, increasing the prominence and discretionary power of regulatory authorities, and creating a justification for increasing intervention if those regulations seem to fail.

III. Debiasing through Law: Light-touch Regulations

Bounded rationality and bounded will-power imply that people may not make optimal choices, and it may be appropriate to try and help them choose better, and in extremis to protect them from their weaknesses. However, it is not warranted that heavy intervention is the optimal policy. It may be that simple “light-touch” regulations may more effectively help market participants improve their choices, and indeed our knowledge of certain common heuristics and biases points to different ways of influencing choice without imposing expensive and intrusive regulations.\(^\text{50}\)

One framework for developing effective light-touch regulations is *asymmetric paternalism*.\(^\text{51}\) The idea is simple: Most probably some people behave more fully rationally than others, and the former types would prefer more freedom and innovation, while the others would benefit from guidance and protection. The optimal regulatory scheme may take these differences into account by seeking to help the less-rational actors make better choices, without unduly restricting the options of the more-rational actors. There are four types of regulation (in the order of increasing intervention) that seek to cater for both groups: *default rules, framing and information disclosure rules, cooling-off periods, and limitations on choice*. The first three will be discussed in what follows, with applications to financial regulation.

A. Default Rules

The status quo bias explains why people often stick to default options unless the alternatives are clearly better. The anchoring heuristic also implies that if a departure is made, it is usually “anchored” to the default rule. There may also be other reasons for the strength of default rules; for example, default rules will mean more certain legal outcomes if there are interpretation problems by imperfectly rational judges.\(^\text{52}\)

\(^{50}\) See Jolls & Sunstein, *Debiasing*, supra note 8.

\(^{51}\) See Camerer et al., *Asymmetric Paternalism*, supra note 7.

One area of potentially fruitful applications of default rule regulation is the home mortgage market. In that context, bounded rationality and bounded will-power seem to be present significant issues.\textsuperscript{53} Consumers frequently focus on wrong or irrelevant information, make unrealistic assumptions and cannot estimate probabilities accurately. Moreover, the behavioral biases of consumers may be exacerbated by banks that benefit from exploiting these weaknesses.\textsuperscript{54} For example, one of the causes of the recent mortgage crisis was the development of complex loan agreements that borrowers did not understand and that were made to appear much cheaper and less risky than they really were.\textsuperscript{55}

The standard response to such problems would be either improved disclosure, or product regulation. The trouble is that merely requiring more and more disclosure may backfire, especially if the purpose of the regulation can be avoided by asking applicants to sign complex disclosure forms they do not understand. Some type of product regulation might be necessary to prevent harmful contractual provisions such as prepayment penalties, short-term ARMs and balloon payments. However, imposing an outright ban on innovative mortgage offers would stifle innovation, thereby harming both lenders and borrowers in the long run. It is also quite likely that such regulations would be imperfect. Moreover, the fear of imposing unnecessarily restrictive rules may be one cause of unintended loopholes.

Default rules with opt-outs might be a better option.\textsuperscript{56} There could be a default mortgage deal, or even a menu of “plain vanilla” mortgages, which would not include hard-to-understand details or complex interest rate calculation rules that exploit common psychological biases. Such mortgages would be easier to compare across different offers. The default menu could be periodically revised by a relevant regulatory body, possibly on the basis of consumer experimental design or survey research.

Now such default rules alone might not be sufficient if there are significant market pressures and incentives for lenders and brokers to provide alternative deals. However, the default


\textsuperscript{54} See Michael S. Barr, Sendhil Mullainathan and Eldar Shafir (2008), Behaviorally Informed Financial Services Regulation, New America Foundation (October 2008), available at http://www.newamerica.net/files/naf_behavioral_v5.pdf, 3–4 (explaining that market participants may seek to either mitigate or exacerbate the behavioral biases of others, depending on their products and services). For example, consumers generally misunderstand compounding, and this is likely to reduce saving and increase spending; companies that offer investment services will want to reduce the bias to increase savings base, and companies that offer credit will want to exploit the bias to increase borrowing. Unfortunately, especially in the case of lower-income persons, the incentives for bias-reduction seem to be weak.

\textsuperscript{55} Id. at 8 (“How many homeowners really understand how the teaser rate, introductory rate and reset rate relate to the London interbank offered rate plus some specified margin, or can judge whether the prepayment penalty will offset the gains from the teaser rate?”).

\textsuperscript{56} See id. at 8–11 (outlining a default rules proposal).
rules could be made “sticky” through creative legal principles.\textsuperscript{57} For example, the law could stipulate different interpretative principles applicable to default and alternative contracts, so that the latter would imply additional legal exposure for lenders through increased scrutiny, or a higher standard if the loans did not work out.\textsuperscript{58} The result would be a safer and simpler mortgage market, combined with the possibility of innovation with products that are truly functional and that can be adequately explained to borrowers.

Something similar could be developed for credit cards.\textsuperscript{59} Credit card product offerings seem to be systematically designed to exploit common behavioral biases.\textsuperscript{60} One particular problem is that many consumers underestimate how much they will borrow and overestimate their ability to pay on time. The pricing of credit cards is moreover set to benefit from late payment.\textsuperscript{61} It seems that the competitive market dynamics are not at the moment conducive to debiasing offerings by credit card companies.

A light-touch regulatory solution would be to develop a default payment plan for credit cards, so that “consumers would be required automatically to make the payment necessary to pay off their existing balance over a relatively short period of time unless the customer affirmatively opted-out of such a payment plan.”\textsuperscript{62} Going a bit further, it would also be possible to require credit card companies to develop a standard “plain vanilla” credit card with straightforward terms and honest pricing, analogous to the default mortgage loan regulation above. Most people would likely choose these default options, and if necessary, they could be rendered “stickier” through creative legal strategies as discussed earlier. Formally, one can say that the “stickier” the default regulation, the more it resembles outright product regulation.

\textbf{B. Information Disclosure}

People often fail to correctly interpret large amounts of information, and the way the information is presented has a systematic influence on choices. Behavioral economics implies that regulations

\textsuperscript{57} Id.
\textsuperscript{58} Id. at 9 (“if default occurs when a borrower opts out, the borrower could raise the lack of reasonable disclosure as a defense to bankruptcy or foreclosure”).
\textsuperscript{59} See id. at 13–15 (outlining a proposal for default-rule credit card regulation).
\textsuperscript{60} See Bar-Gill, supra note 31.
\textsuperscript{62} Barr et al., supra note 54, at 13.
should not necessarily require so much disclosure of information, but the emphasis should instead be on the way the relevant information is presented.63

Home mortgages and credit cards are again a useful example. The existing regulatory scheme focuses on disclosure regulations, as well as usury laws and product restrictions. In light of behavioral economics, the former may be insufficient, while the latter may be unnecessarily restrictive. The problem with disclosure regulation is that, as the regulatory model is based on the assumption of asymmetric information but perfect rationality, there is usually too much information that consumers cannot make use of; the final decision will often hinge on factors that financial theory would consider less important but that consumers mistakenly take as paramount, such as the size of monthly payments.64 It seems that credit card users also find it difficult to understand the complex terms and implications of different offerings.

In addition to default options, regulation may seek to debias consumer choices by influencing what information is presented and how. Some existing regulations do exactly this, for example those which stipulate the calculation and disclosure of the annual percentage rate (APR) in order to make it easier for consumers to compare different offers.65 However, much more could be done. For example, consumers seem to make a number of unwise assumptions to justify their reliance on their bank’s potentially self-interested advice instead doing more personal investigation: they often believe that the bank is offering them the optimal deal, that they would be offered the loan unless the bank thought they would be sure to pay the loan, and that in any case the regulators are protecting their interests.66 Unfortunately, such and similar assumptions increase the opportunities for more ruthless mortgage lenders and brokers. One improvement could be to require credit providers to reveal such information as the borrower’s credit score and their qualifications for the all of the lender’s mortgage products. That would put pressure on creditors and brokers to play honest in their dealings with mortgage applicants. It might also be appropriate to move from strictly ex ante disclosure regimes towards standard-based ex post regulation that focuses on whether the disclosure was really meaningful and sufficient.67

63 See Camerer et al., Asymmetric Paternalism, supra note 7, at 1230–1237 (explaining this principle and providing examples).

64 See Barr et al., supra note 54, at 2.

65 These rules are not perfect, however, because there tends to be some discretion and variation on which costs must be included in the calculation of APR.

66 See Barr et al., supra note 54, at 5 (Speculating on how consumers may reason: “Because I am qualified for the loan that must mean that the lender thinks that I can repay the loan. Why else would they lend me the money? Moreover, the government tightly regulates home mortgages; they make the lender give me all these legal forms. Surely the government must regulate all aspects of this transaction.”) This illustrates the problem of having too much superficial regulation: unsophisticated market participants may believe that they are better protected than they really are.

67 See Barr et al., supra note 54, at 6–7 (proposing standard-based ex post regulation). Note, however, that the standard-based regime might entail significant costs—especially uncertainty costs. Some of those costs could be reduced by providing credit providers with model disclosure forms that are likely to satisfy the standard.
Similar disclosure solutions could be developed for credit card deals, where people generally find it difficult to understand compounding and timing issues. A tailored disclosure regulation would focus on salient information such as how much long it would take, and how much interest would be paid, if the customer’s actual balance were paid off only in minimum payments, and card companies could be required to state the monthly payment amount that would be required to pay the customer’s actual balance in full over some reasonable period time.\(^68\)

Such regulation would be simple and almost without cost, yet it would help consumers focus on relevant facts, and encourage healthier competition based on real value to consumers.

Financial regulation could also target overoptimism bias by exploiting the *availability heuristic*.\(^69\) Many consumer credit customers significantly underestimate the risk that they themselves will run into payment difficulties; lack of caution may lead to tragic histories, and it also distorts the market in favor of too risky products. Generalized warnings tend not to be effective, and merely demanding more disclosure would only exacerbate information overload. What might be more effective is some tailored requirement of disclosing vivid—perhaps even shocking—information about real cases that have gone wrong.

Additionally, overoptimism could be debiased through information regulation that makes use of the common phenomenon of *loss aversion*.\(^70\) For example, home mortgage offers could be combined with statistical information about the amount of payment difficulties in similar types of loans over a specified period of time. By requiring firms to highlight the potential negative consequences of the use of their products, the law could improve consumer choice without imposing much regulatory cost or limiting the options available to consumers. For example, the U.S. Truth in Lending Act requires lenders to inform borrowers as follows: “If you obtain this loan, the lender will have a mortgage on your home. You could lose your home, and any money you have put into it, if you do not meet your obligations under the loan.”\(^71\) In practice, though, it is difficult to say without further evidence how real an impact will generalized warnings have. Besides, we do not want to turn people into overpessimists.

But one factor the authors do not consider is the problem of *hindsight bias* with ex post regulation: if a case goes to court after something goes wrong, a boundedly rational judge is likely to believe that those events, which actually did take place, were much more likely than they appeared to be to a reasonable person at the time of making the loan.

\(^{68}\) Id. at 13.

\(^{69}\) See Jolls & Sunstein, *Debiasing*, supra note 8, at 212–216 (discussing debiasing through the availability heuristic).

\(^{70}\) See id. at 205–206 (discussing the options for an advertising campaign to publicize the effects of breast-feeding on newborn health).

C. Cooling Off

Cooling-off periods may be the optimal regulatory solution when the issue is rooted in self-control problems. Bounded self-control may be relevant in various types of financial behavior, and it is closely related to bounded rationality, as tempting offers that exploit projection bias tend to reduce rational deliberation.

It is interesting to note that U.S. Mortgage Disclosure Improvement Act 2008 tries to improve consumer mortgage choice through cooling-off regulation. The “3/7/3 Rule” requires a seven business day waiting period once the initial disclosure is provided before closing a home loan. Also if the final annual percentage rate (APR) is off by more than 0.125% from the initial good faith estimate (GFE) disclosure, then the lender must re-disclose and wait another three business days before closing on the transaction. Assuming that self-control problems are a major issue, cooling-off rules might be the appropriate regulatory option in other areas too. Choi and Pritchard wonder whether trading delays could be used fruitfully to discourage trading based on overconfidence and irrational, addictive speculation.

There are however potential difficulties. For one thing, the precise nature of optimal cooling-off regulation requires much deliberation. On a general level, one can consider two alternatives: (a) waiting periods, during which the transaction cannot be completed, and (b) withdrawal periods, during which the initial decision may be reversed at will. Each approach has its implications. The waiting period model is significantly more intrusive, and therefore not the prima facie alternative if we are to find the least interventionist regulation. Moreover, in the context of financial markets, mandatory waiting period would have to be rather short, perhaps only some days. The question then is, how effective can such regulations be.

The withdrawal period option would therefore seem more workable, and indeed it is a standard feature of consumer contract regulations. However, its effectiveness seems to be lessened by certain other behavioral biases: the status quo bias and the procrastination bias imply that people are reluctant to alter their position once a clear decision has been made. The confirmation bias also implies that after a choice has been made, people tend to emphasize supportive evidence and downplay contrary evidence. Besides, an unconditional withdrawal period could not be very extensive either in the financial market context.

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72 See Camerer et al., Asymmetric Paternalism, supra note 7, at 1238–1247 (discussing the behavioral case for cooling-off regulations).

73 Choi and Pritchard, supra note 5, at 64–65.

74 See Camerer et al., Asymmetric Paternalism, supra note 7, at 1240–1242 (discussing these alternatives).

75 Given the complexity of certain financial instruments, it is possible that investors experience significant uncertainty about their choices, but such uncertainty combined with status quo and confirmation biases may provoke unfruitful defensiveness and tunnel vision instead of prudent carefulness.
Finally, it should be emphasized that cooling-off rules may also be implemented on a market-based manner, which has the advantage of more efficient innovation and trial-and-error processes. For example, an organizational rule requiring certain decisions to be confirmed by a relevant superior can also be seen as a kind of cooling-off regulation. Such a rule may improve decision-making quality, because others are better able to spot cognitive biases. Moreover, overconfidence and optimistic bias are reduced when one is forced to consider alternatives and counterarguments. It may not be appropriate or even possible to stipulate such requirements through law, but guidelines-based soft law could foster valuable corporate governance solutions in this direction.

IV. Non-contractual Debiasing Information

A different question is whether choices could be improved by providing corrective or “debiasing” information outside the realm of contracts. For example, one commentator proposes the development of

a small set of measures of irrationality that can be calculated and published at least monthly. These might include measures related to expected personal income, job security and asset values; measures of expectations about the performance of the economy as a whole; and measures of hyperbolic discount rates and other specific observable cognitive biases.

It is possible to go further. Taking the cue from Jolls, Sunstein and Thaler, one could imagine someone engaging in the production of vivid propaganda—more effective than dry data—meant to “macromanage” public perceptions about the economy in a counter-cyclical manner. The various possible ways of debiasing markets are largely to be explored.

The relevant question for the present discussion concerns the institutional arrangements for producing and distributing debiasing information. On the one hand it seems laudable to seek to improve the action of public authorities by taking the latest behavioral research into account. On the other hand, there is reason to be skeptical about the ability of public authorities to perform their “debiasing role” without difficulties.


79 Jolls, Sunstein & Thaler, supra note 2, at 42 (discussing debiasing strategies).
A. Regulatory Failure

Take the following comparison. Before the recent financial crisis, privately-run media such as The Economist publicized repeated warnings about mispricing in housing markets and abuses of securitization and complex financial derivatives. In contrast, many regulatory authorities seemed blissfully ignorant of these problems, or they at least did not speak about them. Without doubt some regulators had a more accurate picture of the problem, and certainly not all market participants were more astute. We all suffer from some degree of cognitive bias, ignorance and even incompetence. The relevant question here is how regulatory institutions should be designed so as to most effectively deal with these human imperfections.

On the theoretical level, there are several reasons why a market-based approach to corrective information might work better. Firstly, if markets sometimes fail, so does government and regulation. For example, a frequent challenge for regulators and legislators is that they may lack relevant knowledge.\(^8\) It is important to remember that behavioral economics is not a holistic theory and that there are various interpretations of the empirical findings. Moreover, the exact implications of the theory in different settings are not clear, and it is difficult to say what kind of debiasing information would be most appropriate and effective. Regulators also often lack relevant skills, and they may not be the brightest minds in the field, for example because of relatively unattractive compensation. Finally, their ability to react to new information tends to be poor because of weak incentives, bureaucratic work environments and psychological inertia.\(^8\)

That relates to a different challenge which is that regulators may not have the best of incentives to perform well. They may be well-meaning, but regulators, too, are subject to shirking, self-interested choice, and sometimes manifest abuse of authority. For example, a person responsible for regulating financial institutions may have an incentive not to bring emerging problems to public attention, because that would risk him being regarded as having failed in his job; the problem might just go away, and the costs of a real crisis would be borne by others.\(^8\) These problems will be exacerbated by the cognitive biases of regulators—confirmation bias, over-optimism and so on.

\(^8\) On the knowledge problem, see, e.g., Friedrich A. Hayek, *The Use of Knowledge in Society*, 35 Am. Econ. Rev. 519 (1945).


\(^8\) See Michael Beenstock, *Market Foundations for the New Financial Architecture*, in *VERDICT ON THE CRASH: CAUSES AND POLICY IMPLICATIONS* 59 (Philip Booth ed. 2009) (noting the incentive problems of regulators). Butler, *supra* note 47, at 56, is of similar opinion: “The Bank of England warned the FSA that Northern Rock was operating riskily in October 2006, long before it collapsed; but no effective action was taken.”
B. Deeper Difficulties and Market Solutions

It might be responded that the incentive problems only apply to individuals, and thus there should be no difficulty in designing some “measures of irrationality” to be publicized along with other macroeconomic data. Yet even this is not so simple. Not only would the knowledge and skills problems persist—and there are likely to be various interpretations of what measures are most appropriate—but the incentive problems, too, seem run deeper.

The official measures of inflation are a case in point. Butler points out that in the UK, some years before the recent crisis “Gordon Brown changed the price index that the Bank of England was to target to Consumer Price Index (CPI). This excludes housing costs, unlike the Retail Prices Index, so the soaring cost of housing was not taken into account by the Monetary Policy Committee (MPC).”

Is government intervention needed? It seems that, *prima facie*, a market-based approach to debiasing and corrective information provision has several advantages. There are better skills available, better access to relevant information and simply more people doing the job. Competition will tend to produce variety, innovation, and pressure to do a good job.

A difficult question whether there will be sufficient incentives for private actors to engage in market-debiasing information provision. There is however reason to believe that some such incentives exist. Firstly, the long-term profitability of financial institutions demands that they seek to reduce the harmful effects of cognitive biases, at least internally. Secondly, it is also conceivable that firms could improve client satisfaction and loyalty—without suffering a significant loss of business—by helping them make better choices. Thirdly, there are other actors, such as business newspapers and financial advisors, who could capitalize on the provision of better—including debiasing—information for financial decision makers; indeed some have been doing so for quite a while and to good effect.

If public intervention seems appropriate, it should be limited to light-touch schemes such as incentivizing private actors and advertising the best privately-produced information for the general public. Regulatory authorities could also work with researchers in the field—but preferably without compromising the independence of the researchers, who are in a better position to publicize contrarian views on markets. One could also speculate with the idea of creating an incentive scheme for financial supervisors, so that they would be awarded for correctly spotting weak signals in the economy; however, it is far from clear how such a scheme could be designed.

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83 Butler, *supra* note 47, at 56.

84 This is not to deny that news media may at times suffer from the temptation to provide “what people want to hear” which may be different from they should hear: see SHILLER, *IRRATIONAL EXUBERANCE, supra* note 26, at chapter 5 (critically analyzing the financial media).

85 Naturally, it sometimes seems that regulators and politicians are more eager to promote academic research that presents a favorable picture of their activities. This creates a structural bias against contrarian research.
V. Market Discipline, Efficiency, and Innovation

This part discusses a range of broad issues related to rationality and financial regulation: the role of market discipline, the notion of (informational) efficiency in financial markets, and the impact of financial innovation on regulatory strategy in the context of bounded rationality. These are complex issues, so the discussion will necessarily be limited in scope. The objective is to illustrate that although there are reasons to depart from the usual assumption of perfectly rational actors, more complex and intrusive regulation may not be the correct conclusion, and at least in some cases the opposite seems to be the case.

A. Market Discipline and Healthy Competition

There has been plenty of debate on the extent to which market discipline—i.e. incentives to generate revenue and avoid bankruptcy—are sufficient to keep market actors under control. Here the focus is on the narrower issue of whether stronger market discipline helps to mitigate problems arising out of bounded rationality and will-power; and if yes, what kind of rules and institutional arrangements that facilitate market discipline.

Although there is limited research on the matter, the argument can be made that stronger competition and market discipline reduces the harmful effects of psychological bias: better action should win and persist, fools should lose out. It has been argued that psychological anomalies—departures from optimal choice—should not be taken as given, because they are influenced by social processes.\(^{86}\) For example, repetitive conditions facilitate learning from errors, and healthy competition tends to intensify valuable learning and the discovery of better habits of choice.\(^{87}\)

On the other hand, it may be argued that sometimes strong competition and market discipline create perverse incentives that exacerbate imperfect rationality. For example, business strategies that exploit anomalies may be reinforced by competitive conditions—which may explain


\(^{87}\) The latter point is supported by the theory of competition as a discovery process: *see, e.g.*, Israel M. Kirzner, *Competition and Entrepreneurship* (1973); William N. Butos & Roger G. Koppl, *The Varieties of Subjectivism: Keynes and Hayek on Expectations*, 29 HIST. POL. ECON. 355 (1997).
the phenomenon of declining ethical and professional standards during boom periods.\textsuperscript{88} Gamble-for-life situations may also buttress some biases such as over-optimism.

Market discipline and competition are never perfect, but in general terms it is arguable that they are improved by lesser regulation and harmed by heavy regulatory intervention. Banking regulation is a case in point. According to the standard version of the story, the collapse of such institutions as Lehman Brothers and Northern Rock was due to greedy bankers and too little regulation—hence, more intensive and global regulation is needed. Unfortunately, that interpretation misses a big part of the picture.

The modern banking system and the topical “too-big-to-fail syndrome” are not results of natural market dynamics.\textsuperscript{89} An important contributing cause of these phenomena is the rise of increasingly complex banking regulation, the essence of which was to concentrate the monitoring effort in the hands of public authorities instead of and at the expense of primary stakeholders such as depositors and other lenders. Instead of facilitating control and monitoring by the market, the existing regulatory paradigm has made the relationships between financial institutions and regulators paramount, leaving primary stakeholders out of the picture.\textsuperscript{90} Certainly in recent times banks have made significant mistakes in their desire to innovate beyond the traditional model of prudent banking. But one is forced to ask whether regulators were able to prevent this market failure, given that they were far behind the curve and had insufficient incentives (and possibly methods too) to stop the phenomenon.\textsuperscript{91}

The better view seems to be that this lack of prudence was rendered possible by the inexistence of genuine monitoring and control by primary stakeholders, who were lulled into a false sense of security by the complexity of the regulatory system and the seemingly competent activity of regulators.\textsuperscript{92} As financial institutions now only report to their regulators and not to the public, more traditional banks will have found it increasingly difficult to capitalize on their business model in the competitive environment. This need not be so:

Before depositors relied on government for protection, banks maintained much more substantial capital/asset ratios; in fact, banks used to advertise prominently the amount of their capital and surplus. But deposit insurance [...] 

\textsuperscript{88}SHILLER, IRRATIONAL EXUBERANCE, supra note 26, at 210–212, notes that speculative bubbles are often accompanied by declining ethical standards until some scandal or crackdown comes about.

\textsuperscript{89}For criticism of the too-big-to-fail doctrine, see IMAD A. MOOSA, THE MYTH OF TOO BIG TO FAIL (2010).


\textsuperscript{92}HOWARD DAVIES & DAVID GREEN, GLOBAL FINANCIAL REGULATION: THE ESSENTIAL GUIDE 27 (2008).
has permitted banks to hold much lower, indeed, dangerously lower amounts of capital.\(^{93}\)

Finally, the coffin of market discipline was sealed by generous deposit insurance schemes, which—coupled with public bailouts—have largely externalized the costs of a crisis, thereby weakening the incentives of bankers to play safe.\(^{94}\) On the other hand, they have in some cases reduced to nil the incentives of depositors to find out where they put their money, promoting short-term profit-seeking and recklessness—the rise and fall of Icelandic banks is a case in point.\(^{95}\) As Merton and Bodie have highlighted, the current global banking system combines demand-deposits with generous deposit insurance, making it systematically fragile and crisis-prone, yet controlled by no one else than the public supervisors, whose skills and incentives are relatively weak.\(^{96}\)

Thus the regulatory paradigm of banking has weakened market discipline by promoting moral hazard across the board: it has facilitated the success of imprudent banking models, and harmed the incentives of investors, depositors and other stakeholders to stay alert, be prudent, adopt good habits, and avoid such biases as over-optimism. It is of course debatable what a less-interventionist or free-market banking system should look like, but it would certainly be very different from what we have with us today. In light of behavioral theory, the rules of the game should be geared towards strengthening market discipline and healthy competition by promoting transparency to the public and incentives to act prudently.\(^{97}\) While it is true that many people cannot understand complex finance, the reintroduction of personal responsibility would provide market opportunities for simpler banks and discourage complex and opaque financial institutions.

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\(^{94}\) Not all the costs of failure fall on taxpayers, because deposit insurance schemes are usually funded (at least partly) by the banks themselves. But from the viewpoint of individual banks, even this can be seen as a pooling of risks without a pooling of the increased revenue due to more risk-taking; thus riskier business models are at an advantage.

\(^{95}\) See the “truth commission” report on Iceland’s bank collapse: Special Investigation Commission, Report of the Special Investigation Commission (April 12, 2010), http://sic.althingi.is/.


\(^{97}\) See Kevin Dowd, Martin Hutchinson, Simon Ashby & Jimi M. Hinchliffe, Capital Inadequacies: The Dismal Failure of the Basel Regime of Bank Capital Regulation, Cato Institute Policy Analysis No. 681 (July 29, 2011) [hereinafter Dowd et al., Capital Inadequacies], available at http://www.cato.org/pubs/pas/pa681.pdf. In an excellent critique of the current regime of bank capital regulation, these authors advocate, as the ideal model, “free banking or financial laissez faire”, which includes “the reintroduction of extended liability for senior offices and shareholders.” They make the interesting argument that if one wants financial stability, one has to choose between either a truly free-banking regime, which consistently builds on investor and personal responsibility, or a system that puts clear and inflexible limits on what banks can do.
A special debate concerns the issue of whether a free-market banking system should permit fractional reserve banking or mandate a 100% reserve requirement for all demand deposits.\(^98\) Naturally, the stricter view would imply that a great part of savings would be channeled to other investments, such as time deposits and money market funds instead of demand deposits. The benefit, in terms of financial stability, would lie in the fact that these are investment vehicles are not as crisis-prone as demand deposits are.\(^99\) Naturally, alternative investment channels may create problems of their own, which have to be addressed separately.\(^100\)

B. Improving Market Efficiency and Stability

Related to the issue of competition and market discipline is the concept of (informational) market efficiency. In simple terms, the idea of market efficiency is that market prices reflect all relevant information.\(^101\) There are varying opinions on the extent to which markets are indeed informationally efficient, and the behavioral theory has been at the forefront of criticizing naïve theories of market efficiency.\(^102\) Yet more to the point of the present discussion is the following

\(^98\) For a detailed discussion, see JESÚS HUERTA DE SOTO, MONEY, BANK CREDIT, AND ECONOMIC CYCLES 601-812 (3rd ed. 2012).


\(^100\) See William A. Birdthistle, Breaking Bucks in Money Market Funds, 5 Wis. L. REV. 1155 (2010) (arguing that the current U.S. rules relating to money market funds are likely to mislead investors and increase the likelihood of problems in the future).

\(^101\) There are different forms of the efficient market hypothesis (EMH), which states that markets are informationally efficient. In its weak form, EMH says that asset prices reflect all past publicly available information. According to the semi-strong EMH, prices reflect all publicly available information and they instantly adjust to new public information. In the strong form, EMH claims that prices reflect hidden or insider information too. There is little evidence for the strong form in most markets, but some evidence for the weak and semi-strong versions of EMH. See Eugene Fama, Efficient Capital Markets: A Review of Theory and Empirical Work, 25 J. FIN. 383 (1970).

\(^102\) See Shiller, supra note 2 (providing evidence against the efficient market hypothesis); M. C. Findlay & E. E. Williams, A Fresh Look at the Efficient Market Hypothesis: How the Intellectual History of Finance Encouraged a Real “Fraud-on-the-Market”, [23(2)] J. POST KEYNESIAN ECON. 181 (2001) (arguing that that evidence supporting the hypothesis was never very strong); Sanford J. Grossman & Joseph E. Stiglitz, On the Impossibility of Informationally Efficient Markets, 70 AM. ECON. REV. 393 (1980) (arguing that prices cannot perfectly reflect all the available information, because that would imply that the return to gathering information is nil, and the market for information would collapse). But see Eugene F. Fama, Market Efficiency, Long-term Returns, and Behavioral Finance, 49 J. FIN. ECON. 282 (1998) (discussing some of the literature and defending the efficient market hypothesis against critics).
question: is the relative inefficiency of many financial markets a reason to favor more regulation—or perhaps less?

1. General Considerations

There are at least two challenges. The first is that not all pricing inefficiencies are so significant that they merit public intervention, and the unintended costs of such intervention should be taken into account. The second challenge is that it may be difficult to improve the informational efficiency of markets otherwise than by promoting market innovations and improving market transparency.¹⁰³

Perhaps some rules ought to be changed and updated to reflect the current state of financial theory. As an example, it has been argued that the fraud-on-the-market theory in U.S. securities law currently depends on flawed assumptions of market efficiency, and therefore it should be changed in many respects including reliance, materiality, causation and damages, to incorporate the findings of behavioral finance.¹⁰⁴

But it seems less likely that increasing regulatory law is a warranted consequence of market inefficiencies. For example, Langevoort argues that psychological biases such as overoptimism lead companies to falsely portray themselves to the public.¹⁰⁵ He speculates that it might be possible to “debias” that tendency by changing the disclosure rules so that, among other things, “corporations wishing to avoid liability would have an incentive to bring into the disclosure process persons not subject (or less subject) to the same biases”.¹⁰⁶ There are however two problems, which Langevoort himself points out. The first is that his proposal would be “extremely costly” and one is entitled to ask “whether biases built on overoptimism, at least, are ones with which we really want to interfere through legal intervention, even if we could”.¹⁰⁷ The second is that there just may not be any problem that is worth solving: “Of course, market professionals and other

¹⁰³ Note, however, that in many cases pricing inefficiency may be caused by inflationary monetary policies; then the issue is not regulation but misguided government policy. See Robert J. Shiller, Low Interest Rates and High Asset Prices: An Interpretation in Terms of Changing Popular Economic Models, NBER Working Paper No. 13558 (2007) (arguing that part of the problem is the money illusion as many people are not used to thinking in terms of the “real interest rate” and they get confused by price inflation).

¹⁰⁴ Frederick C. Dunbar & Dana Heller, Fraud on the Market Meets Behavioral Finance, 31 DEL. J. CORP. L. 455 (2006); Langevoort, supra note 34.


¹⁰⁶ Id. at 157.

¹⁰⁷ Id. at 158.
savvy investors will discount many kinds of corporate hype, and, at least in those settings where efficiency properties predominate, such disclosures may have minimal market-price impact.108

There are, on the other hand, many reasons why market efficiency considerations may not justify heavy regulation—and indeed point towards less regulation.109 Shiller points out, in relation to regulations that restrict certain kinds of investments, that we do not have much information about the long-term stabilizing effects of different rules.110 Examples of apparently market-stabilizing rules include “circuit breakers” adopted by U.S. stock exchanges (i.e. shutting down markets in times of rapid price drops), and the “uptick rule” on short selling imposed by the Securities and Exchange Commission (SEC) (i.e. that short sales are only allowed if the preceding trade was on an increasing price).111

These measures only deal with very short-term price volatility, but policies that stabilize markets from day to day may not be so useful for addressing long-term mispricing—which is the more significant issue. Paradoxically, Shiller argues, sudden price changes may help markets to correct faster and avoid the illusion of safety during a speculative bubble.112 Short-term volatility is not always harmful, and in any case the bursting of a speculative bubble is on balance a good thing, even if the corrective process is painful.

2. Regulating Short Selling

During the recent crisis, a wave of attacks on short selling emerged in the popular press on the basis that it destabilizes markets, and regulators across the globe imposed temporary bans on the short selling of stocks.113 Presently, many jurisdictions impose some restrictions or disclosure

108 Id. at 157.

109 It is interesting to note that in their popular book the impact of psychology on global capitalism, AKERLOF AND SHILLER, supra note 1, propose basically no regulatory solutions to reduce the potential problems they perceive, although they do advocate more aggressive fiscal policy in the Keynesian tradition.

110 SHILLER, IRRATIONAL EXUBERANCE, supra note 26, at 226-228.

111 Regardless of what one thinks of short selling, the effectiveness of the “uptick rule” has been questioned in recent times, and in July 2007 the SEC formally rescinded the rule: Erik. R. Sirri, Regulatory Politics and Short Selling, 71 U. PITTSBURGH L. REV. 517, 523-524 (2010).

112 SHILLER, IRRATIONAL EXUBERANCE, supra note 26, at 226-228.

requirements on short selling.\textsuperscript{114} Are these concerns justified and is regulation the appropriate reaction?

The broad consensus in the finance literature is that short selling generally promotes pricing efficiency.\textsuperscript{115} Noted investors have also defended short selling: Klarman has argued that it provides a counterweight to the general bullishness of Wall Street,\textsuperscript{116} while Warren Buffett maintains that short sellers help to uncover fraudulent accounting and other problems at companies.\textsuperscript{117} Even so-called “naked short selling” does not seem to be harmful according to a study by Boulton and Braga-Alves, who find no connection between the level of naked short selling and future stock declines:~\textsuperscript{118}

Our results suggest that the SEC’s recent regulatory actions restricting naked short selling may have been misplaced, as we do not find that naked short sellers exacerbate downward price momentum or are negatively viewed by the market. Instead, our results complement studies that suggest that naked short sellers promote efficient markets by providing liquidity in up markets, risk-bearing, and selling stocks they view as overpriced.\textsuperscript{119}

Thus short selling is normally good from a behavioral viewpoint, because it allows contrarians to moderate speculative bubbles. Indeed, one reason why the property market seems to be so prone to bubbles is that there are no convenient short selling opportunities. Note, furthermore, that short selling may be motivated by other reasons than expectations of price declines: such strategies as convertible bond arbitrage, hedging long positions in swaps or restricted stock, and statistical arbitrage—these all depend on short selling.

The more plausible argument for restricting short selling is during abnormal market conditions. It is sometimes claimed that extreme conditions give rise to “disorderly” markets which


\textsuperscript{118} “Naked short selling” refers to the practice of selling a stock without borrowing it first. It may create settlement problems more likely than “covered short selling”, but that is mainly a technical concern.

become subject to “incoherence.” Such phenomena may be rational on the individual level if they are caused by the systemic consequences of widespread selling sprees, which give rise to liquidity problems and unexpected margin calls, forcing investors to sell more and depressing prices further. On the other hand, they may be reinforced by psychological factors, which can give rise to herd behavior and panics.

However, whatever the causes of disorderly markets, even this justification for short selling restrictions has been empirically called into question. One study with global data found that restrictions generally were detrimental to liquidity and failed to lift stock prices. In the U.S., another study concluded that the SEC ban on short sales in 2008-09 may have inflated financial stock values by 10-12%, but this has been contested by arguing that the price increase was likely due to the Troubled Asset Relief Program (TARP), which was announced alongside the short selling ban; there was found no positive price effect in stocks added to the ban later.

In the UK, Marsh and Payne investigated the effects of the ban on short sales of financial firms in 2008–09, using information on the full order book for these stocks immediately before and after the ban. The authors found that the ban did not stop the aggressive sell-off of the financials as compared with non-financials, but it greatly reduced their trading volume and order book liquidity. Thus market quality for the financials deteriorated more, making trading in financial stocks more expensive and less attractive.

It seems, then, that if there are good reasons for markets to crash, they crash with or without short sellers. Only in exceptional situations can short selling make things worse, but it is difficult to know when that is the case. Price overshooting is generally caused by a different set of factors, including liquidity problems among investors and uncertainty caused by lack of transparency. Note also that the lack of short-selling opportunities in the housing market has not prevented an ongoing price decline; the adjustment process may take longer, but that too has its costs in terms of longer-lasting uncertainty.

The empirical support given to short selling by finance theory has led some commentators to seek alternative explanations for the existence of short selling regulations. Sirri argues that the sudden increase in short selling restrictions in 2008–09 was more due to regulatory

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120 Thus Sir Callum McCarthy and Hector Sants, the then Chairman and Chief Executive of the FSA, respectively: see Ian W. Marsh & Richard G. Payne, Banning Short Sales and Market Quality: The U.K.’s Experience (July 20, 2010), at 2, available at http://ssrn.com/abstract=1645847.

121 Beber and Pagano, supra note 113.


124 Marsh and Payne, supra note 120.
politics than sound economics. The SEC—which is financially dependent on the Congress and whose Commissioners are presidential appointees confirmed by Congress—was under significant political pressure after the failure of major financial firms and the collapse of Bernie Madoff’s Ponzi scheme. In a word, the SEC had to be seen as “doing something.” Duncan Niederaur, head of NYSE Euronext, even stated that while “there was no economic benefit” from having the uptick rule, “it would go a long way to adding confidence.” If it truly does increase market confidence, then perhaps that can be called a behavioral argument in favor of the uptick rule!

From a behavioral perspective, attacks on short-selling may be understood as a type of *scapegoating*, rooted in the self-serving attribution bias. People are keen to find an explanation and someone to blame. Moreover, it may seem unfair that someone profits when others lose.

### 3. Other Possibilities

It is interesting that Robert Shiller, one of the foremost critics of naïve believers in market efficiency, nevertheless supports freer financial markets. The main reason is that price bubbles are so complex and changing that we are very far from understanding how to deal with them effectively. Interfering with markets is likely to work poorly in most cases, and it will have significant costs and unintended consequences:

Unfortunately, the nature of the bubbles is sufficiently complex and changing that we can never expect to document the particular role of any given policy in bringing about our objective long-term economic welfare. Policies that interfere with markets by shutting down or limiting them, although under some very specific circumstances apparently useful, probably should not be high on our list of solutions to the problems caused by speculative bubbles. Speculative markets perform critical resource-allocation functions [...], and any interference with markets to tame bubbles interferes with these functions as well.

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125 Sirri, *supra* note 111, at 531–536.

126 *Id.* at 533. The SEC was clearly under pressure from the administration too, according to Sirri, *supra* note 111, at 536: “In an interview he gave to *The Washington Post* less than a month before he left the SEC, Chairman Cox states that the biggest mistake of his tenure was agreeing to the September 2008 short selling ban on financial firms. Cox went on to state that ‘he had been under intense pressure from Treasury Secretary Henry M. Paulson Jr. and Fed Chairman Ben S. Bernanke to take this action and did so reluctantly.’”

127 David Hirshleifer, *Psychological Bias As a Driver of Financial Regulation*, 14 EUR. FIN. MGMT. 856, 861 (2008) (“Speculators are favourite targets for vilification after market declines. Hard times also trigger vilification of lenders as greedy exploiters, also leading to demands for regulation.”).

128 *SHILLER, IRATIONAL EXUBERANCE, supra* note 26, at 229–230.
Therefore, instead of increasing regulation, “most of the thrust of our national policies to deal with speculative bubbles should take the form of facilitating more free trade, as well as greater opportunities for people to take positions in more and freer markets”.\textsuperscript{129} This suggests other policies. One idea is to set up new markets that facilitate better pricing. One example is the “S&P 500 Strips” concept that consists of “a market for the future annual total dividends of the aggregate S&P 500 firms for each year in the future up to some distant horizon.”\textsuperscript{130} Such a market would provide an incentive for analysts to focus on forecasting dividends, which is more fundamental than market prices. Shiller also proposes the creation of a derivatives market for home prices to improve pricing efficiency.\textsuperscript{131}

Perhaps the biggest challenge is how to help people adopt habits that reduce the harmful effects of speculative bubbles. Shiller advocates better diversification, more personal saving, and hedging of personal risks.\textsuperscript{132} Some of these might be achieved voluntarily or through light-touch regulations that help people make better choices without compulsion.\textsuperscript{133} For example, savings could be increased by promoting schemes such as the Save More Tomorrow (SMarT) program.\textsuperscript{134} Diversifying beyond national equity markets could be encouraged by education, advice, and better access to different markets. Hedging of personal economic risks would only require a bit more creative thinking by financial advisors and other professionals.\textsuperscript{135}

\section*{C. Innovation and Regulation}

No doubt, many problems have been caused by imprudent innovation in financial markets.\textsuperscript{136} Indeed, some prominent economists have questioned the value of financial innovation itself.\textsuperscript{137}

\begin{enumerate}
\item[129] \textit{Shiller, Irrational Exuberance}, supra note 26, at 230.
\item[133] See \textit{Thaler & Sunstein, Nudge}, supra note 7 (proposing such light-tough policies).
\item[134] Benartzi & Thaler, \textit{supra} note 33.
\end{enumerate}
What does this imply for regulation? Innovation and its adverse effects are to some extent an inherent aspect of the trial-and-error discovery process of market economics, but psychological factors such as over-confidence and over-optimism may exacerbate the harms. It may be that regulatory intervention is needed to restrain socially harmful innovation.

However, there are at least three reasons why the issue is more complicated. Firstly, some problems of financial innovation may be mitigated through light-touch regulations along behavioral lines, as discussed earlier.\(^{138}\) Secondly, imprudent innovations may be encouraged by lack of personal responsibility for failures, a situation that has arguably been worsened by the replacement of market-based discipline by increased public supervision.\(^{139}\) Thirdly and most importantly, it may be that problematic innovation is often driven by faulty overregulation.

This last point requires a closer look. It has been claimed that a major impulse for financial innovation is the desire to avoid taxes and regulation.\(^{140}\) Some of that activity may be beneficial, but it causes a cat-and-mouse game where substantial resources are wasted and the regulatory environment is in a constant state of flux. Recurring problems in the banking sector are prominent example suggesting that overregulation tends to cause unintended consequences in the form of dubious innovations.

Consider bank capital regulation. Experts have for years argued that capital adequacy regulation based on the Basel Capital Accords has been a failure.\(^{141}\) Although well-intentioned, it has in practice stifled the development of risk management by preventing valuable competition in risk management systems.\(^{142}\) Moreover, instead of producing at least a sensible system, the Basel rules have given banks a longer and longer rule book that lacks basic principles and common sense. This has led to a compliance culture, which is especially problematic when the rules are flawed. And flawed they are: Basel II allows banks to use their own risk models based on the Value at Risk (VaR) concept—a defective risk measure that has been discredited for a long time for failing to include “tail risks”.\(^{143}\) The current regulatory system—combined with imperfect product competition and the too-big-to-fail problem—has fostered a market in complex products such as subprime loans and credit derivatives, which have large tail risks, and hence “have the appearance of producing very

\(^{138}\) See supra Part III.

\(^{139}\) See supra V.A.


\(^{141}\) See, e.g., Kevin Dowd, The Failure of Capital Adequacy Regulation, in VERDICT ON THE CRASH: CAUSES AND POLICY IMPLICATIONS 73 (Philip Booth ed. 2009); Imad A. Moosa, Basel II As a Casualty of the Global Financial Crisis, 11 J. BANKING REG. 95 (2010); Dowd et al., Capital Inadequacies, supra note 97.

\(^{142}\) Dowd, supra note 141; see also Dowd et al., Capital Inadequacies, supra note 97, at 10–18 (describing financial risk management and the distortions created by Basel rules).

\(^{143}\) Philippe Artzner et al., Coherent Measures of Risk, 9 MATHEMATICAL FIN. 203 (1999); Turner Review, supra note 48, at 44–45.
high alphas (high returns for low risk), so managers have an incentive to load up on them. Every once in a while, however, they will blow up.”

Imperfect banking regulation may be the driving force of dubious financial innovations. Instead of enhancing stability, the risk-based capital regulation of Basel II has created a procyclical system, which forces banks to increase their lending just at the point where the danger of a systematic downturn is greatest, making crises more likely and more severe. Also, by prescribing a common risk management methodology, the regulations have given rise to a structural problem, a positive feedback loop that magnifies losses. This has not helped to mitigate bounded rationality, but has only increased over-optimism and over-confidence in banking:

The models first of all hide the underlying risks but, also, the encouragement to use quantitative models gives management false comfort that the risks of complex balance sheets, which are beyond anybody’s understanding, can be modelled in a precise way. Management and shareholders therefore become more comfortable than they otherwise would with complex financial exposures.

The recently agreed Basel III framework will arguably introduce modest improvements, but the overall philosophy remains the same, and thus the fundamental problems are not addresses.

Some response is needed. It may well be that stricter rules would be better, for example along the lines of so-called narrow banking, which would separate demand deposits and the payment system from high finance, risky derivatives and opaque off-balance sheet investments. The principal argument for narrow banking rests on the inherent instability of demand deposits, the perverse incentives created by deposit insurance, and the large social costs of bailing out banks. However, it is unlikely to be a perfect solution.

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144 Rajan, supra note 136, at 337.

145 See Dowd et al., Capital Inadequacies, supra note 97 (arguing this with examples).

146 Dowd, supra note 141, at 78.

147 Dowd et al., Capital Inadequacies, supra note 97, at 29.


149 See Bert Ely, The Narrow Bank: A Flawed Response to the Failings of Federal Deposit Insurance, Regulation 44 (Spring 1991) (criticizing narrow banking proposals for failing to tackle the right issues and potentially worsening the incentive problems).
The argument here is that future regulation should focus on increasing market-based oversight and reducing complex legal rules that can be rigged by financial institutions in their favor by way of socially wasteful innovation. We should not underestimate the ability of market participants to come up with novel institutional solutions to deal with the abuse of innovation if they are empowered and charged with the responsibility of doing so. Indeed, “stock exchanges, professional standards, industry codes of conduct and rating agencies all exist to help, in their different ways, overcome problems caused by information asymmetries and the incentives to reckless behaviour that limited liability can provide.” But importantly, regulatory intervention in market-based mechanisms may create perverse incentives, as the history of credit ratings testifies.

VI. Behavioral Bureaucrats: Psychology and Regulatory Failure

Regulators and politicians are not free from behavioral biases. This is not an automatic reason to rule out regulation, but it leads us to re-think the appropriate role of regulatory intervention. So far, the implications of behavioral theory for regulators and legislators have attracted limited attention: according to one survey of articles in behavioral economics, more than 20% made some sort of policy recommendations, but of these, 95.5% contained no analysis whatsoever of the cognitive abilities of policymakers.

It is widely acknowledged that, just as markets may fail, regulators may fail too. For example, regulatory rule-makers suffer from informational problems as well as incentive problems; they frequently lack sufficient skills and competence; regulation is prone to rent-seeking behavior and capture of regulation by regulatees; the costs of regulation may be higher than the benefits, and many of the costs are hidden or indirect; legal rules suffer from gaps and ambiguities; regulation tends to lag behind, especially when the environment is rapidly changing; and regulation often fails


to achieve its purpose, as regulatees find innovative ways to avoid the effect of regulation. The list could go on.

What follows is a consideration of the impact of psychology on regulation and legislation, and how that should be borne in mind in designing regulation and regulatory institutions. A difficult question is to what extent certain observed phenomena are due to psychology as opposed to other factors. As will be seen, ordinarily public choice theory and behavioral economics may be seen as complementary explanations, as they highlight aspects that exacerbate each other. Not only do both public choice and behavioral theory highlight reasons for regulatory failure, but the effects may be mutually reinforcing. For example, “cognitive biases may encourage regulators to equate self-interest and the public interest.” However, we cannot isolate one effect from the other, so there remains uncertainty about the significance of the different factors.

A. Regulatory Failure: Behavioral Perspectives

To start with, behavioral theory implies that regulation tends to be reactive instead of proactive. Rule-makers suffer from availability and hindsight biases, so that undue importance is given to recent and immediate information, and large scandals tend to be interpreted under the assumption that abuse is the norm. With hindsight, all crises seem to have been inevitable, and regulatory intervention appears indispensable. This will be reinforced by political pressure, as politicians and regulatory authorities feel that they need to be seen “doing something” about the problems. The pressure is even greater if legislators and regulators can blame some specific group and direct attention away from misguided regulations.

If regulators overreact to crises, they are also likely to err on the side of omission during good times; thus a pro-cyclical regulatory tendency is generated. Indeed, it seems that overoptimism, available bias, and the tendency to underestimate small probabilities imply that

153 See Hirshleifer, supra note 127, at 858 (arguing that some social processes amplify psychological biases).
154 See Choi and Pritchard, supra note 5, at 41.

155 See Choi and Pritchard, supra note 5, at 25 (arguing this with examples); Hirshleifer, supra note 127, at 858 (“regulatory debates are influenced heavily by extreme events, and by heart-rending personal stories”).

156 Hirshleifer, supra note 127, at 861, writes: “Economic and stock market downturns increase pressure for regulation. [...] The psychological attraction approach offers a simple explanation – the urge to find someone to blame. The possibility that a bubble could be a spontaneous result of investor biases and social amplification processes is not vivid, simple, or repeatable. Chance and personal incompetence are also not satisfying as explanations for personal losses. [...] Explanations based on villainy [...] also have the appealing feature that they readily suggest simple cures – through regulation.”

regulators and legislators tend to ignore real problems that have not yet manifested themselves. An example is the failure of most experts to foresee the problems caused by the abuse of complex derivative instruments, or the abuse of credit ratings: indeed, some warned about the problems, but these warnings were not heeded by regulators any more than by market participants.

The joint effect of these biases is reactive regulation, which addresses specific issues—ones that are, in fact, rather unlikely to reappear in the same form, as market participants learn from the past and adapt their behavior—and regulation thus often fails to address general problems proactively by improving the system as a whole. A consequence of this tendency is the accumulation of a patchwork of rules lacking a principled basis. From the viewpoint of boundedly rational market participants, this is especially problematic, because it becomes difficult to understand the regulatory system, and investors may choose to rely on regulators for protection when in fact some areas of the market are not so regulated.

It is difficult to assess empirically the extent to which the problems identified here are realized in practice. After the recent financial crisis, there has been appearance of law-makers trying to renew the entire regulatory landscape. But a closer look causes one to wonder whether most of it is anything but an attempt to impress the electorates, while the fundamentals remain as before. Of course, it may be argued that the fundamentals should remain as before; the point is that the impression of major reform may be partly illusory.

Secondly, behavioral theory suggests a tendency to overregulation and failure to rectify mistakes. One reason is that regulators and politicians are subject to overconfidence bias, which may lead them to overestimate their understanding of the issues and their ability to resolve them. Overconfidence seems to be especially common among experts, which implies that regulators are likely to be especially prone to it.

Regulators are also subject to confirmation bias, which means that evidence supporting existing rules will tend to be highlighted, while negative evidence will easily be ignored. Confirmation bias is likely to be especially significant in relation to financial markets regulation, because it “will be more pronounced if the evidence is more complex and subject to conflict inferences, a fair characterization of most regulatory problems in the securities markets.”

Overconfidence and confirmation bias may mutually strengthen each other, and both are significant obstacles to sound regulatory reform. Self-serving bias may reinforce the problem, as rule-makers overestimate their role in managing crises (when in reality a crisis may have been resolved naturally), and underestimate their role in causing crises or making them worse.

Framing effects may have a similar effect. Loss aversion will lead rule-makers to give more importance to potential crises than to the benefits of more lightly regulated regimes. The

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158 Choi and Pritchard, supra note 5, at 28–29.

159 Griffin and Tversky, supra note 20, at 427–430.

160 Choi and Pritchard, supra note 5, at 30.
opportunity cost bias implies that explicit and measurable costs will be given prominence at the expense of hidden, indirect and long-term costs of overregulation. Status quo bias will reinforce the tendency of regulators to stick to existing rules unless their criticism is overwhelming.

Note also that, because financial rule-makers are imperfectly rational, even well-intentioned regulators tend to come up with imperfect solutions. In particular, regulations tend to suffer from “bounded search” and “tunnel vision” which lead to lack of creativity and in-the-box thinking. For example, the SEC has tended to treat disclosure rules as a cure-all regulatory strategy despite the fact that—especially in light of behavioral economics—it may not be so effective, at least if the focus is merely on large amounts of disclosure. The persistent failure of banking regulation is another example. Bounded search and tunnel vision again imply that regulatory reform tends to be limited to tinkering with the details instead of genuine re-thinking about regulatory principles.

There may, of course, be good reasons for both overregulation and the failure to remedy past mistakes. Given the imperfection of all rule-making, it is sometimes better to err on the side of overregulation rather than underregulation, at least if significant risks are at stake. The failure to reform an imperfect system may also be motivated by what might be called regulatory switching costs (i.e. the costs to both regulators and regulatees as a result of changing the rules of the game), as well as the reasonable suspicion that a different rule-book might not be much better. On the other hand, awareness of these issues may reinforce the biases discussed earlier.

B. Hidden Behavioral Costs of Regulation

The behavioral theory also shows that, in addition to the explicit costs of compliance, regulation may give rise to hidden costs. One such hidden behavioral cost of regulation is the consequent reduction in carefulness and monitoring by market participants themselves; carefulness here includes the attempt to mitigate the effects of one’s cognitive imperfections.

It is very difficult to quantify this effect, but its existence should not be ignored. Firstly, protective regulatory schemes may create an illusion of security and safety, thereby encouraging overoptimism bias among market participants. Regulation may lead investors to rely too much on public protection, and their attempts to make wise choices—and overcome their own behavioral biases—are weakened as a result. The problem may be greatest precisely after crises, as legislators and regulators want to send the signal that they are in charge, they know how to deal with the issues and they will do it. Paradoxically, the more successfully they transmit this message, the more they inhibit the necessary learning process and behavioral adaptation that ought to take place after a crisis. People may want to trust in the ability of public authorities to sort things out, but blind trust in reforms is frequently misplaced.

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161 See Choi and Pritchard, supra note 5, at 21–24 (arguing this with examples).

Secondly, extensive regulation tends to give rise to the accumulation of complex rulebooks that lack consistency and clear principles. The consequence for market participants is that it becomes harder to understand the rules, and therefore more difficult to personally assess the limits and defects of the regulatory system. Thus blind reliance and dependency are inadvertently promoted. That can be especially harmful when, in reality, some areas of financial markets are not so regulated and market participants would be advised to tread carefully.

Complexity and high regulatory costs may also give rise to a different kind of hidden cost. As the regulatory burden becomes significant, regulatory subjects may resort to a compliance culture, only fulfilling the letter of the regulations and ignoring the underlying principles.\textsuperscript{163} Especially when regulatees feel they are being treated mistrustfully and unfairly, they will tend to respond with spiteful behavior, even to the point of making the job of regulatory authorities as difficult as possible just to get even. In the worst case a vicious circle is created, as regulation is tightened and complicated, the compliance culture is deepened, and all market participants become increasingly dependent on regulators to protect their interests. It would seem that the better option is to find a set of simple and principled rules that are perceived as fair, that punish abuse harshly, and that are primarily enforced by market participants.\textsuperscript{164}

\textbf{C. Institutional Solutions}

Behavioral theory thus suggests that there tend to be too many rules based on reactive and overreaching regulation, and past regulatory mistakes are only rarely corrected. All of that is quite natural and there is no doubt that we all suffer from similar biases in our daily life. The point is not to criticize regulators and legislators for being human, but to investigate what kind of regulatory approaches are appropriate and how regulatory quality could be improved, given the imperfections of human beings. Regulatory quality is a broad topic which can only be briefly discussed here. There are numerous ways in which regulatory quality can be improved, including better regulatory oversight, training in regulatory quality skills, policy coherence, evaluation, simplification, and consultation.\textsuperscript{165}

More specifically in the context of behavioral economics, Choi and Pritchard point out, using the SEC as an example, that there are some potentially corrective mechanisms in place at


\textsuperscript{164}See Partnoy, supra note 140, at 246–254 (preferring “bottom-up” common law principles instead of “top-down” regulation to deal with the regulatory arbitrage problems of financial derivatives).

regulatory authorities.\textsuperscript{166} For example, hierarchical review of staff proposals by commissioners may reduce bias caused by overconfidence and overoptimism. Judicial review and political oversight may have a similar effect. One can see similar processes in the context of legislation: political review of draft legislation will improve the scrutiny of proposals, which therefore have to be better argued for. The role of outside experts in the drafting process should also improve the quality of legislation. However, the overall effect is unclear. Reviewers and experts are subject to similar psychological biases, and their involvement will entail unwanted costs, so it is certainly not correct to conclude that these additional procedures should be increased without measure. Besides, complex and difficult procedures will make it more difficult to challenge the status quo, and the influence of political pressures may exacerbate the reactive nature of regulation.

McDonnell and Schwarcz advance a related idea, which they call regulatory contrarians.\textsuperscript{167} They advocate the institutionalization of roles whose function is to challenge the status quo of regulation by identifying its weaknesses. According to these authors, some government bodies already perform this function, but it would be possible to have more of them. However, regulatory contrarians mainly help to identify weaknesses in existing rules, not so much to reduce reactive regulation. Moreover, an important regulatory contrarian role is already played by (some) academics.

Another way of improving the quality of regulation is the use of regulatory impact assessments (RIAs) or cost-benefit analyses (CBAs). RIAs are a way of critically assessing the positive and negative effects of proposed or existing regulations and their non-regulatory alternatives. In principle, impact assessments should help reduce the harmful of effect of various psychological biases by forcing law-makers to face the facts and consider different options.

In practice, things are not so simple. In addition to being expensive to produce, regulatory impact assessments are usually done ex ante—before the regulation is implemented—when there are few hard facts to rely on.\textsuperscript{168} As a result, RIAs tend to be highly speculative, and such biases as salience and overoptimism are likely to reduce the quality of the analysis, especially if those making the RIA are favorable to the proposed regulation.\textsuperscript{169} A further challenge is that if the RIA concludes against the proposed regulation, that analysis may simply be ignored: “Viewed objectively, these efforts have not been a success. The RIAs, and similar efforts, often are no more

\textsuperscript{166} Choi and Pritchard, supra note 5, at 36–40.

\textsuperscript{167} McDonnell & Schwarcz, supra note 152.

\textsuperscript{168} See THE IMPACT OF LEGISLATION: A CRITICAL ANALYSIS OF EX ANTE EVALUATION (Jonathan Verschuuren ed. 2009) (providing critical assessments of ex ante evaluation of legislation).

\textsuperscript{169} Thus the Impact Assessment Board of the European Commission complains: “In a number of cases, there was a bias in the definition of options towards the preferred option, often leading to an analysis of options that was too much focussed on the preferred option while other options should have been explored in greater detail.” IMPACT ASSESSMENT BOARD, REPORT FOR THE YEAR 2007, EUR. COMMISSION, SEC(2008) 120 (Jan. 30, 2008).
than form-filling exercises in support of a government department’s preferred legalistic approach, rather than genuine attempts to identify the most efficient regulation.”

These problems might be mitigated through ex post impact assessments. Regulation frequently has unintended consequences, and ex post analysis helps to critically evaluate the success of past action. Indeed, ex post impact assessment of regulation is frequently conducted by academics in law and economics. However, one should not expect too much. Impact assessments are important, but even ex post analysis remains subject to such biases as salience and the confirmation bias (ideology plays a role, too); the causal connections are subject to dispute even after the fact. Besides, there are practical difficulties in trying to change the rules through ex post assessments: once the issue is settled, political interest tends to diminish, and the prospect of further switching costs reduces the attractiveness of changing the status quo. One proposal worth developing further is to “‘sunset’ (end) the rule adoption after a number of years, so that its merits would need to be reargued, in part using the data generated from the initial rule adoption.”

**D. Principles**

Overall, three general conclusions may be inferred. Firstly, there is reason to be skeptical about regulatory intervention. This means favoring general principles instead of complex regulations. Crises should not lead to sudden changes; instead it is necessary to study the ways in which existing regulations have not only failed to prevent some problems, but have also contributed to them. Moreover, regulatory authorities should be given fewer discretionary powers, and their delegated rule-making powers should be limited.

Secondly, regulatory intervention should—despite recent criticism—generally prefer light-touch regulations, which influence the decisions of market participants without unduly restricting their choices. This is because behaviorally-inspired light-touch regulations are less likely to create major costs even when they are imperfect. Some of the possibilities include default rules, psychologically designed disclosure, and cooling-off periods. There is also the possibility of educating individuals, not just on finance but on typical behavioral biases and how to moderate them. This need not involve regulatory authorities; the market is already flooded with information on behavioral economics, and some financial intermediaries have an incentive to educate their clients and boost client loyalty.

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170 **Cento Veljanovski**, *The Economics of Law* 165 (2nd ed. 2006).


172 Booth, *supra* note 150.


174 See *supra* Part III.
Thirdly, the behavioral biases of regulators suggest that *regulatory competition* should be fostered. This is because “while market biases continually face the pressure of competition, behavioral biases among regulators may go unchecked if regulators enjoy monopoly authority.” Thus the behavioral view questions the trend towards global regulation. One option is to reconsider the possibilities of self-regulation and enforced self-regulation. Another is to find ways of empowering market participants, possibly through well-designed disclosure rules.

**VII. Learning and the Value of Simplicity**

The value of general principles and simplicity has already been mentioned in various ways. This part rounds up the discussion by highlighting some further behavioral reasons that favor a system of simple rules over complex regulatory regimes. As a former Chief Economist of the SEC has pointed out, much of complexity of modern finance is a consequence of the complexity of regulation.

Note that in any case it is neither conceivable nor necessary to create a perfect regulatory system. Many problems in existing markets have been caused by flawed regulations and unsound monetary policy, and it is difficult to say how markets would have evolved but for the distorted incentives created by existing rules. There are behavioral anomalies, but their practical importance in different contexts is less clear. *Behavioral perfectionism* in financial regulation could become a nightmare, because it might lead to major implementation costs and unintended

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175 Choi and Pritchard, *supra* note 5, at 43.


179 Spatt, *supra* note 171, at 1 (“While I recognize that to some degree complexity in financial structure breeds complexity in regulation, often the causality is reversed. Complexity in regulation leads to complexity in financial structures and systems, particularly in light of the efforts of market participants to mitigate the costs and complications induced by regulation, including attempts to engage in regulatory arbitrage.”).
consequences. Besides, “many of the anomalies discovered are beyond the power of regulation—public or private—to affect.”

A. Habits, Learning and Responsibility

We should not ignore the importance of good habits—including moral habits or virtues—that enable people to make good choices. The tendency in regulatory debates is to focus on external rules, because the focus is on what public authorities can do to solve social problems. There is a danger in forgetting that personal virtues such as prudence—the perfected ability of free and rational persons to make wise practical decisions—cannot be replaced by regulation. Good habits must be learnt in life, and an important role in this process of learning is played by families, schools, churches and, quite simply, the freedom of making personal choices and being responsible for the consequences.

During financial crises, the emphasis tends to be on the failure of regulation, and especially on the failure of public authorities to protect individuals from bad choices. This emphasis can go too far if it ignores the role of personal responsibility for free choices, including morally wrong choices. As Samuel Gregg has emphasized, analysts of financial crises have heavily criticized investment banks, often rightly, but “rather fewer moral critiques have been made of the behaviour of individuals who, for example, misrepresented—i.e. lied—about their assets, income and liabilities in order to obtain loans and mortgages.”

One implication is that personal responsibility needs to be given more importance. Market participants should be allowed to make some mistakes and learn from them. But it is even more important that they are made aware of their responsibility for the choices they make. The danger of extensive regulatory schemes is that they may reduce investor prudence over time, and thereby create an artificial justification for increasingly protective and expensive regulations:

> even inexperienced and cognitively challenged investors are capable of learning. Once freed of the responsibility and discipline of making investment decisions, investors lose the feedback mechanism that facilitates such

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180 Choi and Pritchard, supra note 5, at 67.

181 See Samuel Gregg, Moral Failure: Borrowing, Lending and the Financial Crisis, in VERDICT ON THE CRASH: CAUSES AND POLICY IMPLICATIONS 145 (Philip Booth ed. 2009) [hereinafter Gregg, Moral Failure] (arguing that certain problems in financial crisis have been due to moral failure); Samuel Gregg, Credit Crunch, Character Crisis, Speech at Thomas More Inst. (Oct. 22 2008), available at http://www.thomasmoreinstitute.org.uk/node/140 (pointing out specific moral problems behind the financial crisis).


183 Gregg, Moral Failure, supra note 181, at 146 (summarizing research finding that “some degree of borrower misrepresentation in as many as 70 per cent of American early-payment defaults in a study of 3 million loans originated between 1997 and 2006”).
learning. Indeed, some investors may come to believe (overoptimistically) that regulatory protections fully insulate them from investment risks. When this is not true [...] investors with overconfidence in the power of regulation will then take even less care and may face a greater risk of facing large financial losses as a result.\textsuperscript{184}

The loss of self-protection is perhaps most manifest in the banking sector, where market discipline has been consistently waning due to its replacement by public regulation: "Market signalling mechanisms can also be crowded out by regulation and government guarantees: why does it matter if a bank is trustworthy or has a high level of capital if the regulator exists to look after such things and the government will provide guarantees if things go wrong?"\textsuperscript{185}

It is not necessary for people to make perfect choices: what matters is that people are able to adopt \textit{good enough} habits and rules of thumb that facilitate their choosing in a complex financial world:

It is often thought that many borrowers are too unsophisticated to act with prudence and that they need to be protected by regulation. Though prudence requires people to become informed, this need not involve becoming immersed in complex technical information. Tradition, rules and thumb and the observation of the behaviour of other sensible people have worked for many generations as more than adequate control mechanism for keeping personal borrowing under control.\textsuperscript{186}

The adoption of good habits and sensible rules of thumb is fostered by a \textit{stable and principled legal framework} that emphasizes clear lines of responsibility. In contrast, the learning process is hampered by a constantly changing regulatory environment, which after each crisis changes the rulebook, rendering it difficult to learn from past mistakes.\textsuperscript{187} There is also the risk of renewing the false illusion of effective oversight, as a former head of the UK Financial Services Authority has admitted:

They [financial supervisors] should also be cautious in describing the limits of their ambitions, both in terms of the degree of security they can offer to those who transact with financial institutions, and in terms of the scale or scope of the supervision they undertake. A regulator which claims too much will

\textsuperscript{184} Choi and Pritchard, supra note 5, at 59. A similar argument based on behavioral economics is made, in the context of welfare policies, by Scott Beaulier & Bryan Caplan, \textit{Behavioral Economics and Perverse Effects of the Welfare State}, 60 \textsc{Kyklos} 485 (2007).

\textsuperscript{185} Booth, supra note 150, at 162.

\textsuperscript{186} Gregg, \textit{Moral Failure}, supra note 181, at 148.

\textsuperscript{187} See Spatt, supra note 171, at 7 ("excess complexity in the formulation of a regulation can be a serious impediment to the generation of meaningful evidence").
weaken market discipline, which can often be a more effective tool than regulatory intervention.188

When regulatory reform is necessary, it should focus on clear principles that people can understand. Lengthy and technical regulations tend to alienate ordinary people—and many financial professionals—from the regulatory system, thereby promoting a psychology of dependency and carelessness. Given cognitive imperfections and the use of rules of thumb, drastic changes in the operating environment create problems, especially when the implications of those changes are not easily foreseeable. It is likely that part of the market failure during the recent crisis was due to the rapid expansion of forceful incentive schemes in banking, which traditionally has been a rather conservative industry. In light of behavioral theory, significant changes cause problems not only because of lack of information on their consequences, but also because habits, conventions and rules of thumb, which functioned well in an earlier setting, may prove to be obsolete.

B. Small Crises and the Virtues of Decentralism

Less regulation might result in more crises—but probably smaller in scope. On balance, having small problems frequently might be better than having huge crises every one or two decades. This is because crises that took place in the more distant past tend to be forgotten by most people; their learning effect wares away over time and people become more careless, even tending to repeat the mistakes of the past.189 In contrast, more frequently occurring but smaller crises would uphold the caution and prudence that should always form part of financial market participation, and there would be faster learning from mistakes on both personal and institutional levels:

the idea is not to correct mistakes and eliminate randomness from social and economic life through monetary policy, subsidies, and so on. The idea is simply to let human mistakes and miscalculations remain confined, and to prevent their spreading through the system [...] Reducing volatility and ordinary randomness increases exposure to Black Swans—it creates an artificial quiet.190

Similarly, behavioral theory suggests that it might be better to have many different regulatory systems and policies—not only because that would reduce the harmful effect of


behavioral biases among regulators, but also because of positive learning effects. Regulatory variation would promote trial and error, and it would make it easier for boundedly rational people to discover what works and what does not.

This view goes against conventional wisdom. According to the standard account of recent problems in financial markets, the failure of regulatory systems was mainly due to the inability of national regulators to rein in free markets, which were therefore allowed to run wild and cause havoc around the globe. The solution, the theory goes, is to establish a global financial regulator with powers to make rules and enforce them around the world in cooperation with national regulators.

There are serious problems with this account. Note, for example, that one major area of regulatory failure has been bank capital adequacy regulation, which is already essentially global in scope. Accounting regulation is also increasingly international, but that has done nothing to reduce the problem of misleading reporting of financial derivative positions; arguably, the highly politicized nature of international rule-making has only made it more difficult to come up with any sensible solution to the issue. It would be worthwhile to reconsider greater regulatory competition.

It is much debated whether lack of coordination among regulatory authorities was really the cause of any of the real issues. Lack of cooperation was only issue to the extent that the regulatory mechanisms were basically sound but national regulators simply did not have sufficient information and powers to act. The regulatory-critical view of the crisis challenges that interpretation, and the theory of “behavioral bureaucrats” makes its case even weaker. Indeed, some types of financial risk regulation have given rise to destructive coordination: while standardization and coordination may lower transaction costs, in the context of financial markets it has also magnified pro-cyclical market processes. The regulatory standardization of risk management techniques and measures (including general bank capital regulation and the infamous Value-at-Risk concept) has caused market participants to act in unison and to make the same mistakes together, thereby magnifying the likelihood of systemic crises.

More importantly, the creation of global regulatory elites would exacerbate the behavioral problems discussed earlier: their special status would likely bolster overconfidence bias, and they would be even less subject to real checks and balances so that unfounded regulatory activism would be encouraged. Moreover, while there are benefits to regulatory unity, more unified (but imperfect) regulation would then impede trial-and-error learning processes and probably give rise to bigger and more global crises, as the same mistakes would be made by everybody at the same time.


VIII. Conclusion

Contrary to a common perception, behavioral economics does not provide a blanket theory for increasingly paternalistic regulation of financial markets. Even if behavioral economics is taken at face value—which it need not be—the implications are entirely different. Many problems due to behavioral biases and anomalies can be mitigated through light-touch regulations, and freer markets tend to promote better market discipline and more accurate pricing. There are also doubts about the real significance of psychological biases, especially as many problems are caused by flawed regulations that create harmful incentives. Moreover, behavioral theory implies that we should be more skeptical about the ability of rule-makers to correctly perceive the real problems and to find the appropriate remedies. Finally, regulatory complexity and constant change exacerbate the harmful effects of bounded rationality.

This should not be taken to mean that behavioral economics calls for all-round deregulation. There may be reasons (other than behavioral biases) why regulation is needed. The question is not simply about more or less regulation, but also about the manner of regulation. The thesis is that, when there are reasons to regulate, the regulatory strategies should avoid complexity; highlight clear lines of responsibility; emphasize market discipline; shun regulatory centralization; distrust regulators; and avoid constant changes to the rulebook.

There remain numerous possibilities for further research. On the empirical front, much work remains to be done in order to assess the practical importance of behavioral biases and to test the workability of behaviorally-inspired regulations. In addition, it would be interesting to see empirical studies on the question of public choice theory versus behavioral bureaucrats, trying to isolate the relative effects of each factor by a comparative study of different institutional settings.

Another important question is how the analysis would be affected by the inclusion of fairness behavior and moral psychology. It might challenge some of the conclusions of the present Article, because highlighting cognitive imperfections is certainly a step towards greater realism, but it is hardly enough to assume that our cognitively impaired actors are all incurable egoists. Public choice theory is one area that changes considerably if we scrap the assumption of selfishness.

193 See supra note 13.