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The Failure of Market Efficiency

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The Failure of Market Efficiency

William Magnuson*

Recent years have witnessed the near total triumph of market efficiency as a regulatory goal. Policymakers regularly proclaim their devotion to ensuring efficient capital markets. Courts use market efficiency as a guiding light for crafting legal doctrine. And scholars have explored in great depth the mechanisms of market efficiency and the role of law in promoting it. There is strong evidence that, at least on some metrics, our capital markets are indeed more efficient than they have ever been. But the pursuit of efficiency has come at a cost. By focusing our attention narrowly on economic efficiency concerns – such as competition, friction, and transaction costs – we have lost sight of other, deeper values within our economic system, including wider conceptions of duty, fairness, and morality. And while regulators sometimes pay lip service to these values, they often treat them as merely a subset of efficiency: the best way to treat investors fairly, to promote equality, and to prevent immoral, exploitative behavior, in this view, is simply to create an efficient market. We have seen the consequences of this emphasis play out in spectacular fashion in the last decade. New market structures and technologies – from special purpose acquisition companies to social-media oriented trading apps to cryptocurrencies – have emerged to eliminate barriers to trade and compete with institutional incumbents. These strategies may well lead to more efficient markets inasmuch as they facilitate access to capital, but they also have the side effect of placing unsophisticated individuals into complex contractual arrangements with sophisticated market actors. The result is an

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“efficient” market, but one with steep moral and social costs. This Article examines the limits of market efficiency as a regulatory goal and suggests a set of structural and substantive reforms aimed at better balancing efficiency with the other goals of markets. It concludes that regulators, courts, and scholars alike need to adopt a more comprehensive understanding of the proper ends of market regulation, one that emphasizes the purpose and spirit of finance over the false promise of efficiency.

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INTRODUCTION

Recent years have witnessed a remarkable amount of innovation in our financial markets.¹ New technologies have emerged to challenge the financial institutions that have so long dominated the world of stocks and bonds.² New deal structures have been invented to give companies unprecedented access to capital.³ And, perhaps most radically of all, entirely new forms of money have sprung up, seemingly out of nowhere, and now attract enormous amounts of economic activity.⁴ Finance is changing fast, and there is no sign of it slowing down anytime soon.

Market innovation, however, has also led to market destruction. Many of the most important financial innovations of

1. See, e.g., Rory Van Loo, *Making Innovation More Competitive: The Case of Fintech*, 65 UCLA L. REV. 232 (2018); Saule T. Omarova, *New Tech v. New Deal: Fintech as a Systemic Phenomenon*, 36 YALE J. ON REG. 735 (2019); Tom C. W. Lin, *Infinite Financial Intermediation*, 50 WAKE FOREST L. REV. 643 (2015); Chris Brummer & Yesha Yadav, *Fintech and the Innovation Trilemma*, 107 GEO. L.J. 235 (2019); Adam J. Levitin, *Pandora's Digital Box: The Promise and Perils of Digital Wallets*, 166 U. PA. L. REV. 305 (2018); William Magnuson, *Regulating Fintech*, 71 VAND. L. REV. 1167 (2018); Yesha Yadav, *How Algorithmic Trading Undermines Efficiency in Capital Markets*, 68 VAND. L. REV. 1607 (2015); Hilary J. Allen, *Driverless Finance*, 10 HARV. BUS. L. REV. 157 (2020).

2. See Howell E. Jackson, *The Nature of the Fintech Firm*, 61 WASH. U. J.L. & POL'Y 9, 10-11 (2020) (describing fintech innovation as “encompassing a wide range of private and regulatory innovations that have become possible through the rapid decline in the cost of computing, accompanied by the widespread availability of reliable, high-speed connectivity (typically over the internet), and an explosion of newly collected data about a broad swath of personal and commercial characteristics and behaviors.”).

3. See, e.g., Michael Klausner, Michael Ohlrogge & Emily Ruan, *A Sober Look at SPACs*, 39 YALE J. ON REG. 228, 233-45 (2022); Usha Rodrigues & Mike Stegemoller, *Redeeming SPACs* (Ga. L. Sch. Working Paper, Paper No. 09, 2021), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3906196; Usha Rodrigues & Mike Stegemoller, *Exit, Voice, and Reputation: The Evolution of SPACs*, 37 DEL. J. CORP. L. 849 (2013); Mira Ganor, *The Case for Non-Binary, Contingent, Shareholder Action*, 23 U. PA. J. BUS. L. 390 (2021); Stephen M. Davidoff, *Black Market Capital*, 2008 COLUM. BUS. L. REV. 172 (2008); Erik P.M. Vermeulen, *High-Tech Companies and the Decision to “Go Public”: Are Backdoor Listings (Still) an Alternative to “Front-Door” Initial Public Offerings?*, 4 PENN ST. J.L. & INT'L AFFS. 421 (2015).

4. See, e.g., Kevin V. Tu & Michael W. Meredith, *Rethinking Virtual Currency Regulation in the Bitcoin Age*, 90 WASH. L. REV. 271 (2015); Shaanan Cohny, David Hoffman, Jeremy Sklaroff & David Wishnick, *Coin-Operated Capitalism*, 119 COLUM. L. REV. 591 (2019); Jonathan Rohr & Aaron Wright, *Blockchain-Based Token Sales, Initial Coin Offerings, and the Democratization of Public Capital Markets*, 70 HASTINGS L.J. 463 (2019); Angela Walch, *The Path of the Blockchain Lexicon (and the Law)*, 36 REV. BANKING & FIN. L. 713 (2017); William Magnuson, *Financial Regulation in the Bitcoin Era*, 23 STAN. J.L. BUS. & FIN. 159 (2018); Usha R. Rodrigues, *Law and the Blockchain*, 104 IOWA L. REV. 679 (2019).

the last decade have tended to disproportionately benefit a small group of insiders while disproportionately harming a large group of unsophisticated outsiders.⁵ Social trading apps, designed to make trading stocks and bonds easier for regular citizens, have raised billions in investments, while simultaneously overcharging and manipulating their users.⁶ Special purpose acquisition companies, designed to provide an easier path for companies to access the capital markets, have generated enormous returns for executives, while saddling investors with underperforming shares in sometimes fraudulent companies.⁷ Cryptocurrencies, designed to provide a virtual currency for the internet age, have rewarded creators with windfall profits, while creating vast risks for the environment, crime, and national security.⁸ Time and time again, the few have won, and the many have lost.

This time of transition provides a unique opportunity to take a closer look at how we regulate economic markets. As innovation has emerged, regulators have been forced to grapple with difficult questions and articulate responses. How do old laws apply to new technologies? Which problems need solving, and which can safely be ignored? Will markets resolve problematic incentives, or will they exacerbate them? The ways that regulators have envisioned market problems during this time of transition, and how they have gone about solving them, illuminate their assumptions about the means and ends of financial regulation. They also tell us much about the state of financial law in general—a body of law that is notoriously complex and yet integral to the state, the economy, and the citizenry.

This Article argues that market efficiency has come to dominate modern thinking about the regulation of financial markets in ways that squeeze out other important values.⁹ The prevailing conception of market efficiency today incorporates both normative

5. *See infra* Part III.

6. *See infra* Section III.A.

7. *See infra* Section III.B.

8. *See infra* Section III.C.

9. For a similar argument in the field of moral philosophy, see Alasdair MacIntyre, *The Irrelevance of Ethics*, in VIRTUE AND ECONOMY: ESSAYS ON MORALITY AND MARKETS 1, 16 (Andrius Bielskis & Kelvin Knight eds., 2015) (highlighting the need to understand the “double aspect” of the globalized economy and the financial sector, viewing them as “an engine of growth and as such a source of benefits, but equally as a perpetrator of great harms and continuing injustices”).

and positive elements. From a normative perspective, it asserts that efficiency is desirable and, indeed, of primary importance—efficient markets maximize human satisfaction.¹⁰ From a positive perspective, it measures efficiency as a product of voluntary market interaction—the maximum amount that consumers would voluntarily pay to receive a good.¹¹ Finally, it posits that information-rich markets that are free of outright monopolies and other transaction costs are the best way to achieve efficiency.¹²

The pursuit of market efficiency has skewed the path of financial regulation. Today, the overwhelming focus of financial law, both in substantive rules and in enforcement practices, has been on encouraging deeper, broader, and more accurate

10. See, e.g., Frank I. Michelman, *Property, Utility, and Fairness: Comments on the Ethical Foundations of "Just Compensation" Law*, 80 HARV. L. REV. 1165, 1214 (1967) (defining efficiency gains as "excess of benefits produced by a measure over losses inflicted by it, where benefits are measured by the total number of dollars which prospective gainers would be willing to pay to secure adoption, and losses are measured by the total number of dollars which prospective losers would insist on as the price of agreeing to adoption"); RICHARD A. POSNER, *ECONOMIC ANALYSIS OF LAW* 10 (1977) [hereinafter *ECONOMIC ANALYSIS*]; RICHARD A. POSNER, *THE PROBLEMS OF JURISPRUDENCE* 356 (1990); LOUIS KAPLOW & STEVEN SHAVELL, *FAIRNESS VERSUS WELFARE* 4 (2006); COMM. ON CAP. MKTS. REGUL., *THE U.S. EQUITY MARKETS: A PLAN FOR REGULATORY REFORM* ii (2016) ("Well-functioning trading markets for stocks are critical to the U.S. economy because they promote the productive allocation of capital. They do so by establishing accurate prices for the shares of publicly traded companies and by enabling investors to efficiently enter and exit their investments.").

11. See POSNER, *ECONOMIC ANALYSIS* *supra* note 10, at 10 ("'Efficiency' means exploiting economic resources in such a way that 'value'—human satisfaction as measured by aggregate consumer willingness to pay for goods and services—is maximized.").

12. See, e.g., Ronald J. Gilson & Reinier H. Kraakman, *The Mechanisms of Market Efficiency*, 70 VA. L. REV. 549, 554 (1984) [hereinafter *Mechanisms I*] ("Which mechanism operates with respect to a particular piece of information, and, ultimately, how efficient the capital market is with respect to that information, depends upon the initial distribution of the information among traders. . . . [W]e argue that the distribution of information among traders is a function of information costs, and that many familiar market institutions, such as investment banks, serve the function of reducing information costs, and thereby facilitate efficiency in the capital market."); Ronald J. Gilson & Reinier Kraakman, *The Mechanisms of Market Efficiency Twenty Years Later: The Hindsight Bias*, 28 J. CORP. L. 715, 721 (2003) [hereinafter *Mechanisms II*] ("While every step in the institutional pathways that channel information into price bears on the relative efficiency of market price, none are as important as the institutions that determine the transaction costs of acquiring and verifying information in the first instance."); Mark A. Lemley, *The Economics of Improvement in Intellectual Property Law*, 75 TEX. L. REV. 989, 1048–72 (1997) ("Problems of imperfect information, transaction costs, strategic behavior, and market power all impose barriers to the hypothetical efficient license."); Cass R. Sunstein, *Informational Regulation and Informational Standing: Akins and Beyond*, 147 U. PA. L. REV. 613, 625 (1999) ("From the standpoint of efficiency, information remedies can be better than either command-and-control regulation or reliance on unregulated markets alone.").

disclosure of information to investors.¹³ As the Chairman of the Securities and Exchange Commission (SEC) recently put it, “[t]he basic bargain is this: investors get to decide what risks they wish to take . . . [and] [c]ompanies that are raising money from the public have an obligation to share information with investors on a regular basis.”¹⁴ But the focus on disclosure also brings a corollary proposition: financial regulation should largely steer clear from substantive rules imposing restrictions on voluntary transactions between knowledgeable actors.¹⁵ Taken together, these propositions dramatically cabin and constrain the types of harms that financial regulators care about.

Of course, financial regulators do not *only* care about market efficiency. They also care about other things, such as the fairness of markets, the protection of investors, and the stability of financial institutions.¹⁶ But perhaps what is perhaps most striking about financial regulation today is how it has distorted and narrowed these concepts to such an extent that they now are little more than subcategories of the ultimate good, efficiency. In many contexts, “fairness” has been reduced to simply mean a market in which investors receive ample disclosures. Market stability, while requiring substantive intervention into certain risky practices, is largely an exercise in mitigating externalities.

13. See *infra* Part III.

14. Gary Gensler, Chairman, Sec. & Exch. Comm’n, Prepared Remarks Before the Principles for Responsible Investment “Climate and Global Financial Markets” Webinar, (July 28, 2021).

15. See Frank H. Easterbrook & Daniel R. Fischel, *Mandatory Disclosure and the Protection of Investors*, 70 VA. L. REV. 669, 669–70 (1984) (noting that the securities laws have two components—fraud prohibition and disclosure requirements—that “[t]here is very little substantive regulation of investments,” and that “[t]he dominating principle of securities regulation is that anyone willing to disclose the right things can sell or buy whatever he wants at whatever price the market will sustain.”); Stephen J. Choi, *Regulating Investors Not Issuers: A Market-Based Proposal*, 88 CALIF. L. REV. 279, 280 (2000) (“For those investors with good information on issuers in the market . . . no mandatory regulations are necessary. Rather investors will contract for desired protections; those market participants failing to provide valued protections will receive less for their securities or services. As a result, market participants will voluntarily provide desired protections.”). For a counter-perspective, see Colin Camerer, Samuel Issacharoff, George Loewenstein, Ted O’Donoghue & Matthew Rabin, *Regulation for Conservatives: Behavioral Economics and the Case for “Asymmetric Paternalism”*, 151 U. PA. L. REV. 1211, 1212 (2003) (arguing that, given behavioral biases, paternalistic regulation is justified where it “creates large benefits for those who make errors, while imposing little or no harm on those who are fully rational.”).

16. See *infra* Section I.B.

The triumph of market efficiency has come at a cost. Politicians, regulators, and courts have lost sight of the broader importance of finance and markets. The tools available to regulators have been radically circumscribed. This has limited their ability to respond to harmful market practices as they arise. Faced with a dangerous or harmful financial innovation, regulators often simply announce that they will require actors to disclose more information about it, and perhaps that they will bring more enforcement actions against companies that are not properly informing their investors, but rarely go further. Courts are not exempt from this paradigm either. In the few instances when financial regulators have attempted to impose more substantive rules on financial markets, they have been met with reversals by courts, who have used the assumptions of market efficiency to interpret statutes in narrowly cabined ways.

It is time for us to set aside market efficiency as the overriding goal of financial regulation. We must articulate a better vision of what finance is meant for and what role law can play in crafting it. This means rethinking how we define efficiency. But it also means rethinking the proper weighting of efficiency with other goals such as promoting fairness, justice, and morality. This Article sets out one vision of how we might recalibrate, but I hope that it is not the last. Markets are remarkable institutions, capable of generating prosperity and transforming economies. But they are also notoriously vulnerable to exploitation, manipulation, and irrationality. The law has a role to play—a *bigger* role to play—in ensuring that markets are a force for the common good.

This Article proceeds in four Parts. Part I explores the idea of market efficiency and how it has informed market regulation. This Part examines the widely varying definitions of market efficiency, as well as some of the most important theories regarding how to achieve it. It then tracks how financial regulators have sought to govern and improve market efficiency, with a particular focus on transaction costs, information disclosure, and anti-trust rules. Finally, it describes a range of objections to market efficiency both as a theoretical concept and as a regulatory goal.

Part II introduces a thought experiment called “Treasure Island.” Modeled loosely on Robert Louis Stevenson’s novel of the same name, *Treasure Island* presents a simple market: there are just two actors and two goods, and the actors trade the goods between themselves as they see fit. Using slight variations on the structure

of the market, the thought experiment asks the reader to assess a set of scenarios where the purely efficiency-oriented goals of markets may conflict with other normative commitments. The thought experiment aims to draw out our intuitions about the proper relationship between morality, efficiency, and the market.

Part III turns from theory to practice. Using close analyses of three recent financial innovations, this Part explores how regulators' over-reliance on the tools of market efficiency has prevented them from addressing, and sometimes even acknowledging, broader structural and functional problems within markets. The first innovation, the rise of special purpose acquisition companies, has upset longstanding assumptions about the nature of stocks and stockholders. The second, the emergence of social trading apps, has altered the way that stockholders approach investing. And the third, the explosion of interest in cryptocurrencies, has threatened to upset the very idea of money itself. In all of these areas, regulators have responded in limited and ineffectual ways that perpetuate serious distributional, behavioral and product harms.

Part IV concludes by proposing a set of regulatory tools that legislators, regulators, and courts could use to better balance efficiency with other normative values. These tools range from relatively light-touch interventions—such as choice architecture and fiduciary duties—to more intrusive ones—such as fee caps and strict liability regimes. This Part argues that more fulsome regulation of markets is fully consistent with law and policy and could do much to correct the failures of modern market efficiency.

I. THE EFFICIENCY OF MARKETS

A. *The Substance of Efficiency*

It is widely agreed that markets should be efficient.¹⁷ Politicians, regulators, courts, and scholars alike all regularly proclaim their

17. See, e.g., John C. Coffee, Jr., *Market Failure and the Economic Case for a Mandatory Disclosure System*, 70 VA. L. REV. 717, 722 (“[A mandatory disclosure system] does improve the allocative efficiency of the capital market—and this improvement in turn implies a more productive economy.”); Dennis W. Carlton & Daniel R. Fischel, *The Regulation of Insider Trading*, 35 STAN. L. REV. 857, 866 (“The social gains from efficient capital markets are well known. The more accurately prices reflect information, the better prices guide

commitment to efficiency in some form or another.¹⁸ But what exactly do we mean when we say that a market is efficient? It turns out that there is a surprising (or, depending on your view of legal scholarship, perhaps unsurprising) amount of disagreement on the point.

One common definition of an efficient market, sometimes categorized as “economic efficiency,” is one in which economic resources are exploited in such a way that value is maximized.¹⁹ Setting aside the potentially pejorative connotations of “exploiting,” the proposition seems like a relatively anodyne one. Markets should maximize value. The statement, taken alone, is not much more than a general proposition that markets should be good. The key question then becomes how to measure value. One response from the field of law and economics has been to define value as human satisfaction, measured by individuals’ willingness to pay for goods and services.²⁰ Here, market efficiency gains some teeth—the goal

capital investment in the economy.”); *But see* Lynn A. Stout, *The Unimportance of Being Efficient: An Economic Analysis of Stock Market Pricing and Securities Regulation*, 87 MICH. L. REV. 613 (1988) (arguing that more efficient stock markets do not necessarily lead to superior resource allocation).

18. *See, e.g.*, Barack Obama, Speech at NASDAQ: Our Common Stake in America’s Prosperity (Sept. 17, 2007) (“We all have a stake in ensuring that the market is efficient and transparent.”); *Testimony Before S. Comm. on Banking, Hous., and Urb. Affs.* (Sept. 14, 2021) (statements of Gary Gensler, Chairman, SEC) (“We keep our markets the best in the world through efficiency, transparency, and competition.”); *Nw. Wholesale Stationers, Inc. v. Pac. Stationery & Printing Co.*, 472 U.S. 284, 289–90 (1985) (discussing how the decision whether to apply a stricter standard of review for a market action turns on “whether the practice facially appears to be one that would always or almost always tend to restrict competition and decrease output . . . or instead one designed to ‘increase economic efficiency and render markets more, rather than less, competitive.’” (quoting *Broad. Music, Inc. v. CBS*, 441 U.S. 1, 19–20 (1979))); Christine Jolls, *Contracts as Bilateral Commitments: A New Perspective on Contract Modification*, 26 J. LEGAL STUD. 203, 233 (1997) (“The normative goal on which this article has focused is the efficiency goal of maximizing contractors’ welfare.”); Robert E. Scott, *The Case for Market Damages: Revisiting the Lost Profits Puzzle*, 57 U. CHI. L. REV. 1155, 1175 (1990) (“The key issue, therefore, is whether the rule allocates these market risks efficiently.”).

19. *See, e.g.*, POSNER, *ECONOMIC ANALYSIS*, *supra* note 10, at 10; R.H. Coase, *The Problem of Social Cost*, 3 J.L. & ECON. 1 (1960).

20. *See* POSNER, *ECONOMIC ANALYSIS*, *supra* note 10, at 10. For a slightly broader view, see KAPLOW & SHAVELL, *supra* note 10, at 4 (“The welfare economic conception of individuals’ well-being is a comprehensive one . . . [that] recognizes not only individuals’ levels of material comfort, but also their degree of aesthetic fulfillment, their feelings for others, and anything else that they might value, however intangible.”). For a critique of this view, see Richard S. Markovits, *A Constructive Critique of the Traditional Definition and Use of the Concept of “The Effect of a Choice on Allocative (Economic) Efficiency”: Why the Kaldor-Hicks Test, the Coase*

is to maximize human (as opposed, I assume, to animal or plant) satisfaction, and the best way to measure it is to find out how much individuals as a whole would be willing to pay to acquire it. One might quibble, and indeed many have quibbled, with the assertion that “value” is equivalent to “human satisfaction,” or that the best way to measure satisfaction is by asking how much you would pay for it, but at least this form of efficiency has the merit of landing us squarely within the realm of economics, which has devoted, to put it mildly, a fair amount of time and effort on analyzing the mechanics and workings of efficiency.²¹

Two other forms of economic efficiency focus on the tradeoffs *between* individuals in a market.²² Pareto efficiency defines efficiency as a state in which resources are allocated in such a way that they cannot be reallocated to benefit some actors without making other actors worse off.²³ In other words, a market is Pareto inefficient if we could restructure it in such a way that we would benefit some and not harm anyone. Pareto efficiency is, in turn, often contrasted with another form of efficiency known as

Theorem, and Virtually All Law-and-Economics Welfare Arguments Are Wrong, 1993 U. ILL. L. REV. 485 (1993). See also MacIntyre, *supra* note 9, at 12 (“[T]hose concerned with ethics in the last two hundred years, from whatever standpoint, became insufficiently concerned with money and those engaging with money became insufficiently concerned with ethics. What ethics became as a result and what the management of money became as a result are such that we no longer know how to connect them.”).

21. For a magisterial summary of these critiques, see Duncan Kennedy, *Cost-Benefit Analysis of Entitlement Problems: A Critique*, 33 STAN. L. REV. 387 (1981).

22. There are seemingly infinite ways to slice and dice efficiency, and for simplicity’s sake, this Article focuses on the two dominant versions in legal scholarship. See, e.g., Zachary Liscow, *Is Efficiency Biased?*, 85 U. CHI. L. REV. 1649, 1658 (2018) (“Kaldor-Hicks efficiency is the typical metric used in law and economics and is the primary subject of this Article.”). For a sampling of other ways, see LUIS M.B. CABRAL, INTRODUCTION TO INDUSTRIAL ORGANIZATION 24–27 (2010) (defining efficiency within organizations as composed of the three separate categories of allocative efficiency, productive efficiency, and dynamic efficiency); David J. Brennan, *Fair Price and Public Goods: A Theory of Value Applied to Retransmission*, 22 INT’L REV. L. & ECON. 347, 354 (2002) (distinguishing between short-run and long-run efficiency); KEITH PILBEAM, FINANCE AND FINANCIAL MARKETS 248 (2005) (categorizing efficiency as allocative, operational, and informational).

23. For a discussion of the history of Pareto efficiency as a concept, see VINCENT J. TARASCIO, PARETO’S METHODOLOGICAL APPROACH TO ECONOMICS (1968); Robert D. Cooter, *The Best Right Laws: Value Foundations of the Economic Analysis of Law*, 64 NOTRE DAME L. REV. 817 (1989). For discussions of the role of fairness in Pareto efficiency, see Howard F. Chang, *A Liberal Theory of Social Welfare: Fairness, Utility, and the Pareto Principle*, 110 YALE L.J. 173 (2000); Louis Kaplow & Steven Shavell, *The Conflict Between Notions of Fairness and the Pareto Principle*, 1 AM. L. & ECON. REV. 63 (1999); Jeremy Waldron, *Locating Distribution*, 32 J. LEGAL STUD. 277 (2003).

Kaldor-Hicks efficiency, which posits that a market is efficient if resources are allocated in such a way that net value is maximized, even if such allocation leaves some actors worse off.²⁴ As long as the benefits to some from a particular distribution of assets outweigh the harm to others from that distribution, the market is considered Kaldor-Hicks efficient. Often, both Pareto and Kaldor-Hicks efficiency are used as improvement criteria, rather than as theoretical descriptions of perfectly efficient markets. In this approach, transactions and interventions are analyzed to determine whether they lead to Pareto improvements—that is, they make some actors better off without leaving any actors worse off—or Kaldor-Hicks improvements—that is, they leave some actors so much better off that the benefited actors could, if they wanted to, fully compensate any actors that are left worse off.

All of these definitions of market efficiency are, of course, rather abstract. In the world of stock markets, though, efficiency has come to take on a substantially more concrete form. One particularly influential application of efficiency to markets, often categorized as “information efficiency,” is the efficient capital markets hypothesis. This hypothesis, first popularized by the economist Eugene Fama, asserts that efficient markets are ones in which prices fully reflect available information.²⁵ To put this another way, efficient markets immediately incorporate relevant information into stock prices. When a company issues a new earnings report outlining high profits for the year, the company’s stock price should adjust to account for this new information. When Brazil reports a drought is devastating coffee crops, this information should affect the stock price of coffee companies that depend on Brazilian coffee beans. When a CEO is thinking about stepping down to spend more time with his family, this information should affect the company’s stock price. One important consequence of an efficient capital market is that traders should not be able to develop profitable

24. See Jules L. Coleman, *Efficiency, Exchange, and Auction: Philosophic Aspects of the Economic Approach to Law*, 68 CALIF. L. REV. 221 (1980); Richard A. Posner, *The Ethical and Political Basis of the Efficiency Norm in Common Law Adjudication*, 8 HOFSTRA L. REV. 487, 491 (1980).

25. See Eugene F. Fama, *Efficient Capital Markets: A Review of Theory and Empirical Work*, 25 J. FIN. 383 (1970) (“A market in which prices always ‘fully reflect’ available information is called ‘efficient.’”).

trading strategies from their knowledge about markets.²⁶ After all, if all available information is quickly reflected in stock prices, then no trader can develop a strategy based on that information to outperform the market—by definition, in an efficient market, all that information has already been “baked in” to stock prices.²⁷ One variation of the efficient capital markets hypothesis asserts that efficient markets are ones in which prices accurately reflect, not just all available information, but the fundamental economic value of stocks.²⁸

But the efficient capital markets hypothesis would not have been as influential as it is if it had simply provided a definition of market efficiency. Its influence resides, instead, on its application of that definition in the world: markets are, in fact, efficient.²⁹ This would be an astounding discovery if it were true. It would mean that our stock exchanges are remarkable institutions, ones that aggregate and transmit global information into financial prices instantaneously and perfectly. It would mean that the world’s best stock traders, hedge fund managers, and investment bankers are simply clueless, muddling along with no advantage over the average investor that knows nothing about stocks or bonds or even finance. It would mean that our capital markets are omnipotent and infallible. Of course, everyone knows that the efficient capital

26. Gilson & Kraakman, *Mechanisms I*, *supra* note 12, at 554–55 (“The common definition of market efficiency . . . is really a shorthand for the empirical claim that ‘available information’ does not support profitable trading strategies or arbitrage opportunities.”).

27. *Id.* at 554.

28. See Lynn A. Stout, *Are Stock Markets Costly Casinos? Disagreement, Market Failure, and Securities Regulation*, 81 VA. L. REV. 611, 646–47 (1995).

29. See Jeffrey N. Gordon & Lewis A. Kornhauser, *Efficient Markets, Costly Information, and Securities Research*, 60 N.Y.U. L. REV. 761, 770–71 (1985) (“[T]he efficient market hypothesis embraces two different kinds of claims: that all relevant information will be available to the market and that the market rapidly, if not instantaneously, digests all information as it becomes available.”). *But see* Ronald J. Gilson & Reinier Kraakman, *Market Efficiency After the Financial Crisis: It’s Still a Matter of Information Costs*, 100 VA. L. REV. 313, 318–20 (2014) (“[T]he informational efficiency of market prices must be understood as relative rather than absolute, that is, that prices respond to new information more or less rapidly rather than instantly or not at all. The speed with which prices reflect a particular ‘bit’ of new information depends on the cost characteristics of the information and the transaction costs of trading on it. Therefore, the ECMH should be understood as a theory about the relative informational efficiency of market prices, which is inherently a context-specific inquiry. . . . However, making prices more informationally efficient will move them in the direction of fundamental efficiency.”).

markets hypothesis is not true.³⁰ Financial markets boom and bust.³¹ Stock prices are subject to fraud and manipulation and irrational exuberance.³² Arbitrage opportunities abound.³³ Insider trading is profitable.³⁴ If this is a perfect reflection of all information, it certainly requires some intellectual contortions to reach this conclusion from the available evidence. In order to account for these problems, scholars have articulated three different forms of the efficient capital market hypothesis, each with slightly more plausible assumptions. The strong form of the hypothesis is the most ambitious one, asserting that stock prices reflect all information.³⁵ This is the classic theory. The semi-strong form, on the other hand, walks that claim back a bit, asserting that prices reflect all *publicly available* information, but not all information everywhere, such as inside information that is known only to corporate executives or employees.³⁶ Insider trading, in this view, is a profitable strategy because insiders possess an informational advantage over other traders, an opportunity they

30. Even one of the foremost proponents of the view, Burton Malkiel, admits as much. See Burton G. Malkiel, *The Efficient Market Hypothesis and Its Critics*, 17 J. ECON. PERSPS. 59, 80 (2003) (“[T]he market cannot be perfectly efficient, or there would be no incentive for professionals to uncover the information that gets so quickly reflected in market prices . . .”). See also Dan Awrey, William Blair & David Kershaw, *Between Law and Markets: Is There a Role for Culture and Ethics in Financial Regulation?*, 38 DEL. J. CORP. L. 191, 197 (2013) (“In reality, of course, complete and perfectly competitive markets exist only in textbooks. Markets have limits. These limits (or market failures) are encountered where: information is costly and asymmetrically distributed; competition is imperfect; the existence of public goods results in underinvestment; and where markets generate negative externalities imposing costs on third parties.”).

31. See Paul Krugman, *How Did Economists Get It So Wrong?*, N.Y. TIMES (Sept. 2, 2009), <https://www.nytimes.com/2009/09/06/magazine/06Economic-t.html> (“The belief in efficient financial markets blinded many if not most economists to the emergence of the biggest financial bubble in history. And efficient-market theory also played a role in inflating that bubble in the first place.”).

32. See Tom C.W. Lin, *Reasonable Investor(s)*, 95 B.U. L. REV. 461, 468–72 (2015).

33. See Gilson & Kraakman, *supra* note 29, at 318 (“A perfect market is one in which prices are fundamentally and informationally efficient. But such a market is just a helpful construct, a useful platform from which to begin the investigation of real markets with numerous frictions (or imperfections) ranging from imperfect information to agency costs and defective market structures.”).

34. See Carlton & Fischel, *supra* note 17, at 859 (“[N]umerous empirical studies have demonstrated that insider trading is widespread and is highly profitable—insiders systematically outperform the market.”).

35. See Jonathan R. Macey & Geoffrey P. Miller, *Good Finance, Bad Economics: An Analysis of the Fraud-on-the-Market Theory*, 42 STAN. L. REV. 1059, 1077–79 (1990).

36. *Id.*

would not possess under the classic version of the theory. The weak form of the hypothesis limits the theory even further, alleging not that markets reflect all information, or even all publicly available information, but merely that they reflect all information from historical stock prices. In this view, it is impossible to predict future stock prices by examining historical stock prices for trends or abnormalities, but it might be possible to do so using current information.³⁷ But regardless of the various forms in which the efficient capital markets hypothesis may be formulated, it is clear that the theory as a general proposition has received widespread support both within the academy and without. Michael Jensen, for example, has said that “there is no other proposition in economics which has more solid empirical evidence supporting it than the Efficient Market Hypothesis.”³⁸

Given the widespread acceptance that efficient markets are normatively desirable, and the somewhat less widespread acceptance that markets are in fact efficient, scholars have spent substantial effort detailing the mechanisms that might lead to efficiency, or at least greater efficiency. One particularly influential approach focuses on the importance of information costs.³⁹ If investors possess full information, markets should rapidly, if not immediately, respond to changes in the real world. If a company’s stock falls below its fundamental value, then a rational investor will buy it, knowing that he can turn a profit when the stock price returns to its inherent price. If a financial asset is overvalued, then investors can gain by selling or shorting the asset. Other important mechanisms of inefficiency include broader market failures.⁴⁰ Common market failures include monopolies, externalities, information asymmetries, and public goods—the presence of any of which may prevent the actions of dispersed buyers and sellers from maximizing collective value.⁴¹ Yet another approach has been to focus on “transaction costs” as the primary

37. *Id.*

38. Michael C. Jensen, *Some Anomalous Evidence Regarding Market Efficiency*, 6 J. FIN. ECON. 95, 95 (1978).

39. See Gilson & Kraakman, *Mechanisms I*, *supra* note 12, at 597 (“If, as we argue, capital market efficiency is a function of information costs, then economizing on information costs pushes the capital market in the direction of greater efficiency.”).

40. See Lynn A. Stout, *The Mechanisms of Market Inefficiency: An Introduction to the New Finance*, 28 J. CORP. L. 635 (2003).

41. See F.M. Scherer, *Antitrust, Efficiency, and Progress*, 62 N.Y.U. L. REV. 998 (1987).

cause of market inefficiency.⁴² These terms have some overlap and contain more than their fair share of ambiguity themselves, but the common insight behind all of them is that certain market structures alternately promote or impede market efficiency.⁴³ Information is essential to the development of efficient markets, but in many industries gathering, distributing, and analyzing information can be tremendously costly. Rational investors assist the development of efficiency within a market, but many investors exhibit behavioral biases and, in the case of institutional investors, may have misalignments between the rational interest of the investor and the agent or employee tasked with implementing strategies. Low transaction costs help facilitate efficiency, but drafting and negotiating agreements can be expensive.⁴⁴

One of the fundamental insights of this vast body of scholarship on market efficiency is that law is essential in establishing and maintaining efficient markets, whether that term is understood as meaning economically efficient markets or informationally efficient ones.⁴⁵ We know that investors are not always rational. We know that information can be imperfect and incomplete. We know that transaction costs can be high. For all these reasons, markets *in the world*, as opposed to in theory, do not always gravitate towards perfect efficiency. As a result, government regulators have a role to play in making markets more efficient. They can seek to eliminate or reduce dominant market power.⁴⁶ They can mitigate harmful externalities.⁴⁷ And they can promote greater disclosure

42. See R.H. COASE, *THE FIRM, THE MARKET, AND THE LAW* 15 (1988) (“What my argument does suggest is the need to introduce positive transaction costs explicitly into economic analysis so that we can study the world that exists.”).

43. Compare Peter L. Swan, *The Coase Theorem and ‘Sequential’ Pareto Optimality*, 51 *ECON. REC.* 268, 270 (1975) (defining transaction costs as “anything which might prevent the achievement of a Pareto optimum solution”), with Carl J. Dahlman, *The Problem of Externality*, 22 *J.L. & ECON.* 141, 148 (1979) (defining transaction costs as “search and information costs, bargaining and decision costs, policing and enforcement costs,” which are all “resource losses due to lack of information.”).

44. See generally Kathryn Judge, *The New Mechanisms of Market Inefficiency*, 45 *J. CORP. L.* 915 (2020) (describing the importance of information costs in markets); Dan Awrey, *The Mechanisms of Derivatives Market Efficiency*, 91 *N.Y.U. L. REV.* 1104 (2016).

45. See Posner, *supra* note 24, at 487.

46. But see Rory Van Loo, *Making Innovation More Competitive: The Case of Fintech*, 65 *UCLA L. REV.* 232, 232 (2018) (arguing that “the current competition policy framework is holding back consumer financial innovation.”).

47. See Steven L. Schwarcz, *Regulating Shadows: Financial Regulation and Responsibility Failure*, 70 *WASH. & LEE L. REV.* 1781 (2013).

of information.⁴⁸ All of these interventions might lead to greater efficiency than could be achieved through market mechanisms alone. Indeed, the history of financial regulation is, in many ways, a history of efforts to do precisely this.

B. Regulating Efficiency

Financial regulation has historically focused on three core goals: efficiency, fairness and stability.⁴⁹ From an efficiency standpoint, financial regulation seeks to ensure that capital is allocated efficiently—that actors who possess surplus capital can transfer that capital cheaply and quickly to actors who need it.⁵⁰ From a fairness standpoint, financial regulation seeks to protect consumers from fraud, abuse, and other unfair financial practices.⁵¹ And from a stability standpoint, financial regulation seeks to promote stable financial markets, ones that are less likely to create systemic risks for the broader economy.⁵² But over time, financial regulators have focused more and more attention on efficiency, and less and less on fairness and stability.⁵³

48. See John C. Coffee Jr., *Market Failure and the Economic Case for a Mandatory Disclosure System*, 70 VA. L. REV. 717 (1984).

49. *But see* JOHN ARMOUR, DAN AWREY, PAUL DAVIES, LUCA ENRIQUES, JEFFREY N. GORDON, COLIN MAYER & JENNIFER PAYNE, *PRINCIPLES OF FINANCIAL REGULATION* 51–79 (2016) (identifying six goals of financial regulation: protection of investors, financial stability, market efficiency, competition, the prevention of financial crime and fairness).

50. See EUGENE F. FAMA & MERTON H. MILLER, *THE THEORY OF FINANCE* 3–15 (1972); Joseph E. Stiglitz, *The Allocation Role of the Stock Market: Pareto Optimality and Competition*, 36 J. FIN. 235, 235 (1981); Fama, *supra* note 25, 383; JOHN ARMOUR ET AL., *supra* note 49, at 22–51. *But see* Robert B. Ahdieh, *Making Markets: Network Effects and the Role of Law in the Creation of Strong Securities Markets*, 76 S. CALIF. L. REV. 277, 284–85 (2003) (“While securities markets have been described to serve a variety of functions, two stand out. These are the provision of liquidity, to both investors and corporate enterprises, and the facilitation of efficient price discovery. Other functions, most significantly the efficient allocation of scarce capital, are best understood as arising from this pair.”).

51. See William O. Douglas, *Protecting the Investor*, 23 YALE L. REV. 522 (1934); Colleen Honigsberg, Robert J. Jackson, Jr., & Yu-Ting Forester Wong, *Mandatory Disclosure and Individual Investors: Evidence from the JOBS Act*, 93 WASH. U.L. REV. 293 (2015).

52. See John C. Coffee, Jr., *Systemic Risk After Dodd-Frank: Contingent Capital and the Need for Regulatory Strategies Beyond Oversight*, 111 COLUM. L. REV. 795 (2011); Hal S. Scott, *Reducing Systemic Risk Through Reform of Capital Regulation*, 13 J. INT’L ECON. L. 763 (2010); Henry T.C. Hu, *Disclosure Universes and Modes of Information: Banks, Innovation, and Divergent Regulatory Quests*, 31 YALE J. ON REG. 565 (2014).

53. This shift has partially been driven by legislation. In 1996, for example, Congress passed the National Securities Markets Improvements Act, which, among other things,

One of the pillars of financial regulation is mandatory public disclosure, and disclosure obligations have slowly increased and broadened over the last several decades.⁵⁴ The securities laws of 1933 and 1934, seeking to restore U.S. capital markets after the Wall Street Crash of 1929, used as their primary tool a set of mandatory disclosure rules, requiring companies to provide investors with

amended the Securities Act of 1933, the Securities Exchange Act of 1934, and the Investment Company Act of 1940 to require the SEC to “consider, in addition to the protection of investors, whether [an] action will promote efficiency, competition, and capital formation.” National Securities Markets Improvement Act of 1996, Pub. L. No. 104-290, § 106, 110 Stat. 3416, 3424–25 (1996). See also Robert B. Ahdieh, *Reanalyzing Cost-Benefit Analysis: Toward a Framework of Function(s) and Form(s)*, 88 N.Y.U. L. REV. 1983 (2013). The Commodity Futures Modernization Act of 2000 similarly required the CFTC to consider the costs and benefits of its rules “in light of . . . considerations of the efficiency, competitiveness, and financial integrity of futures markets.” H.R. 5660, 106th Cong. § 119 (2000) (codified at 7 U.S.C. § 19(a) (2006)). See also James D. Cox & Benjamin J.C. Baucom, *The Emperor Has No Clothes: Confronting the D.C. Circuit’s Usurpation of SEC Rulemaking Authority*, 90 TEX. L. REV. 1811 (2012). The shift towards efficiency-based regulation has also been mirrored in other areas of the law, including copyright law and energy policy. See Oren Bracha & Talha Syed, *Beyond Efficiency: Consequence-Sensitive Theories of Copyright*, 29 BERKELEY TECH. L.J. 229, 232 (2014) (“[T]he framework of economics has taken a front seat in American debates on copyright law and policy. Thus, in his seminal 1970 article *The Uneasy Case for Copyright*, Justice Breyer observed that ‘none of the noneconomic goals served by copyright law seems an adequate justification for a copyright system.’ The trend intensified with the rise to preeminence of the law-and-economics school in American legal culture, especially in fields of private law. Economics, either in the form of formalized analyses of efficiency or in a looser guise under the notion of ‘innovation,’ became the predominant normative framework for American copyright.”); David B. Spence, *Naïve Energy Markets*, 92 NOTRE DAME L. REV. 973, 976 (2017) (arguing that “[t]he trend toward competition, market pricing and less regulation in the energy industry embraces the logic and elegance of markets”).

54. The desirability of disclosure rules in securities regulation is a matter of hot debate. See, e.g., HOMER KRIPKE, *THE SEC AND CORPORATE DISCLOSURE: REGULATION IN SEARCH OF A PURPOSE* (1979); George J. Benston, *Required Disclosure and the Stock Market: An Evaluation of the Securities Exchange Act of 1934*, 63 AM. ECON. REV. 132 (1973); Bernard S. Black, *The Legal and Institutional Preconditions for Strong Securities Markets*, 48 UCLA L. REV. 781 (2001); Stephen J. Choi & Andrew T. Guzman, *Portable Reciprocity: Rethinking the International Reach of Securities Regulation*, 71 S. CAL. L. REV. 903 (1998); Allen Ferrell, *The Case for Mandatory Disclosure in Securities Regulation Around the World*, 2 BROOK. J. CORP. FIN. & COM. L. 81 (2007); Merritt B. Fox, *Retaining Mandatory Securities Disclosure: Why Issuer Choice Is Not Investor Empowerment*, 85 VA. L. REV. 1335 (1999); Henry T.C. Hu, *Financial Innovation and Governance Mechanisms: The Evolution of Decoupling and Transparency*, 70 BUS. LAW. 347 (2015); Marcel Kahan, *Securities Laws and the Social Costs of “Inaccurate” Stock Prices*, 41 DUKE L.J. 977 (1992); Jonathan R. Macey, *Administrative Agency Obsolescence and Interest Group Formation: A Case Study of the SEC at Sixty*, 15 CARDOZO L. REV. 909 (1994); Roberta Romano, *Empowering Investors: A Market Approach to Securities Regulation*, 107 YALE L.J. 2359 (1998); George J. Stigler, *Public Regulation of the Securities Markets*, 37 BUS. LAW. 721 (1964); Troy A. Paredes, *Blinded by the Light: Information Overload and Its Consequences for Securities Regulation*, 81 WASH. U.L.Q. 417 (2003).

accurate and comprehensive information about their businesses. As William O. Douglas, the future commissioner of the Securities and Exchange Commission, wrote in 1933, “All the [Securities] Act pretends to do is to require the ‘truth about securities’ at the time of issue, and to impose a penalty for failure to tell the truth. Once it is told, the matter is left to the investor.”⁵⁵ A similar approach underlies future legislation to govern the path of finance. The Williams Act of 1968, enacted in response to concerns about a wave of hostile acquisitions, imposed greater disclosures on acquirers seeking to make tender offers.⁵⁶ The Sarbanes-Oxley Act of 2002, passed in response to the accounting scandals of Enron and other companies in the late 1990s, required greater controls over disclosure procedures and imposed criminal penalties on corporate officers for violations.⁵⁷ The Dodd-Frank Act of 2010, passed after the financial crisis of 2008, added disclosure requirements regarding the use of conflict minerals.⁵⁸ Similar disclosure rules have been enacted regarding derivatives,⁵⁹ banking products,⁶⁰ investment advice,⁶¹ mortgages,⁶² credit cards⁶³ and many other financial instruments. The principle underlying all these rules is that information is difficult and costly to gather and analyze, that the absence of it leads to a variety of harms, and that requiring its production will lead to better-functioning and more efficient

55. William O. Douglas & George E. Bates, *The Federal Securities Act of 1933*, 43 YALE L. J. 171, 171 (1933).

56. See Lyman Johnson & David Millon, *Misreading the Williams Act*, 87 MICH. L. REV. 1862 (1989).

57. John C. Coates IV, *The Goals and Promise of the Sarbanes-Oxley Act*, 21 J. ECON. PERSPS. 91 (2007).

58. See David M. Lynn, *The Dodd-Frank Act’s Specialized Corporate Disclosure: Using the Securities Laws to Address Public Policy Issues*, 6 J. BUS. & TECH. L. 327 (2011).

59. See Sean J. Griffith, *Substituted Compliance and Systemic Risk: How to Make a Global Market in Derivatives Regulation*, 98 MINN. L. REV. 1291 (2014).

60. See Edward L. Rubin, *Legislative Methodology: Some Lessons from the Truth-in-Lending Act*, 80 GEO. L.J. 233 (1991); Omri Ben-Shahar & Carl E. Schneider, *The Failure of Mandated Disclosure*, 159 U. PENN. L. REV. 647 (2011).

61. See Jill E. Fisch, *Rethinking the Regulation of Securities Intermediaries*, 158 U. PA. L. REV. 1961 (2010); Anita K. Krug, *Downstream Securities Regulation*, 94 B.U. L. REV. 1589 (2014).

62. See William N. Eskridge, Jr., *One Hundred Years of Ineptitude: The Need for Mortgage Rules Consonant with the Economic and Psychological Dynamics of the Home Sale and Loan Transaction*, 70 VA. L. REV. 1083 (1984); Patricia A. McCoy, *Rethinking Disclosure in a World of Risk-Based Pricing*, 44 HARV. J. ON LEGIS. 123 (2007).

63. See Todd J. Zywicki, *The Market for Information and Credit Card Regulation*, 28 No. 1 BANKING & FIN. SERVS. POL’Y REP. 13 (2009).

financial markets.⁶⁴ With proper information, market actors will make more rational decisions and engage in more mutually beneficial transactions.⁶⁵

A second pillar of financial regulation is stability. The overriding focus on stability has always been something unique to financial law and one that derives from finance's most important externality—its tendency to create systemic risk.⁶⁶ Systemic risk generally refers to the likelihood that shocks within one industry will ripple out to affect other industries.⁶⁷ It has long been known that financial institutions have a disturbing penchant for creating systemic risk, from the bank runs of the early twentieth century to the “too big to fail” phenomenon of the last decade.⁶⁸ Many of history's worst economic crises have stemmed from the financial sector.⁶⁹ As a result, and often as a direct response to financial crisis, financial regulation has developed extensive rules aimed at improving stability and reducing systemic risk.⁷⁰ Capital requirements force banks to hold liquid assets in order to reduce the likelihood of banking panics and increase banks' ability to

64. See John C. Coffee, Jr., *supra* note 48; Paul G. Mahoney, *Mandatory Disclosure as a Solution to Agency Problems*, 62 U. CHI. L. REV. 1047, 1051 (1995).

65. For a critique of this view, see Henry T.C. Hu, *Too Complex to Depict? Innovation, “Pure Information,” and the SEC Disclosure Paradigm*, 90 TEX. L. REV. 1601, 1602 (2012) (arguing that innovations in financial markets have led traditional disclosures to “offer little more than shadowy, gross outlines of the objective reality, however that reality might be conceived”).

66. See Adam J. Levitin, *The Politics of Financial Regulation and the Regulation of Financial Politics: A Review Essay*, 127 HARV. L. REV. 1991 (2014) (exploring the effectiveness of the financial regulatory system at reining in systemic risk); Hilary J. Allen, *Putting the “Financial Stability” in Financial Stability Oversight Council*, 76 OHIO ST. L.J. 1087, 1088 (2015) (arguing that “financial stability should take precedence over efficiency in terms of regulatory goals”).

67. See Steven L. Schwarcz, *Systemic Risk*, 97 GEO. L.J. 193 (2008); Hal S. Scott, *The Reduction of Systemic Risk in the United States Financial System*, 33 HARV. J.L. & PUB. POL'Y 671, 673 (2010).

68. See Jonathan R. Macey & James P. Holdcroft, Jr., *Failure Is an Option: An Ersatz-Antitrust Approach to Financial Regulation*, 120 YALE L.J. 1368 (2011); Adam J. Levitin, *In Defense of Bailouts*, 99 GEO. L.J. 435 (2011); Steven L. Schwarcz, *Markets, Systemic Risk, and the Subprime Mortgage Crisis*, 61 SMU L. REV. 209 (2008); Kathryn Judge, *Fragmentation Nodes: A Study in Financial Innovation, Complexity, and Systemic Risk*, 64 STAN. L. REV. 657 (2012); Mark J. Roe, *Clearinghouse Overconfidence*, 101 CALIF. L. REV. 1641 (2013); Daniel Schwarcz & David Zaring, *Regulation by Threat: Dodd-Frank and the Nonbank Problem*, 84 U. CHI. L. REV. 1813 (2017); Scott, *supra* note 67, at 671.

69. See ROBERT Z. ALIBER & CHARLES P. KINDLEBERGER, *MANIAS, PANICS, AND CRASHES: A HISTORY OF FINANCIAL CRISES* (7th ed. 2015).

70. See Roberta Romano, *Regulating in the Dark and a Postscript Assessment of the Iron Law of Financial Regulation*, 43 HOFSTRA L. REV. 25, 25 (2014) (“[F]oundational financial legislation tends to be enacted in a crisis setting . . .”).

withstand losses.⁷¹ The Volcker Rule prohibits banks from engaging in proprietary trading, under the assumption that such activity is risky and threatens banks' other business operations.⁷² Dodd-Frank required complex derivatives to trade on centralized clearinghouses and exchanges in order to pool and reduce risks.⁷³ Banks now undergo regular stress testing by the Federal Reserve in order to examine and, ideally, rectify vulnerabilities.⁷⁴ The SEC, in order to reduce market shocks, has implemented circuit breaker rules that temporarily halt trading in particular stocks if they undergo large price changes.⁷⁵ Today nearly all of these rules are firmly grounded in the idea that systemic risk presents an efficiency problem.⁷⁶ Systemic risk is framed as a form of externality, a harm that financial institutions impose on other parties and that is not fully internalized in the financial sector itself.⁷⁷ By requiring financial institutions to implement measures that reduce their

71. See Prasad Krishnamurthy, *Rules, Standards, and Complexity in Capital Regulation*, 43 J. LEGAL STUD. 5273 (2014).

72. See John C. Coates IV, *Cost-Benefit Analysis of Financial Regulation: Case Studies and Implications*, 124 YALE L. J. 882, 975-78 (2015); John C. Coffee, Jr., *The Political Economy of Dodd-Frank: Why Financial Reform Tends to Be Frustrated and Systemic Risk Perpetuated*, 97 CORNELL L. REV. 1019 (2012).

73. See Yesha Yadav, *The Problematic Case of Clearinghouses in Complex Markets*, 101 GEO. L.J. 387 (2013); Kristin N. Johnson, *Clearinghouse Governance: Moving Beyond Cosmetic Reform*, 77 BROOK. L. REV. 681 (2012).

74. See Mehra Baradaran, *Regulation by Hypothetical*, 67 VAND. L. REV. 1247 (2014).

75. See Frank Partnoy, *Don't Blink: Snap Decisions and Securities Regulation*, 77 BROOK. L. REV. 151 (2011); Charles R. Korsmo, *High-Frequency Trading: A Regulatory Strategy*, 48 U. RICH. L. REV. 523 (2014).

76. See, e.g., FINANCIAL STABILITY OVERSIGHT COUNCIL, *STUDY OF THE EFFECTS OF SIZE AND COMPLEXITY OF FINANCIAL INSTITUTIONS ON CAPITAL MARKET EFFICIENCY AND ECONOMIC GROWTH* 22 (2011) ("A fast and efficient resolution regime can dampen loan supply shocks due to a failure of a financial institution. Efficient resolutions also enhance trust in the soundness of the financial system, which is crucial to the efficiency of capital markets."); Schwarcz, *supra* note 67, at 206 ("Because systemic risk is a form of financial risk, efficiency should be a central goal in regulating systemic risk. Without regulation, the externalities caused by systemic risk would not be prevented or internalized because the motivation of market participants 'is to protect themselves but not the system as a whole.'"); David Min, *Understanding the Failures of Market Discipline*, 92 WASH. U. L. REV. 1421, 1427-28 (2015) (footnotes omitted) ("The theory of market discipline in banking is related to the efficient markets hypothesis and generally asserts that depositors (and similarly situated investors) can rein in the risk taken by banks through market-based mechanisms.").

77. See PRESIDENT'S WORKING GRP. ON FIN. MKTS., *HEDGE FUNDS, LEVERAGE, AND THE LESSONS OF LONG TERM CAPITAL MANAGEMENT* 31 (1999).

systemic risk, regulators assert that they are improving the efficiency of our financial markets.⁷⁸

Fairness, too, has succumbed to the allure of efficiency. To protect consumers, it is often asserted today, we simply need to give them better information.⁷⁹ The Nobel Prize-winning economist George Stigler wrote in 1975 that “efficient capital markets *are* the major protection of investors.”⁸⁰ That sentiment is regularly echoed by financial regulators. Consider, for example, the Consumer Financial Protection Bureau (CFPB), whose mission is to “mak[e] sure you are treated fairly by banks, lenders and other financial institutions.”⁸¹ The Dodd-Frank Act empowered the CFPB to enact rules to prevent unfair, deceptive or abusive acts or practices in the financial industry.⁸² But in its examination manual devoted to

78. See, e.g., Mary L. Schapiro, Chairman, SEC, *Building a Stable and Efficient Financial System* (May 8, 2009), <https://www.sec.gov/news/speech/2009/spch050809m1s.htm> (“Despite the economic devastation of the 1930s, the New Deal reformers possessed the wisdom and foresight to recognize that competitive capital markets are essential to allocate risk efficiently and promote economic prosperity. They did not attempt to banish risk from the capital markets; instead, they fashioned a regulatory structure that would channel competitive forces to manage risk efficiently. Stable markets that manage risk and allocate capital effectively are essential for economic prosperity.”).

79. See Hester M. Peirce, Comm’r, SEC, *Market Data Infrastructure: Open Meeting Statement* (Dec. 9, 2020), <https://www.sec.gov/news/public-statement/peirce-market-data-infrastructure-open-meeting-statement> (“Today’s rulemaking is, at its core, about getting to as many market participants as possible the information they need to trade and getting it to them fast.”); Allison Herren Lee, Comm’r, SEC, *Statement on Rules Governing the Disclosure of Payments by Resource Extraction Issuers* (Dec. 16, 2020), <https://www.sec.gov/news/public-statement/lee-resource-extraction-2020-12-16> (“The statutory mandate under which we act today is fundamentally about transparency. Enhancing transparency to promote accountability and fight corruption. . . . In other words, empowering citizens through information. That goal is in keeping with the United States’ long history as a leader in international efforts to combat corruption.”); Holger Spamann, *Indirect Investor Protection: The Investment Ecosystem and Its Legal Underpinnings*, 14 J. LEGAL ANALYSIS 16, 18 (2022) (“[C]ompetition between speculators ensures that public market prices for stocks and other liquid securities are at least roughly equal to their fundamental value, obviating the need for careful selection of assets—including their governance—by investors and their agents.”).

80. GEORGE J. STIGLER, *THE CITIZEN AND THE STATE* 88 (1975). See also *Bond Price Competition Improvement Act of 1999: Hearing Before the Subcomm. on Fin. & Hazardous Materials of the H. Comm. on Com. on H.R. 1400*, 106th Cong. 9 (1999) (statement of Hon. Arthur Levitt, Chairman, SEC) (“Informed investors, armed with accurate information, ensure that market prices represent fair values. And fair market prices, in turn, ensure that the markets perform their economic function of efficiently allocating capital resources.”).

81. See CONSUMER FIN. PROT. BUREAU, <https://www.consumerfinance.gov> (last visited Nov. 1, 2022).

82. Dodd-Frank Act, Pub. L. No. 111-203, § 1031, 124 Stat. 1376, 2005-06 (2010).

identifying unfair acts, the CFPB explains that “[n]ormally the marketplace is self-correcting; it is governed by consumer choice and the ability of individual consumers to make their own private decisions without regulatory intervention.”⁸³ But if “material information about a product, such as pricing” is not disclosed to investors, the practice may be unfair because “[c]onsumers cannot reasonably avoid injury if the act or practice interferes with their ability to effectively make decisions.”⁸⁴ The SEC has similarly turned investor protection into simply an exercise in information production. While the SEC often touts its tripartite mission—market integrity, capital formation, and investor protection—it sometimes clarifies that investor protection amounts to nothing more than protection from undisclosed risk.⁸⁵ The apotheosis of the efficiency-oriented view of fairness came in 2001 when the SEC promulgated its “Regulation Fair Disclosure,” a rule that sought to prevent corporations from unfairly providing some investors early access to information. In justifying the rule, the SEC wrote that:

The primary issue is the basic unfairness of providing a select few with a significant informational advantage over the rest of the market. This unfairness damages investor confidence in the integrity of our capital markets. To the extent some investors decide not to participate in our markets as a result, the markets lose a measure of liquidity and efficiency, and the costs of raising equity capital are increased.⁸⁶

In other words, the problem with unfairness is that it is simply inefficient.

The focus on market efficiency has also worked its way into the judiciary. In *Dirks v. S.E.C.*, a foundational insider trading case decided by the Supreme Court in 1983, the Supreme Court declined to hold an investment analyst liable for insider trading at least in part due to the Court’s understanding of the market efficiency gains derived from incentivizing analysts to “ferret out

83. CONSUMER FIN. PROT. BUREAU, UNFAIR, DECEPTIVE, OR ABUSIVE ACTS OR PRACTICES (UDAAPS) EXAMINATION PROCEDURES 2 (Mar. 16, 2022).

84. *Id.*

85. See SECURITIES AND EXCHANGE COMMISSION, PROTECTING INVESTORS: PERFORMANCE AND ACCOUNTABILITY HIGHLIGHTS (2004).

86. *Written Statement Concerning Regulation Fair Disclosure*, U.S. SEC. AND EXCH. COMM’N (May 17, 2001), <https://www.sec.gov/news/testimony/051701wssec.htm>.

and analyze information.”⁸⁷ In *Basic Inc. v. Levinson*, a case testing the limits of liability for false or deceptive disclosures by companies, the Supreme Court adopted a “fraud-on-the-market” theory that closely mirrored the efficient capital markets hypothesis, stating that “[r]ecent empirical studies have tended to confirm . . . that the market price of shares traded on well-developed markets reflects all publicly available information, and, hence, any material misrepresentations.”⁸⁸ In a long line of cases, Delaware courts have viewed stock market price and deal price as the most reliable indicator of a company’s value, an implicit endorsement of the efficiency of markets.⁸⁹ All of these judicial rulings are united by a single theme. They prioritize efficiency as a policy aim and place great weight on financial markets as a purveyor and guarantor of that efficiency.

I do not want to overstate my case here. Financial regulators have many goals, and not all of them are centered on efficiency. The Federal Reserve seeks, among other things, to promote maximum employment, consumer protection, and community development.⁹⁰ The SEC seeks to maintain “fair, orderly and efficient markets.”⁹¹ The Commodity Futures Trading Commission (CFTC) states that its mission is to “promote the integrity, resilience, and vibrancy” of the U.S. derivatives markets.⁹² The CFPB aims to “make consumer financial markets work for consumers, responsible providers, and the economy as a whole.”⁹³ But it is a rare thing to find a financial rule that is not in some way

87. *Dirks v. SEC*, 463 U.S. 646, 658 (1983).

88. *Basic Inc. v. Levinson*, 485 U.S. 224, 246 (1988). See also Ann M. Lipton, *Searching for Market Efficiency*, 57 ARIZ. L. REV. 71, 82 (2015) (“Courts cling to the ‘efficiency’ criterion because without it, any price at all can be the source of purchaser ‘reliance.’ Such a result could easily interject courts into the dangerous area of simply policing prices.”) (emphasis omitted).

89. See Charles Korsmo & Minor Myers, *The Flawed Corporate Finance of Dell and DFC Global*, 68 EMORY L.J. 221 (2018); Alex Pena & Brian J.M. Quinn, *Appraisal Confusion: The Intended and Unintended Consequences of Delaware’s Nascent Pristine Deal Process Standard*, 103 MARQ. L. REV. 457 (2019); Robert T. Miller, *Stock Market Value and Deal Value in Appraisal Proceedings*, 96 NOTRE DAME L. REV. 1403 (2021); William J. Carney & Keith Sharfman, *The Death of Appraisal Arbitrage: Ending Windfalls for Deal Dissenters*, 43 DEL. J. CORP. L. 61 (2018).

90. See FEDERAL RESERVE SYSTEM, *THE FED EXPLAINED* 1 (2021).

91. *What We Do*, U.S. SEC. AND EXCH. COMM’N, <https://www.sec.gov/about/what-we-do> (Nov. 22, 2021).

92. See *About the CFTC: The Commission*, COMMODITY FUTURES TRADING COMM’N, <https://www.cftc.gov/About/AboutTheCommission> (last visited Nov. 1, 2022).

93. *The Bureau*, CONSUMER FIN. PROT. BUREAU, <https://www.consumerfinance.gov/about-us/the-bureau/> (last visited Nov. 1, 2022).

grounded in market efficiency, and the regulatory tools for governing financial markets have trended heavily in favor of broad-based disclosure rules and, somewhat less frequently, market failure-oriented interventions.

C. Efficiency's Omissions

What could possibly be objectionable about an efficient market? Why would we not want our laws to encourage efficiency? Isn't it callous to ignore human satisfaction? These are some of the common responses to the idea that efficiency is flawed. Judging from the statements of our politicians, regulators and courts, efficiency certainly seems to have gained nearly universal approbation. The problem with efficiency, though, is that it is dangerously incomplete as a concept, difficult to implement as a policy, and damaging to social structure as a goal. None of these problems are inevitable – indeed, under at least some definitions of efficiency, all of them would, by their very existence, mean that “efficiency” is inefficient – but they have developed in practice as a result of the slow accretion and interaction of law, scholarship, and markets. The pursuit of market efficiency has skewed our regulations in ways that would have been hard to predict at the turn of the century and has led to the emergence of market practices that would be hard to describe as anything but exploitation. As it is understood by regulators and scholars today, efficiency simply leaves out many important values that markets and society need to flourish.

It is nothing new to point out that the concept of market efficiency is rife with ambiguity and contradiction.⁹⁴ Some scholars have argued that many (perhaps most) private transactions often affect wider public interests – i.e., create externalities – that law has a role in addressing.⁹⁵ Others, including Ronald Coase, argue that externalities – a classic market failure in mainstream economic theory – should not impede market efficiency so long as parties have the capacity to bargain among themselves to prevent

94. See, e.g., William H. Beaver, *Market Efficiency*, 56 ACCT. REV. 23, 32 (1981).

95. See, e.g., David A. Hoffman & Cathy Hwang, *The Social Cost of Contract*, 121 COLUM. L. REV. 979, 979 (2021) (arguing that contracts are “bargains that always implicitly involve the public”).

their harm.⁹⁶ Still others argue that transaction costs as an entire category are simply not useful for analyzing market efficiency.⁹⁷ In the field of capital markets, several scholars have argued that efficient markets are impossible even in theory because the very thing that makes markets efficient (traders seeking out profit by identifying mispriced assets) would be eliminated if markets reached perfect efficiency.⁹⁸ Indeed, some of the primary scholars of the efficient capital markets hypothesis have recognized that the theory does not hold true in a variety of circumstances.⁹⁹ Empirical studies have similarly identified “anomalies” in which markets have shown higher returns for particular strategies.¹⁰⁰ Still more problems go to the question of measurement. Even assuming that market efficiency is sufficiently definite that we can pursue it as a regulatory goal, unless we accept market price as the equivalent of efficiency, policymakers, regulators and courts simply do not have very good tools to accurately measure and evaluate efficiency.¹⁰¹ Instead, they tend to fall back on default mechanisms such as producing information, preventing monopolies, and identifying negative externalities.¹⁰² These might well be useful tools, but they are a far cry from the goal of “maximizing human satisfaction.”

96. Coase, *The Problem of Social Cost*, *supra* note 19, at 1–2.

97. See Lee Anne Fennell, *The Problem of Resource Access*, 126 HARV. L. REV. 1471, 1474 (2013) (“[T]ransaction costs do not comprise a useful category for legal scholars interested in the efficiency implications of property arrangements.”).

98. Sanford J. Grossman & Joseph E. Stiglitz, *On the Impossibility of Informationally Efficient Markets*, 70 AM. ECON. REV. 393, 393 (1980).

99. See William F. Sharpe, *Capital Asset Prices with and Without Negative Holdings*, 46 J. FIN. 489 (1991).

100. See Nicholas Barberis & Richard Thaler, *A Survey of Behavioral Finance*, in HANDBOOK OF THE ECONOMICS OF FINANCE 1051, 1085 (G.M. Constantinides et al. eds., 2003).

101. See Maurice E. Stucke, *Reconsidering Antitrust’s Goals*, 53 B.C. L. REV. 551, 578 (2012) (concluding that “one cannot accurately calculate, given current economic tools, the merger’s impact on allocative, productive, and dynamic efficiencies”).

102. See, e.g., Alan Schwartz & Louis L. Wilde, *Intervening in Markets on the Basis of Imperfect Information: A Legal and Economic Analysis*, 127 U. PA. L. REV. 630, 631 (1979) (“[N]ormative objections to enforcing contracts made by imperfectly informed consumers are generally unjustified when those contracts concern goods exchanged in competitive markets. A decision to intervene, either to regulate contract terms or to require information disclosure, therefore cannot be sustained by a showing that an appreciable number of consumers are uninformed; rather, the normative question should be whether the existence of imperfect information has produced noncompetitive prices and terms.”); Brooke D. Coleman, *The Efficiency Norm*, 56 B.C. L. REV. 1777, 1778 (2015) (arguing that, in the context of civil litigation, “the focus on simple costs too narrowly defines efficiency and incorrectly

But setting aside the ambiguities and disagreements within the concept of market efficiency itself, there are other, more fundamental problems with the pursuit of market efficiency as a regulatory goal. Efficiency is only one of the many values that people hold. We might well have a system that generates greater wealth (and thus maximizes “willingness to pay”) but does harm to these other values. There is, of course, a long and distinguished literature on the conflict between efficiency and fairness.¹⁰³ But other conflicts exist as well: with justice, equality, dignity, virtue, autonomy, or any number of other conceptions of the “good life.”¹⁰⁴ If the pursuit of market efficiency crowds out these other regulatory goals, it can lead to a host of undesirable outcomes, even if it achieves its aim of free, competitive markets.¹⁰⁵ In other words, efficiency may well be a good, but it is not the sole good, in an ideal republic. It might, for example, lead to growing wealth

excludes a comprehensive set of costs that, although more difficult to quantify, are critical to an accurate measure of efficiency”).

103. See, e.g., JOHN RAWLS, *A THEORY OF JUSTICE* 230 (Harv. U. Press, rev. ed., 1999) (1971) (“Once the principles of justice are derived, however, the contract doctrine does establish certain limits on the conception of the good. These limits follow from the priority of justice over efficiency and the priority of liberty over social and economic advantages. . . . For as I remarked earlier . . . , these priorities mean that desires for things that are inherently unjust, or that cannot be satisfied except by the violation of just arrangements, have no weight. There is no value in fulfilling these wants and the social system should discourage them.”); JEREMY WALDRON, *THE RIGHT TO PRIVATE PROPERTY* 253–83 (1988); ROBERT NOZICK, *ANARCHY, STATE, AND UTOPIA* 153–55 (1974); Frank I. Michelman, *Property, Utility, and Fairness: Comments on the Ethical Foundations of “Just Compensation” Law*, 80 HARV. L. REV. 1165 (1967); Christine Jolls, Cass R. Sunstein & Richard Thaler, *A Behavioral Approach to Law and Economics*, 50 STAN. L. REV. 1471 (1998); Louis Kaplow & Steven Shavell, *Fairness versus Welfare*, 114 HARV. L. REV. 961 (2001); KENNETH J. ARROW, *SOCIAL CHOICE AND INDIVIDUAL VALUES* (1951); L.W. SUMNER, *WELFARE, HAPPINESS, AND ETHICS* (1996); Laurence H. Tribe, *Constitutional Calculus: Equal Justice or Economic Efficiency?*, 98 HARV. L. REV. 592, 594 (1985).

104. See Guido Calabresi & A. Douglas Melamed, *Property Rules, Liability Rules, and Inalienability: One View of the Cathedral*, 85 HARV. L. REV. 1089, 1098–1105 (1972) (describing a variety of societal values that conflict with efficiency); Martha Nussbaum & Amartya Sen, *Introduction*, in *THE QUALITY OF LIFE* 1, 2 (Martha Nussbaum & Amartya Sen eds., 1993) (“Most social scientists and economists would agree . . . that GNP per capita is a crude and incomplete measure of quality of life”); MARTHA C. NUSSBAUM, *FRONTIERS OF JUSTICE* 75–78 (2006). For an excellent summary of the core divergence between instrumental and relational views of law, see Jacob Eisler, *The Limits and Promise of Instrumental Legal Analysis*, 47 J. L. & SOC’Y 499 (2020).

105. See Calabresi & Melamed, *supra* note 104, at 1098.

disparities,¹⁰⁶ or it might favor the unscrupulous over the principled,¹⁰⁷ or it might breed an embittered and divided citizenry.¹⁰⁸ The tools of market efficiency tell us nothing about how to address these problems when they arise.¹⁰⁹

Some philosophers have gone further, arguing not only that efficiency is not the sole value that society should care about, but that it is not even a value at all.¹¹⁰ Law serves a moral purpose that is simply incommensurate with efficiency. In this view, wealth maximization might in some circumstances be desirable, but only because it is indicative of some other improvement in society, say a happier citizenry or one that has less poverty or one that is more environmentally responsible.¹¹¹ Wealth, in short, is a means, not an end.¹¹² The mere fact that someone is willing to pay for something, and that someone else is willing to sell it, has little to no bearing on whether the potential transaction will in fact make all the parties better off. Behavioral psychologists have demonstrated this point at great length. Greater wealth may lead to less happiness.¹¹³

106. See Zachary Liscow, *Is Efficiency Biased?*, 85 U. CHI. L. REV. 1649, 1652 (2018) (arguing that “efficiency is not just indifferent to the poor but is actually often biased against them” and that, as a result, we should have good reasons to “adopt less efficient legal rules that are less biased against the poor”) (emphasis omitted).

107. See, e.g., HENRY G. MANNE, *INSIDER TRADING AND THE STOCK MARKET* (1966) (arguing generally that insider trading leads to great market efficiency in a number of ways).

108. See, e.g., CHARLES FRIED, *CONTRACT AS PROMISE: A THEORY OF CONTRACTUAL OBLIGATIONS* 17 (1981).

109. Some scholars would disagree, arguing that efficiency is the *best* way to solve problems of fairness because economic conceptions of well-being include citizens’ “degree of aesthetic fulfillment, their feelings for others, and anything else that they might value, however intangible.” Kaplow & Shavell, *supra* note 103, at 968.

110. See Ronald M. Dworkin, *Is Wealth a Value?*, 9 J. LEGAL STUD. 191, 201 (1980) (“[A] gain in social wealth, considered just in itself, and apart from its costs or other good or bad consequences, is no gain at all.”); Ronald Dworkin, *Why Efficiency? – A Response to Professors Calabresi and Posner*, 8 HOFSTRA L. REV. 563 (1980). See also Guido Calabresi, *An Exchange: About Law and Economics: A Letter to Ronald Dworkin*, 8 HOFSTRA L. REV. 553, 556 (1980) (“[I]t is hard to see how an increase in wealth constitutes an improvement in a society unless it furthers some other goal, like utility or equality. . . . [T]he efficiency move is . . . merely instrumental and needs to be attached to some account of what it is instrumental toward before it can be evaluated.”).

111. See Dworkin, *Is Wealth a Value?*, *supra* note 110, at 201.

112. *Id.* at 195.

113. See, e.g., Cass R. Sunstein, *Willingness to Pay vs. Welfare*, 1 HARV. L. & POL’Y REV. 303, 306 (2007) (“[T]here appears to be little or no correlation between economic growth and reported life-satisfaction.”).

Some careers are more remunerative but less satisfying.¹¹⁴ Some people prefer a just society over a wealthy one.¹¹⁵ People routinely misjudge how much a purchase will affect their happiness.¹¹⁶ Efficient markets may well increase the number of transactions and lower their costs, but they do not tell us anything about whether society is better off as a result.

A more practical problem with market efficiency as a regulatory goal is its tendency to lull regulators into a false sense of complacency. It leads to the common assertion that if we can just minimize transaction costs and prevent the concentration of market power and disseminate enough information, markets will do their work, to the benefit of us all.¹¹⁷ But there is nothing inevitable, or even predictable, about the workings of the market. We cannot assume that an efficient market is a good one. It might not meet each of the various forms of efficiency – from Pareto efficiency to Kaldor-Hicks efficiency to “capital market” efficiency to dynamic efficiency – that are all potentially of interest. It also might not lead to normatively desirable results, even if it does satisfy the relevant efficiency criteria. And it may have unintended consequences for the nature of society, citizens, consumers and the conduct of life generally. Some values and beliefs are simply incommensurable with one another. Trying to sum them up into an aggregate value is impossible and potentially counterproductive. All these problems suggest that market efficiency must be taken with a hefty grain of salt and a skeptical regulatory eye.

II. TREASURE ISLAND

Before beginning a more in-depth discussion of particular examples of the dangers of market efficiency, let us engage in a

114. See, e.g., Lawrence S. Krieger & Kennon M. Sheldon, *What Makes Lawyers Happy?: A Data-Driven Prescription to Redefine Professional Success*, 83 GEO. WASH. L. REV. 554 (2015).

115. See, e.g., Michael I. Norton & Dan Ariely, *Building a Better America – One Wealth Quintile at a Time*, 7 PERSPS. ON PSYCH. SCI. 9, 9 (2011) (finding that “[a]ll demographic groups – even those not usually associated with wealth redistribution such as Republicans and the wealthy – desired a more equal distribution of wealth than the status quo”).

116. See Daniel Kahneman & Richard H. Thaler, *Anomalies: Utility Maximization and Experienced Utility*, 20 J. ECON. PERSPS. 221 (2006); Timothy D. Wilson & Daniel T. Gilbert, *Affective Forecasting*, 35 ADVANCES EXPERIMENTAL SOC. PSYCH. 345 (2003).

117. See KATHLEEN C. ENGEL & PATRICIA A. MCCOY, *THE SUBPRIME VIRUS 7-10* (2011) (exploring the causes and consequences of the lack of attention to consumer protection in the regulation of subprime mortgage industry).

thought experiment. This thought experiment is designed to draw out some of our intuitions about the desirability of economic transactions and the proper limitations to them. As with all thought experiments, it is a simplification and does not purport to provide a full typology of the merits and demerits of market transactions.¹¹⁸ Instead, it aims to introduce a few exemplary dangers of a purely efficiency-based approach to regulation.

A. The Classic Case

Imagine that there is a pristine deserted island located somewhere in the Caribbean Sea called “Treasure Island.”¹¹⁹ One day, two sailors, Long John Silver and Jim Hawkins, wreck their boat on the reef off the shore of Treasure Island and swim to shore. They discover that there are only two forms of sustenance on the island: coconuts and turtles. It just so happens that Long John Silver—who is a one-legged pirate—is particularly adept at knocking the coconuts off the tree with his cane, but he is slow and cumbersome at catching turtles. Jim Hawkins, on the other hand—who is young and spry—is great at chasing down the turtles, but not so good at gathering the coconuts (his arms are too short to climb the coconut trees). In a day, Long John Silver could gather six

118. Two important simplifications are that (1) the market consists of only two participants, and (2) the participants pay in goods, rather than in money. One might conclude that the lack of these two important features of modern markets (competition and money) limits the efficiency of our hypothetical market in some way, or even turns it into something *other* than a market at all. See, e.g., Barry J. Nalebuff & Joseph E. Stiglitz, *Information, Competition and Markets*, 73 AM. ECON. REV. 278 (1983); Karl Brunner & Allan Meltzer, *The Uses of Money: Money in the Theory of an Exchange Economy*, 61 AM. ECON. REV. 784 (1971); Eugene F. Fama, *Banking in the Theory of Finance*, 6 J. MONETARY ECON. 39 (1980). We might also conclude that the presence of fully competitive markets and market-determined prices reduces our concerns about relative negotiation skills or behavioral problems. But, as explained below, the thought experiment focuses on *non-efficiency-oriented* objections to market results, and thus any efficiency-oriented objections are explicitly excluded from the analysis. And, as the discussion in Part III highlights, negotiation, sophistication, and behavioral architecture remain important parts of our markets.

119. This thought experiment owes its inspiration, most directly, to Robert Louis Stevenson’s classic book, *Treasure Island*. But it is also indebted to I. Glenn Cohen’s “Murder Island” thought experiment, contained in his 2012 Cornell Law Review Article, *Circumvention Tourism*. I. Glenn Cohen, *Circumvention Tourism*, 97 CORNELL L. REV. 1309, 1339–49 (2012). Both are essential reading. Its structure is an adaptation of a familiar thought experiment in economics. Paul Krugman and Robin Wells, for example, use an example of two castaways catching coconuts and fish in their introductory textbook on microeconomics to illustrate the concept of comparative advantage. See PAUL KRUGMAN & ROBIN WELLS, MICROECONOMICS 30–33 (2005).

coconuts or, alternatively, two turtles – in other words, it takes him one-sixth of the day to gather one coconut and one-half of the day to catch one turtle. Jim Hawkins, during the same time, could gather either two coconuts or six turtles – in other words, it takes him one-sixth of the day to catch one turtle and one-half of the day to gather one coconut. Let us imagine, further, that both Jim Hawkins and Long John Silver each need at least one turtle and one coconut every day, and that the more of each, the better.

If Hawkins and Silver cannot trade with each other (say, for example, that they wash up on separate sides of the island and don't know the other has survived), then they will have to split their day between gathering coconuts and catching turtles. Long John Silver will spend half the day catching turtles and half the day gathering coconuts and will end up with one turtle and three coconuts. Jim Hawkins will similarly split his time between gathering coconuts and catching turtles and will end up with three turtles and one coconut. Their respective consumption each day will look like this:

Treasure Island Before Trading

	Coconuts	Turtles
Long John Silver	3	1
Jim Hawkins	1	3

But what happens if they can trade with one another, and they each focus on their respective strengths – Long John Silver gathers coconuts and Jim Hawkins catches turtles?¹²⁰ Long John Silver

120. This kind of illustration of the gains from trade, and the theories of comparative and absolute advantage, have a long history in economic analysis. In the *Wealth of Nations*, Adam Smith focused on trade between agricultural and manufacturing countries. ADAM SMITH, AN INQUIRY INTO THE NATURE AND CAUSES OF THE WEALTH OF NATIONS 16 (R.H. Campbell, A.S. Skinner & W.B. Todd eds., Liberty Classics 1981) (1776) (“The most opulent nations, indeed, generally excel all their neighbours in agriculture as well as in manufactures; but they are commonly more distinguished by their superiority in the latter than in the former.”). David Ricardo focuses on England and Portugal trading cloth and wine. DAVID RICARDO, PRINCIPLES OF POLITICAL ECONOMY AND TAXATION 94 (Prometheus Books 1996) (1817) (“If Portugal had no commercial connection with other countries, instead of employing a great part of her capital and industry in the production of wines, with which she purchases for her own use the cloth and hardware of other countries, she would be obliged to devote a part of that capital to the manufacture of those commodities, which she

spends all day gathering coconuts and snags six of them. Jim Hawkins spends all day catching turtles and gets six of them as well. Together, they now have six turtles and six coconuts to divide between them, whereas previously, their combined efforts only produced four turtles and four coconuts. The possibility of trade between the parties has opened up opportunities for mutual gain. Jim Hawkins could, for example, trade two of his turtles for two of Long John Silver's coconuts, in which case he would end up with four turtles and two coconuts and Long John Silver would end up with two turtles and four coconuts. In this case, Jim Hawkins and Long John Silver would each be able to consume an additional turtle and coconut than they did before trading. The respective consumption each day would then look like this:

Treasure Island After Trading

	Coconuts	Turtles
Long John Silver	4	2
Jim Hawkins	2	4

This result is efficient in the sense of being Pareto and Kaldor-Hicks superior to the pre-trading island – both parties are better off by agreeing to specialize and trade. In fact, this possibility of mutual gains from trade holds true even if Jim Hawkins is better than Long John Silver both at gathering coconuts and catching turtles.¹²¹

So far, the Treasure Island thought experiment has followed a classic template illustrating the comparative advantages of trade.¹²² But now let us introduce a few wrinkles. Are there any scenarios in

would thus obtain probably inferior in quality as well as quantity. . . . It would therefore be advantageous for her to export wine in exchange for cloth. This exchange might even take place, notwithstanding that the commodity imported by Portugal could be produced there with less labor than in England. Though she could make the cloth with the labor of 90 men, she would import it from a country where it required the labor of 100 men to produce it, because it would be advantageous to her rather to employ her capital in the production of wine, for which she would obtain more cloth from England, than she could produce by diverting a portion of her capital from the cultivation of vines to the manufacture of cloth.”)

121. On the other hand, there might be costs from having Long John Silver and Jim Hawkins specialize too narrowly in their skill sets. For a discussion of the costs of specialization, see Joseph J. Spengler, *Cost of Specialization in a Service Economy*, 51 SOC. SCI. Q. 237 (1970).

122. See, e.g., KRUGMAN & WELLS, *supra* note 119, at 30–33.

which we as a society might find the resulting agreement between Jim Hawkins and Long John Silver objectionable, even if it is efficient in the sense of Pareto and Kaldor-Hicks superiority? Let us focus on three potential objections.

B. The Island with a Distributional Twist

Let's assume that Long John Silver is a particularly astute negotiator, having honed his skills of persuasion over a long career of fomenting mutinies on merchant ships. He manages to convince Jim Hawkins that he deserves a greater share of the island's bounty due to his advanced age and his greater experience, and Jim Hawkins eventually agrees to trade three turtles for one coconut. At the end of the day, Jim Hawkins can consume three turtles and one coconut, and Long John Silver can consume three turtles and five coconuts. Jim Hawkins is no worse off than he was before trading, and Long John Silver is much better off. The aggregate daily consumption would look like this:

Treasure Island With Distributional Problems

	Coconuts	Turtles
Long John Silver	5	3
Jim Hawkins	1	3

This result is still Pareto- and Kaldor-Hicks efficient in the sense that no parties are worse off, and some parties are better off, than they were before trading. But is there any reason to object to it?

One question that we might ask about this transaction is whether it is a fair bargain. From a distributional standpoint, the transaction results in a disparity of wealth – Long John Silver now has the same number of turtles as Jim Hawkins and *many* more coconuts. The agreement may well have been freely arrived at, in the sense that both parties voluntarily committed to exchange their goods at the specified exchange rate, but it still led to an unequal distribution of assets. We might judge that this disparity of result falls afoul of what Michael Sandel terms the “ideal of reciprocity.”¹²³ The ideal of reciprocity asserts that an agreement is an “instrument of mutual benefit, whose morality depends on the

123. MICHAEL J. SANDEL, LIBERALISM AND THE LIMITS OF JUSTICE 106 (1982).

underlying fairness of the exchange.”¹²⁴ In order to assess the justice of this agreement, then, we need to ask broader questions about its results, not just the process by which it was reached.¹²⁵ Is this a better society than the society in which Jim and Long John lived before? Would we prefer this society over a society where the trading of coconuts and turtles led to a more equitable distribution of the island’s wealth? Does the agreement’s voluntariness eliminate our concerns about its content? At least under some views of fairness, the answers to these questions must be no. Societies care about equality. They care about dignity. They care about economic opportunity. Vast wealth disparities within a society implicate these beliefs by calling into question the duties of citizens to treat one another as equals within a community and to spread the community’s benefits to all.¹²⁶ Distributive questions may well lead us to conclude that Jim and Long John’s market exchange, although efficient, is unjust.

C. The Island with a Behavioral Twist

Now let us change the scenario slightly. Let us assume that Long John Silver no longer possesses a negotiation advantage—in fact, Jim Hawkins is more cunning than he initially expected and, under normal conditions, drives a hard bargain. But Long John Silver does happen to be a keen reader of the human soul. He knows how to play on people’s hopes and fears and appetites. And he observes that if he waits until the end of the day, just as Jim Hawkins has finished up a turtle hunt and is dying of thirst, and he shows up unexpectedly with a conch shell full of fresh coconut milk, Long John Silver can extract a better deal. In these circumstances, he can convince Jim Hawkins to trade four turtles

124. *Id.*

125. John Rawls provides one particularly influential approach to determining the basic principles of fairness. These include “the priority of justice over efficiency and the priority of liberty over social and economic advantages.” RAWLS, *supra* note 103, at 230.

126. See MICHAEL WALZER, SPHERES OF JUSTICE: A DEFENSE OF PLURALISM AND EQUALITY xii (1984) (“The root meaning of equality is negative; egalitarianism in its origins is an abolitionist politics. It aims at eliminating not all differences but a particular set of differences, and a different set in different times and places. Its targets are always specific: aristocratic privilege, capitalist wealth, bureaucratic power, racial or sexual supremacy. In each of these cases, however, the struggle has something like the same form. What is at stake is the ability of a group of people to dominate their fellows.”).

for just one coconut. The aggregate daily consumption thus looks like this:

Treasure Island With Behavioral Problems

	Coconuts	Turtles
Long John Silver	5	4
Jim Hawkins	1	2

Jim Hawkins is now worse off than he was before he started specializing in turtle-hunting, but Long John Silver is much better off. We still have a Kaldor-Hicks efficient result (although no longer a Pareto efficient one). Is there any reason to object to this market?

Setting aside the distributional issues here, there is also a question about whether it is simply wrong for a citizen to take advantage of his fellow citizen in this way. The purpose of a market is to provide greater prosperity for participants. But by manipulating the structure and timing of the transaction, Long John Silver has managed to *reduce* prosperity for some. This result does harm to the conceptions of autonomy, liberty, and rational decision-making that are ordinarily founding assumptions in a marketplace.¹²⁷ Nonrational passions may well be the norm, not the exception, in real-world human decision-making, but actively seeking to promote these passions for personal gain is something that society rightly condemns. Society has good reasons to create markets that are free of this kind of social manipulation.¹²⁸ Among other things, behavioral manipulation raises problems about what

127. See, e.g., Guido Calabresi, *Transaction Costs, Resource Allocation and Liability Rules – A Comment*, 11 J.L. & ECON. 67, 68 (1968) (“[I]f one assumes rationality, no transaction costs, and no legal impediments to bargaining, all misallocations of resources would be fully cured in the market by bargains.”); POSNER, *supra* note 10, at 16.

128. See ALASDAIR MACINTYRE, *AFTER VIRTUE: A STUDY IN MORAL THEORY* 74 (3d ed. 2007) (“[Corporate managers] conceive of themselves as morally neutral characters whose skills enable them to devise the most efficient means of achieving whatever end is proposed. Whether a given manager is effective or not is on the dominant view a quite different question from that of the morality of the ends which his effectiveness serves or fails to serve. Nonetheless there are strong grounds for rejecting the claim that effectiveness is a morally neutral value. For the whole concept of effectiveness is . . . inseparable from a mode of human existence in which the contrivance of means is in central part the manipulation of human beings into compliant patterns of behavior; and it is by appeal to his own effectiveness in this respect that the manager claims authority within the manipulative mode.”). See also ALAN WERTHEIMER, *COERCION* 204 (1987) (analyzing permissible and impermissible forms of exploitation in taking advantage of others’ needs).

citizens deserve: the greatest benefit appears to be going to the least scrupulous member of the community.¹²⁹ Society could well object that we should not reward unethical practices, particularly when they are aimed at distorting the characters of citizens.¹³⁰ This objection is based not just on the effects on Jim Hawkins, the “loser” in the negotiation, but also the effects on Long John Silver, the seeming “winner.” Alasdair MacIntyre has described this type of regulation as a kind of virtue ethics, aimed at cultivating “the virtues required to sustain the kind of households and the kind of political communities in which men and women can seek for the good together.”¹³¹ Practices that instead aim to cultivate temptation, distraction, and acquisitiveness are incompatible with the ideals of citizenship.

D. The Island with a Product Twist

Now let us take the hypothetical one step further. What if it turns out that the coconuts that grow on this island, far from being necessary to stay alive, are instead poisonous? They won’t kill you immediately, but over a period of weeks or months, their toxin will build up in the body and ultimately prove fatal. Both Jim Hawkins and Long John Silver know this, but Jim Hawkins just really likes the sweetness of the coconuts, and, perhaps engaging in a bit of motivated reasoning, he is unrealistically optimistic about his capacity to handle the toxins. Long John Silver, who has spent a life on the seas, knows that the coconuts pose a serious health risk and refuses to eat them. Long John Silver trades all of his coconuts for all of Jim Hawkins’ turtles, and he continues doing so for as long as he can. The daily consumption—at least until Jim Hawkins eventually succumbs to coconut toxins—looks like this:

129. See RAWLS, *JUSTICE AS FAIRNESS* 42–43 (2001).

130. See FRED HIRSCH, *SOCIAL LIMITS TO GROWTH* 117–18 (1976) (“As individual behavior has been increasingly directed to individual advantage, habits and instincts based on communal attitudes and objectives have lost out. The weakening of traditional social values has made predominantly capitalist economies more difficult to manage.”).

131. See MACINTYRE, *supra* note 128, at 219. *But see* MONTESQUIEU, *THE SPIRIT OF THE LAWS* 338 (Anne M. Cohler et al. eds., 1989) (1749) (“Commerce cures destructive prejudices, and it is an almost general rule that everywhere there are gentle mores, there is commerce and that everywhere there is commerce, there are gentle mores.”).

Treasure Island with Product Problems

	Coconuts	Turtles
Long John Silver	0	6
Jim Hawkins	6	0

Is there anything problematic about this transaction? Again, the transaction is entered into between two willing parties, neither of which is accused of fraud—Long John Silver has not failed to disclose any relevant information on which Hawkins is relying. Just to be sure, Long John Silver could draft a contract that disclaimed any representations about the coconuts’ nutritional content or fitness for purpose. While we might raise questions about the efficiency of the transaction—can it possibly be efficient for one half of the population to consume poison?—the ethical problem is even deeper. We know that actors sometimes place value on things that are worthless or even self-destructive. Sometimes they are driven to do so because of naivete or hope or a failure to consider long-term consequences. Sometimes, they simply cannot resist their appetites—for candy, soda, or any number of other unhealthy but undeniably tasty products. If all that matters is satisfying one’s desires, then this transaction is unremarkable and unobjectionable. But in scenarios where actors trade for goods that are deemed worthless or actively harmful, where we believe that their desires are wrongly directed, society has a justified interest in establishing rules governing them.¹³² It is natural—even unavoidable—for governments to set forth the kinds of behavior that are acceptable and unacceptable within society, and to encourage or discourage actions that are viewed as particularly desirable or undesirable. Communitarian justice requires members to abide by the norms and values of the community, and the community has a legitimate concern with violations of these norms. Of course, this sounds an awful lot like paternalism—and it is. Donald Regan refers to this type of intervention as “freedom-maximizing paternalism.”¹³³ If we were to intervene in this free market transaction, we would

132. See RAWLS, *supra* note 103, at 230 (“Desires for things that are inherently unjust, or that cannot be satisfied except by the violation of just arrangements, have no weight. There is no value in fulfilling these wants and the social system should discourage them.”).

133. See Donald H. Regan, *Justifications for Paternalism*, in NOMOS XV: THE LIMITS OF LAW 192–93 (J.R. Pennock & J.W. Chapman eds., 1974).

be doing so, not because we thought that the decision itself was coerced or uninformed, but simply because we believed that the good at issue would reduce one party's future opportunities—it would shorten his life and perhaps lead to great pain.¹³⁴ The common defense of paternalistic market interventions—like limiting alcohol or cigarette sales or restricting the sales of soda in movie theaters—is that the behavior imposes direct costs on society, such as hospital care or car wrecks. Here too, Hawkins's consumption is not purely self-harm. Long John Silver is *selling* poison to Jim Hawkins. This is harm caused by a third party, a betrayal of a relationship that has moral dimensions.¹³⁵ A society is well-justified in punishing or preventing such betrayal.¹³⁶ But even if there were no such possibility, and the harm was entirely internalized by the purchaser in the transaction, governments could be justified in intervening because of communitarian interests in the well-being of *all* citizens.

These types of moral objections to free market transactions are well-grounded, not just in ethical principles, but also Supreme Court precedent. As long ago as 1903, in *The Lottery Case*, the Supreme Court said:

What clause can be cited which, in any degree, countenances the suggestion that one may, of right, carry or cause to be carried from one state to another that which will harm the public morals? . . . But surely it will not be said to be a part of anyone's liberty, as recognized by the supreme law of the land, that he shall be allowed to introduce into commerce among the States an element that will be confessedly injurious to the public morals. . . . As a state may, for the purpose of guarding the morals

134. See I. Glenn Cohen, *Regulating the Organ Market: Normative Foundations for Market Regulation*, 77 L. & CONTEMP. PROBS. 71 (2014) (surveying the normative arguments in favor and against paternalism in the market for sale of organs).

135. See MacIntyre, *supra* note 9, at 19 ("It is not that there is an economic system whose relationships can first be described and elucidated in purely economic terms and then evaluated by moralists from some external standpoint. It is that the relationships that are constitutive of the economic system are from the outset norm-governed moral relationships, relationships of trust or lack of trust, of prudence or imprudence, of appropriate or inappropriate risk-taking, of candour or deception, relationships in which individual and common goods are at stake, and we have not grasped those relationships adequately, if we have understood them in nonmoral terms, as most economists continue to understand them.").

136. See, e.g., R.A. DUFF, ANSWERING FOR CRIME: RESPONSIBILITY AND LIABILITY IN THE CRIMINAL LAW (John Gardner ed., 2007).

of its own people, forbid all sales of lottery tickets within its limits, so Congress, for the purpose of guarding the people of the United States against the “widespread pestilence of lotteries” and to protect the commerce which concerns all the states, may prohibit the carrying of lottery tickets from one State to another. . . . We should hesitate long before adjudging that an evil of such appalling character, carried on through interstate commerce, cannot be met and crushed by the only power competent to that end.¹³⁷

If Treasure Island were in U.S. territorial waters, then Long John Silver could be in trouble.

III. THE FAILURES OF MARKET EFFICIENCY

The Treasure Island thought experiment provides us with a few reasons why a purely efficiency-oriented approach to market regulation is flawed. Efficient markets, under widely accepted understandings of the term, might lead to morally objectionable distributions of wealth. They might create incentives for behavioral manipulation that, in turn, affect the character and virtues of market participants themselves. And they might simply involve a product that is viewed as meritless or harmful by society. These objections, importantly, would hold even if we accept that transactions in the relevant market occur between willing and informed buyers and sellers.

So, we have reasons to believe that governments, at least sometimes, may be justified in intervening in efficient markets. But now let us move the argument from theory to practice. I have argued that so far that market efficiency as a regulatory goal can skew our laws in ways that lead to objectionable results. In this Part, I would like to explore three arenas in which this problem is particularly visible: social trading apps, special purpose acquisition companies (or SPACs), and cryptocurrencies.¹³⁸ Each of these innovations occurs in different sectors of the market. Social trading apps like Robinhood involve the way in which investors

137. *Lottery Case*, 188 U.S. 321, 356–58 (1903).

138. This recent wave of financial innovation follows several other historical waves that have similarly challenged the financial regulatory paradigms. See Henry T.C. Hu, *Swaps, the Modern Process of Financial Innovation and the Vulnerability of a Regulatory Paradigm*, 138 U. PA. L. REV. 333, 338 (1989) (analyzing a new wave of financial innovation typified by “heavy reliance on computers, the complexity of some of the products developed, the patenting of financial products and, sometimes, the generation of financial theory long before its application.”).

transact in the stock market. SPACs involve the substance of what investors receive when they transact in the stock market. And cryptocurrencies involve an entirely separate alternative to the stock market. As we will see, in each of these areas, financial regulation's prioritization of efficiency over other goals has failed to prevent, and in some cases created conditions actively conducive to, problematic behavior.

A. Social Trading Apps

In 2013, a Silicon Valley startup inspired by the Occupy Wall Street movement promised to revolutionize stock trading.¹³⁹ The company, Robinhood Financial, announced that it would offer commission-free trades, allowing regular investors to engage in unlimited stock purchases and sales for free, with no minimum balance. This was a dramatic departure from the approach used by other major brokerages at the time, like E*Trade and Charles Schwab, who charged anywhere from \$5 to \$10 per trade and often required customers to maintain a minimum balance of \$1,000 or more.¹⁴⁰ Robinhood also offered a slick-looking app (in fact, its services initially were offered solely on its app) that appealed to young people increasingly comfortable with using their phones for all their important interactions.¹⁴¹ Its mission was to “democratize finance for all.”¹⁴² As its co-founder, Vlad Tenev, said, “The

139. See William Alden, *Financial Start-Ups Aim to Court the Anti-Finance Crowd*, N.Y. TIMES, Dec. 22, 2014. For scholarly treatments of the phenomenon, see Jonathan R. Macey, *Securities Regulation and Class Warfare*, 2021 COLUM. BUS. L. REV. 796 (2021); Dirk A. Zetzsche, William A. Birdthistle, Douglas W. Arner & Ross P. Buckley, *Digital Finance Platforms: Toward a New Regulatory Paradigm*, 23 U. PA. J. BUS. L. 273 (2020); James Fallows Tierney, *Investment Games*, 72 DUKE L.J. (forthcoming 2022-23); Kyle Langvardt & James Fallows Tierney, *On “Confetti Regulation”: The Wrong Way to Regulate Gamified Investing*, 131 YALE L.J.F. 717 (2022).

140. See Eliot Brown, *Can Free Stock Trades Sell? Robinhood App Tests New Brokerage Model*, WALL ST. J. (May 17, 2017), <https://www.wsj.com/articles/can-free-stock-trades-sell-robinhood-app-tests-new-brokerage-model-1495022400>; *Free Trade: Discount Brokerages*, ECONOMIST (Mar. 10, 2016), <https://www.economist.com/finance-and-economics/2016/03/10/free-trade>.

141. See Janet Morrissey, *With No Frills and No Commissions, Robinhood App Takes on Big Brokerages*, N.Y. TIMES (Feb. 18, 2017), <https://www.nytimes.com/2017/02/18/business/robinhood-stock-trading-app.html>.

142. See Robinhood Markets, Inc., Registration Statement on Form S-1, July 1, 2021 [hereinafter Robinhood Form S-1].

financial services industry should serve all people, regardless of net worth.”¹⁴³

Robinhood introduced a major change in the way that regular citizens interacted with the stock market. It significantly lowered the barriers to entry for direct stock investing, allowing many of the young, the poor, and the excluded to gain access to the stock market for the first time.¹⁴⁴ Its average customer was 28 years old.¹⁴⁵ Its average account size was \$240.¹⁴⁶ It also introduced innovations aimed at making stock trading more “fun.”¹⁴⁷ Using techniques developed by social media companies to increase engagement, it designed its app to be beautiful and colorful.¹⁴⁸ It would burst confetti on the screen to celebrate a users’ stock purchases.¹⁴⁹ It included a version of a lottery scratch-off game to gift users with free stocks.¹⁵⁰ It had options to push notifications to mobile phones to alert users of price fluctuations, earnings calls, and options deadlines.¹⁵¹

Robinhood proved remarkably popular. Over the next few years, it would attract millions of users, growing from a user base

143. Morrissey, *supra* note 141.

144. Brown, *supra* note 140.

145. *Id.*

146. See Adam Keshner, *The Most Frequently Asked Questions by Robinhood Traders Reveal “New Type of Uninformed Equity-Market Participant”*, MARKETWATCH (Mar. 14, 2021), https://www.marketwatch.com/story/the-most-frequently-asked-questions-posed-by-robinhood-traders-reveal-new-type-of-uninformed-equity-market-participant-11615343610?link=sfmw_tw.

147. See Madison Darbyshire, *Brokerages Have Snared Legions of Day Traders, But Are the Apps Too Easy to Use?*, FIN. TIMES (Oct. 28, 2021), <https://www.ft.com/content/f95ceb63-c5f7-4687-9c21-c664e66cc200>.

148. See Rich Bessel, *The Top Secret Robinhood Design Story*, ROBINHOOD BLOG (Apr. 13, 2021), <https://robinhood.engineering/the-top-secret-robinhood-design-story-a2b044812bae>.

149. The confetti burst was scrapped in 2021 after sharp criticism from observers, including SEC Chairman Gary Gensler. See Caitlin McCabe, *Robinhood to Remove Controversial Digital Confetti from Trading App*, WALL ST. J. (Mar. 31, 2021, 7:11 PM), <https://www.wsj.com/articles/robinhood-to-remove-controversial-digital-confetti-from-trading-app-11617195612>. It was replaced with a variety of other graphics, such as a burst of green geometric shapes. See *A New Way to Celebrate With Robinhood*, ROBINHOOD BLOG, (Mar. 31, 2021), <https://blog.robinhood.com/news/2021/3/31/a-new-way-to-celebrate-with-robinhood>.

150. See Erin Griffith, *Robinhood’s Shares Fall 8.4% in Public Trading Debut*, N.Y. TIMES, (July 29, 2021), <https://www.nytimes.com/2021/07/29/technology/robinhood-stock.html>.

151. See Options Alerts, ROBINHOOD <https://robinhood.com/us/en/support/articles/options-alerts/> (last visited Sept. 13, 2022).

of tens of thousands to 22 million by 2021.¹⁵² Its revenue rose from less than \$3 million in 2015 to nearly \$1 billion in 2020.¹⁵³ It expanded its offerings into options and cryptocurrencies and checking and savings accounts.¹⁵⁴ It received large investments from venture capital funds, around \$5.6 billion in total.¹⁵⁵ And in 2021, it went public in an initial public offering that valued the company at \$32 billion.¹⁵⁶ Along the way, Robinhood's model forced other major players to adapt. In the years after Robinhood's launch, all the other large brokerage firms introduced commission-free trading as well.¹⁵⁷ Other social trading apps also emerged to compete for business with Robinhood.¹⁵⁸

On the surface, Robinhood and the rise of social trading apps seem to mark a great win for efficiency. The business model of the investment companies was aimed at reducing friction in the capital markets by allowing regular investors to trade quickly, cheaply, and conveniently, and they appear to have done that. American capital markets are deeper and more liquid than they have ever been.¹⁵⁹ Retail investors have risen from accounting for 20% of

152. Robinhood Form S-1, *supra* note 142, at 2.

153. See David Curry, *Robinhood Revenue and Usage Statistics (2022)*, BUS. OF APPS (Sept. 6, 2022), <https://www.businessofapps.com/data/robinhood-statistics/>.

154. See Maggie Fitzgerald & Kate Rooney, *Robinhood to Launch Cryptocurrency Wallets as Bitcoin Becomes a Bigger Part of Business*, CNBC (Sept. 22, 2021, 4:13 PM), <https://www.cnbc.com/2021/09/22/robinhood-to-launch-cryptocurrency-wallets-as-bitcoin-becomes-bigger-part-of-business.html>.

155. See Erin Griffith, *Robinhood Reveals Rising Revenue and a \$1.4 Billion Loss*, N.Y. TIMES (July 19, 2021), <https://www.nytimes.com/2021/07/01/technology/robinhood-ipo-financials.html>.

156. See Griffith, *supra* note 150.

157. See Lisa Beilfus, *E*Trade Joins Rivals in Cutting Commissions to Zero*, WALL ST. J., Oct. 2, 2019.

158. See Laura Saunders, *New Investors Discover Tax Pitfalls of Robinhood and Other Trading Apps*, WALL ST. J., Apr. 16, 2021.

159. See SECURITIES INDUSTRY AND FINANCIAL MARKETS ASSOCIATION, 2021 CAPITAL MARKETS FACT BOOK 8 (2021) (describing the large increases in several measures of depth and liquidity in the last few years, including equity issuances, mergers and acquisitions, and trading volumes); Paul G. Mahoney & Gabriel V. Rauterberg, *The Regulation of Trading Markets: A Survey and Evaluation*, in SECURITIES MARKET ISSUES FOR THE 21ST CENTURY 252 (Merritt B. Fox et al. eds., 2018) ("On high-level measures of liquidity and transaction costs, the U.S. equity markets are remarkably healthy. Commissions and spreads have dropped dramatically in the past two decades. Retail investors can trade conveniently online for commissions of \$10 per trade (10 cents per share for a round lot) or less.").

trading volume in 2010 to over 40% by 2021.¹⁶⁰ In 2019, 59 million Americans had accounts at the largest brokers; by 2021, it had risen to 95 million.¹⁶¹ The cost of investing \$100 on a stock exchange was around \$6 in 1975. Today, it is less than a thousandth of a penny.¹⁶² Evidence of the direct effects of Robinhood on the efficiency of markets is conflicting, but on several metrics appears to be largely positive.¹⁶³

But despite the evidence that Robinhood and its no-fee competitors have contributed to market efficiency on several metrics, concerns have mounted over other aspects of social trading apps. First and foremost among these concerns has been the devastating consequences that volatile capital markets can impose on small investors and the related role of Robinhood in exposing unsophisticated investors to these risks.¹⁶⁴ It has long been known that stock markets are prone to bouts of volatility, with deep crashes following periods of irrational exuberance.¹⁶⁵ Individual investors systematically over-estimate their ability to predict these changes.¹⁶⁶ Robinhood and other social trading apps cater to, and encourage trading by, precisely these unsophisticated retail

160. *Just How Mighty Are Active Retail Traders?*, ECONOMIST (Aug. 21, 2021), <https://www.economist.com/finance-and-economics/2021/08/21/just-how-mighty-are-active-retail-traders>.

161. *Id.*

162. *See Wall Street Will Soon Have to Take Millennial Investors Seriously*, ECONOMIST (Oct. 20, 2020), <https://www.economist.com/finance-and-economics/2020/10/20/wall-street-will-soon-have-to-take-millennial-investors-seriously>.

163. *See* Henry L. Friedman & Zitong Zeng, *Retail Investor Trading and Market Reactions to Earnings Announcements* (July 2, 2021) (unpublished manuscript) (available on SSRN), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3817979 (examining Robinhood financial data to conclude that retail investors facilitate the incorporation of public information into price after announcements, while also increasing volatility); Gregory W. Eaton, T. Clifton Green, Brian S. Roseman & Yanbin Wu, *Zero-Commission Individual Investors, High Frequency Traders and Stock Market Quality* (Mar. 2021) (unpublished manuscript) (available at <https://pages.stern.nyu.edu/jhasbrou/SternMicroMtg/SternMicroMtg2021/Papers/Zero-commission%20individual%20traders.pdf>) (concluding that inexperienced retail investor trading at Robinhood harms liquidity, while retail trading at larger brokerages improves market quality).

164. *See* Nathaniel Popper, *Robinhood Has Lured Young Traders, Sometimes With Devastating Results*, N.Y. TIMES (Sept. 25, 2021), <https://www.nytimes.com/2020/07/08/technology/robinhood-risky-trading.html>.

165. *See, e.g.*, ROBERT Z. ALIBER & CHARLES P. KINDLEBERGER, *MANIAS, PANICS, AND CRASHES: A HISTORY OF FINANCIAL CRISES* (7th ed. 2015).

166. *See* Daniel Kahneman & Amos Tversky, *On the Psychology of Prediction*, 80 PSYCH. REV. 237 (1973).

investors—more than half of Robinhood’s users create brokerage accounts for the first time when they open accounts with the company.¹⁶⁷ Unsurprisingly, in the last few years, a shocking number of stories have emerged about extreme losses incurred by retail investors on the apps.¹⁶⁸ In one case, a college student committed suicide after Robinhood’s app appeared to show that he owed \$730,000 on options trades he had made. In his suicide note, he wrote, “How was a 20-year-old with no income able to get assigned almost a million dollars’ worth of leverage?”¹⁶⁹

A second controversy surrounds the trading environment created by social trading apps. Not only do these apps give citizens easier access to risky investment products, they also directly encourage these investments through design. The problem is so pronounced that a name has emerged to describe the tactic: gamification.¹⁷⁰ Gamification generally refers to the tactic of increasing user engagement—whether on Facebook, Twitter or Robinhood—by tapping into behavioral prompts that target human emotion. Fun graphics, pleasing sounds, notifications, and similar strategies aim to drive user engagement and activity on websites and apps. Robinhood’s app has used many of these features—from colorful app design to bursts of confetti to scratch-off games and notifications.¹⁷¹ Studies have begun to identify the effects. Robinhood users, for example, tend to engage in more “attention-induced” trading and engage in riskier trades than users of traditional brokerages.¹⁷² Options and cryptocurrencies account for over half of Robinhood’s transaction revenues.¹⁷³ One reason why this sort of ill-informed trading might not have hurt liquidity and market efficiency is that sophisticated traders can profit from

167. Robinhood Form S-1, *supra* note 142, at 5.

168. See Popper, *supra* note 164.

169. See Sergei Klebnikov & Antoine Gara, *20-Year-Old Robinhood Customer Dies by Suicide After Seeing a \$730,000 Negative Balance*, FORBES (June 17, 2020, 10:55 AM), <https://www.forbes.com/sites/sergeiklebnikov/2020/06/17/20-year-old-robinhood-customer-dies-by-suicide-after-seeing-a-730000-negative-balance/?sh=67d2e9771638>.

170. See Langvardt & Fallows Tierney, *supra* note 139.

171. See McCabe, *supra* note 149.

172. See Brad M. Barber, Xing Huang, Terrance Odean & Cristopher Schwarz, *Attention-Induced Trading and Returns: Evidence from Robinhood Users*, J. FIN. (forthcoming), <https://onlinelibrary.wiley.com/doi/10.1111/jofi.13183>; *Robinhood Takes Its IPO to the Masses*, ECONOMIST (July 26, 2021), <https://www.economist.com/finance-and-economics/2021/07/26/robinhood-takes-its-ipo-to-the-masses>.

173. See *Robinhood Takes Its IPO*, *supra* note 172.

betting against the trades of Robinhood investors—and studies have confirmed that this is in fact occurring.¹⁷⁴ But it has likely harmed Robinhood investors themselves.¹⁷⁵

A final concern relates to how, exactly, Robinhood turns a profit, given that it doesn't charge users for its primary service, that of buying and selling stocks for them. The answer was not entirely clear until Robinhood disclosed its financial details in connection with its IPO in 2021. Robinhood disclosures made in connection with the IPO showed that 81% of the company's revenue came from selling customer orders to high-speed trading firms, a practice known as "payment for order flow."¹⁷⁶ Payment for order flow generally refers to the practice of a trading firm paying a broker a side payment if the broker sends the trading firm its clients' orders to be filled.¹⁷⁷ Defenders of the practice argue that it gives customers better prices because it incentivizes trading firms to develop more efficient systems for matching buy and sell orders. But a number of observers have argued that the arrangement presents a sharp conflict of interest, as Robinhood might prefer to send its orders to the highest bidder, not to the bidder that will get the best price for its customers.¹⁷⁸ And again, initial evidence

174. See Barber et al., *supra* note 172.

175. *Id.* at 3 (finding "large negative abnormal returns following Robinhood herding episodes."). But see Sirio Aramonte & Fernando Avalos, *The Rising Influence of Retail Investors*, BANK FOR INT'L SETTLEMENTS, Mar. 2021 ("Certain actions of retail investors can raise concerns about market functioning. Sudden bursts of trading activity can push prices far away from fundamental values, especially for less liquid securities, thus impairing their information content.").

176. See Alexander Osipovich, *Robinhood's Debut Is Clouded by SEC Scrutiny of Payment for Order Flow*, WALL ST. J. (July 7, 2021, 7:00 AM), <https://www.wsj.com/articles/robinhoods-debut-is-clouded-by-sec-scrutiny-of-payment-for-order-flow-11625655600>.

177. See Allen Ferrell, *A Proposal for Solving the "Payment for Order Flow" Problem*, 74 S. CAL. L. REV. 1027 (2001).

178. See Jonathan Macey & David Swensen, *Recovering the Promise of the Orderly and Fair Stock Exchange*, 42 J. CORP. L. 777, 789 (2017) ("The problem with payment for order flow is that it creates a conflict of interest between brokers' legal obligation to provide customers with best execution of their orders and the broker's incentives to profit from kickbacks. The stakes are significant. Over the past decade, the organized exchanges, led by the NYSE, Nasdaq, and BATS have paid almost \$30 billion in rebates to their broker members."); Merritt B. Fox et al., *The New Stock Market: Sense and Nonsense*, 65 DUKE L.J. 191, 197 (2015) ("We conclude . . . that it would be good to require brokers to pass through maker-taker fees and payment for order flow to their customers."). Some observers have concluded that payment for order flow may be beneficial for investors but that we need additional disclosures to customers to ensure better competition over execution quality. See COMMITTEE ON CAPITAL

corroborates this suspicion. Disclosures show that Robinhood receives significantly higher payments for its customers' orders than do other brokers, that these payments are even higher for risky options trades, and that Robinhood customers receive worse prices than customers of other brokers.¹⁷⁹ But by disguising these prices not as fees, but as the underlying price of the stock or option itself, the fees are less visible to investors.¹⁸⁰

All of these problems came to a head at the beginning of 2021 in a controversy over "meme stocks."¹⁸¹ In January 2021, a group of traders conversing on the discussion website Reddit encouraged followers to purchase shares of a video game company called GameStop, at least partially driven by a desire to cause losses to hedge funds that had bet against the company.¹⁸² The resulting purchase frenzy led GameStop's market capitalization to soar from \$2 billion to more than \$24 billion within a week.¹⁸³ But then, in the middle of the rally, Robinhood suspended trading in shares of GameStop—along with trading in several other stocks that Reddit users had targeted—preventing its users from buying any more of the stock.¹⁸⁴ The rally quickly fizzled out and GameStop shares

MARKETS REGULATION, ENHANCING U.S. EQUITY MARKET STRUCTURE FOR RETAIL INVESTORS 8–10 (2021).

179. See Kate Rooney & Maggie Fitzgerald, *Here's How Robinhood is Raking in Record Cash on Customer Trades—Despite Making It Free*, CNBC (Aug. 14, 2020, 10:17 AM), <https://www.cnbc.com/2020/08/13/how-robinhood-makes-money-on-customer-trades-despite-making-it-free.html>; In the Matter of Robinhood Fin., LLC, Securities Act Release No. 10906, at 2–3 (Dec. 17, 2020), <https://www.sec.gov/litigation/admin/2020/33-10906.pdf>.

180. See Douglas MacMillan & Yeganeh Torbati, *Robinhood and Citadel's Relationship Comes into Focus as Washington Vows to Examine Stock-Market Moves*, WASH. POST (Jan. 29, 2021, 5:49 PM), <https://www.washingtonpost.com/business/2021/01/29/robinhood-citadel-gamestop-reddit/>.

181. The SEC has issued a comprehensive report on the meme stock developments of early 2021 that explains the trading activity and underlying market dynamics in depth. See SECURITIES AND EXCHANGE COMMISSION, STAFF REPORT ON EQUITY AND OPTIONS MARKET STRUCTURE CONDITIONS IN EARLY 2021 (2021), available at <https://www.sec.gov/files/staff-report-equity-options-market-structure-conditions-early-2021.pdf>.

182. See Nathaniel Popper & Kellen Browning, *The 'Roaring Kitty' Rally: How a Reddit User and His Friends Roiled the Markets*, N.Y. TIMES (Jan. 29, 2021), <https://www.nytimes.com/2021/01/29/technology/roaring-kitty-reddit-gamestop-markets.html>.

183. See Matt Phillips & Taylor Lorenz, *'Dumb Money' Is on GameStop, and It's Beating Wall Street at Its Own Game*, N.Y. TIMES (Oct. 18, 2021), <https://www.nytimes.com/2021/01/27/business/gamestop-wall-street-bets.html>.

184. See Maggie Fitzgerald, *Robinhood Restricts Trading in GameStop, Other Names Involved in Frenzy*, CNBC (Jan. 28, 2021, 5:34 PM), <https://www.cnbc.com/2021/01/28/robinhood-interactive-brokers-restrict-trading-in-gamestop-s.html>.

would drop precipitously in the following days, from a high of \$483 on January 28th, the day that Robinhood suspended trading, to a low of \$74.22 on February 2nd.¹⁸⁵ Robinhood claimed that it had made the decision to comply with regulatory capital requirements.¹⁸⁶ But some observers raised doubts about Robinhood's true motivations—Robinhood relied on Citadel Securities for a large portion of its revenue for payment for order flow, and an affiliate of Citadel had invested in one of the hedge funds that had bet against GameStop.¹⁸⁷ In other words, the accusation arose that Robinhood, again, was disadvantaging its users in order to favor powerful and, perhaps more importantly, fee-paying trading firms.

When financial regulators have turned their attention to Robinhood, they have largely focused on disclosure and market concentration issues, not more substantive issues related to behavioral biases, distributional issues and the dangers of excessive trading. For example, in 2020, the SEC charged Robinhood with violating the securities laws. In its order, the SEC described the scheme of payment for order flow and alleged that Robinhood's customers received worse prices for stocks than they would have received if they had gone elsewhere. But the bulk of the order focused on "material misrepresentations and omissions by Robinhood relating to its revenue sources, specifically its receipt of payments from certain principal trading firms, also known as electronic market makers, for routing Robinhood customer orders to them, and relating to certain statements about the execution quality Robinhood achieved for its customers' orders." In other words, the primary problem with Robinhood's behavior was its failure to disclose the behavior properly to customers. It also alleged that Robinhood failed to satisfy its duty of best execution,

185. See *GameStop Corp. Historical Stock Price*, YAHOO FINANCE, <https://finance.yahoo.com/quote/GME/history>.

186. See Tara Siegel Bernard & Gillian Friedman, *After an Outcry, Robinhood Says It Will Allow Users to Trade GameStop Again on Friday*, N.Y. TIMES (Jan. 30, 2021), <https://www.nytimes.com/2021/01/28/business/robinhood-gamestop-restrictions.html>; Noor Zainab Hussain & Anirba Sen, *Robinhood Raises Another \$2.4 Billion in Funds from Investors*, REUTERS (Feb. 1, 2021, 10:14 AM), <https://www.reuters.com/business/finance/robinhood-raises-another-24-bln-funds-investors-2021-02-01/>.

187. See *How the GameStop Saga Threatens Robinhood*, ECONOMIST (Feb. 1, 2021), <https://www.economist.com/finance-and-economics/2021/02/01/how-the-gamestop-saga-threatens-robinhood>.

that is to seek the best reasonably available terms for customer orders, but even here, the SEC chose to focus on Robinhood's "failing to conduct adequate regular and rigorous reviews," as well as its false statements to users that its execution quality matched its competitors.¹⁸⁸ This despite the fact that the SEC's investigations showed that Robinhood customers lost over \$34 million by using Robinhood, rather than a competitor. Ultimately, Robinhood settled the charges by agreeing to stop violating the antifraud provisions of the Securities Act or the recordkeeping provisions of the Exchange Act, to hire a consultant to review its policies and procedures, and to pay a fine of \$65 million.¹⁸⁹

Similarly, in 2021, FINRA fined Robinhood \$70 million for a variety of misbehaviors, and the primary charges focused on "false and misleading information distributed to customers."¹⁹⁰ While the SEC has announced that it is considering new rules to address the social trading app phenomenon, Chairman Gary Gensler has asked SEC staff members to concentrate on two questions: "how [to] facilitate greater competition and efficiency on an order-by-order basis" and "how [to] address financial conflicts in the market" for payment for order flow.¹⁹¹ In short, efficiency and disclosure have dominated the regulatory agenda for social trading apps.

188. In the Matter of Robinhood Fin., LLC, *supra* note 179, at 2-3.

189. *Id.*

190. FINRA, ROBINHOOD FINANCIAL LLC'S LETTER OF ACCEPTANCE, WAIVER AND CONSENT NO. 2020066971201, (2021), <https://www.finra.org/sites/default/files/2021-06/robinhood-financial-awc-063021.pdf>.

191. *Testimony Before the H. Comm. on Fin. Servs.* (Oct. 5, 2021) (statements by Gary Gensler, Chair of SEC). Gensler has made some vague intimations that he might consider other approaches as well. For example, in response to a question from Jim Cramer on CNBC about Robinhood's gamification of trading, he said: "I think that we, we certainly need to do all collectively, the media, the SEC and others, all we can do to help educate the public. Ultimately the public gets to decide what they invest in, that's our basic bargain. But also, we have the SEC here to try to protect the public and what we're trying to do . . . is if the, if the application, the platform is maximizing and running an algorithm in the background to maximize their revenues, whether it's a robo-advisor or a trading app, that presents a potential conflict right there and that's something that Congress long ago said to the SEC to address those conflicts and disclosure alone may not do it. It may not be good enough to say, 'Hey we have a conflict, don't worry.' . . . Congress can change those tools but those tools include disclosure, really important, but we also are cops on the beat, protecting the public when people are defrauded and we do address some conflicts, more specifically around our ruleset, so we have a mix of tools. Disclosure as Justice Brandeis said is a very important piece of it but it's not the only tool." *SEC Chair Gary Gensler Speaks with CNBC's "Squawk on the Street"* CNBC (Sept. 15, 2021, 12:36 PM), <https://www.cnbc.com/2021/09/15/cnbc->

B. SPACs

If Robinhood and the social trading app phenomenon have changed the *way* that investors access stock markets, the rise of special purpose acquisition companies has changed *what* they are investing in when they do.¹⁹² SPACs have been one of the most high-profile financial innovations of the last few years.¹⁹³ They have attracted famous backers, from sports stars like Steph Curry and Serena Williams, to singers like Ciara and Jay-Z, to financial whizzes like Peter Thiel and Bill Ackman.¹⁹⁴ They have bought major companies, from the electric truck maker Nikola¹⁹⁵ to the space tourism company Virgin Galactic.¹⁹⁶ And they have raised enormous amounts of capital at an accelerating rate. Based on SPAC fundraising in 2020 and early 2021, they had the capacity to acquire companies worth \$500 billion, or approximately 1% of the total value of all American companies listed on stock markets.¹⁹⁷ In

exclusive-cnbc-transcript-sec-chair-gary-gensler-speaks-with-cnbc-squawk-on-the-street-today.html.

192. See Usha Rodrigues & Mike Stegemoller, *SPACs: Insider IPOs*, HARVARD L. SCH. F. ON CORP. GOVERNANCE (Sept. 21, 2021), <https://corpgov.law.harvard.edu/2021/09/21/spacs-insider-ipos/>; Usha Rodrigues & Mike Stegemoller, *Exit, Voice, and Reputation: The Evolution of SPACs*, 37 DEL. J. CORP. L. 849 (2013); Mira Ganor, *The Case for Non-Binary, Contingent, Shareholder Action*, 23 U. PA. J. BUS. L. 390 (2021); Andrew F. Tuch & Joel Seligman, *The Further Erosion of Investor Protection: Expanded Exemptions, SPAC Mergers and Direct Listings*, WASH. UNIV. ST. LOUIS LEG. STUD. RSCH PAPER SERIES, Paper No. 22-01-03 (2022); William K. Sjostrom, *The Truth About Reverse Mergers*, 2 ENTREPRENEURIAL BUS. L.J. 743 (2008); Stephen M. Davidoff, *Black Market Capital*, 2008 COLUM. BUS. L. REV. 172 (2008); Erik P.M. Vermeulen, *High-Tech Companies and the Decision to "Go Public": Are Backdoor Listings (Still) an Alternative to "Front-Door" Initial Public Offerings?*, 4 PENN ST. J.L. & INT'L AFF. 421 (2015).

193. See Kye Wiggins & Ortenca Aliaj, *SPAC Boom Fuels Strongest Start for Global Mergers and Acquisitions Since 1980*, FIN. TIMES (Mar. 31, 2021), <https://www.ft.com/content/bacdf86f-e786-4439-966e-f5958adb1c59>.

194. See Amrith Ramkumar, *The Celebrities from Serena Williams to A-Rod Fueling the SPAC Boom*, WALL ST. J. (Mar. 17, 2021, 5:32 AM), <https://www.wsj.com/articles/the-celebrities-from-serena-williams-to-a-rod-fueling-the-spac-boom-11615973578>.

195. See *Nikola Corp. to Go Public at Over \$3.3 Billion Valuation*, REUTERS (Mar. 3, 2020, 5:23 AM), <https://www.reuters.com/article/us-nikola-corp-vectoiq/nikola-corp-to-go-public-at-over-3-3-billion-valuation-idUSKBN20Q1J5>.

196. See Sarah McBride, *Branson's Flight Validates the Space SPACs That Virgin Started*, BLOOMBERG (July 12, 2021, 10:08 AM), <https://www.bloomberg.com/news/articles/2021-07-12/space-companies-eye-spacs-after-virgin-galactic-spce-test-flight>.

197. See *Why SPACs Are Wall Street's Latest Craze*, ECONOMIST (Feb. 16, 2021), <https://www.economist.com/finance-and-economics/2021/02/16/why-spacs-are-wall-streets-latest-craze>.

the decade from 2010-19, there were a total of 226 SPAC IPOs, or roughly 23 a year. In 2020 alone, there were 248. In the first eight months of 2021, there were 419.¹⁹⁸ The size of these deals has soared as well. SPACs raised \$13.6 billion in 2019, \$83.4 billion in 2020 and \$122.4 billion in the first eight months of 2021.¹⁹⁹

What explains the rise of SPACs? While the structure of a SPAC can vary significantly, at the heart of the affair is a two-step transaction. First, a sponsor raises capital from investors by listing a special purpose acquisition company on a stock exchange.²⁰⁰ Second, the sponsor searches for, negotiates with and, ideally, merges with a target company, thereby converting the previously private target company into a public company with its stock listed on a stock exchange.²⁰¹ In other words, the SPAC is a financial instrument for taking a company public. Of course, there are other ways to take a company public, most notably, the traditional initial public offering (IPO) route. But a few mechanics of the typical SPAC structure make it an attractive alternative to the IPO.

First, the initial IPO of the SPAC itself—that is, when the investment vehicle first raises capital from investors—is greatly simplified.²⁰² Because the SPAC is simply an empty shell company, there is not much for it to disclose. The registration statements typically provide a lengthy list of risk factors and biographies but describe the potential business in only the vaguest of terms—sometimes they describe a general area (such as healthcare, energy, or fintech) on which the sponsor intends to focus, but in others,

198. See STATISTA, *Number of Special Purpose Acquisition Company IPOs in the United States from 2003 to September 1, 2021*, <https://www.statista.com/statistics/1178249/spac-ipo-usa/>.

199. See STATISTA, *Proceeds of Special Purpose Acquisition Company IPOs in the United States from 2003 to September 1, 2021*, <https://www.statista.com/statistics/1178273/size-spac-ipo-usa/>.

200. See Klausner et al., *supra* note 3, at 236.

201. *Id.*

202. See RAMEY LAYNE, BRENDA LENAHAN, SARAH K. MORGAN, ZACH SWARTZ, K. STANCELL HAIGWOOD & LAYTON SUCHMA, VINSON & ELKINS LLP, AN INTRODUCTION: SPECIAL PURPOSE ACQUISITION COMPANIES, 4 (Jan. 1, 2020), <https://www.velaw.com/insights/an-introduction-special-purpose-acquisition-companies/> (“As compared to operating company IPOs . . . SPAC IPOs can be considerably quicker. SPAC financial statements in the IPO registration statement are very short and can be prepared in a matter of weeks (compared to months for an operating business). There are no historical financial results to be disclosed or assets to be described and business risk factors are minimal. In essence, the SPAC IPO registration statement is mostly boilerplate language plus director and officer biographies.”).

they simply state that they will do as they wish (or, as they describe it, “[o]ur efforts will not be limited to a particular industry or geographic region”).²⁰³ This means that the initial listing of the SPAC itself can be done quickly and cheaply.²⁰⁴

Second, investors in the initial IPO receive an attractive combination of both downside protection and upside potential. Investors receive units in the SPAC that consist of both common stock and warrants in the company.²⁰⁵ The common stock is redeemable (that is, can be sold back to the company) by the holder for a set price (typically \$10, which is the amount initially paid for the units in the IPO) either immediately before an acquisition takes place or after the two-year lifespan of the SPAC expires without an acquisition taking place.²⁰⁶ This provides downside protection to investors who, if they so choose, can always receive back the amount of their initial investment. The warrant, on the other hand, provides the holder a right to purchase common stock after an acquisition at a set price (typically \$11.50, a small premium over the initial purchase price of the common stock).²⁰⁷ The warrant provides upside potential, as investors have a chance of turning a large profit if the market price of the warrants increases sharply after an acquisition.

Third, if the SPAC acquires a target (in what is sometimes referred to as a de-SPAC transaction), the path to completing the transaction is significantly less cumbersome than if the target pursued an IPO on its own.²⁰⁸ SPAC mergers can be completed in three to six months, rather than the twelve to eighteen months required for a traditional IPO.²⁰⁹ Because a SPAC merger is a negotiated transaction, the acquisition price is predictable—it has,

203. See Yucaipa Acquisition Corp., Registration Statement Under the Securities Act of 1933 (Form S-1) 3, (July 17, 2020).

204. Evidence, however, suggests that the overall SPAC acquisition structure is *more* expensive than an IPO. See Klausner et. al, *supra* note 3, at 267; Minmo Gahng, Jay R. Ritter & Donghang Zhang, SPACs 35 (July 13, 2022) (unpublished manuscript) (available on SSRN), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3775847.

205. See Klausner et. al, *supra* note 3, at 236–37.

206. *Id.*

207. *Id.* Importantly, shareholders can keep these warrants *even if* they redeem their common stock before a merger. *Id.*

208. See JOHN LAMBERT, KPMG, WHY SO MANY COMPANIES ARE CHOOSING SPACS OVER IPOs, <https://advisory.kpmg.us/articles/2021/why-choosing-spac-over-ipo.html> (last visited Nov. 2, 2022).

209. See *id.*

in fact, been negotiated by the buyer and the seller. In traditional IPOs, on the other hand, the listing company must set a price in discussions with an underwriter based on expectations of what the market will bear—a process that is notoriously unpredictable.²¹⁰

SPAC proponents have argued that the structure of SPACs contributes to greater market efficiency. By providing a smoother path for companies to transition from privately held entities to publicly held ones, SPACs have reduced the transaction costs of capital markets—these blank check companies provide a faster and more reliable way for private companies to go public.²¹¹ And indeed, traditional initial public offerings are expensive—underwriter fees can be as high as seven percent of the capital raised, legal and auditor fees are typically millions of dollars of fees on top of this, and there is substantial evidence that underwriters tend to underprice IPOs in order to ensure the good publicity of a rise in price on the initial listing day.²¹²

SPACs also allow a wider group of investors to benefit from the potentially lucrative gains from investing in early-stage companies.²¹³ Traditionally in IPOs, underwriters allocate shares overwhelmingly to institutional investors, not individual investors, and therefore these transactions tend to allow large institutions to pocket most of the gains.²¹⁴ In SPACs, on the other hand, regular investors can buy shares of the blank-check companies *before* they buy substantive companies, and thereby gain access to growth potential. And finally, SPAC supporters point to a broader benefit from the rise of SPACs: more private companies, which otherwise

210. See Christine Hurt, *Moral Hazard and the Initial Public Offering*, 26 CARDOZO L. REV. 711, 712 (2005) (describing the initial public offering process as “undemocratic at best and manipulative at worst”); Robert S. Hansen, *Do Investment Banks Compete in IPOs?: The Advent of the “7% Plus Contract”*, 59 J. FIN. ECON. 313 (2001).

211. See Ortenca Aliaj, Sujeet Indap & Miles Kruppa, *Can SPACs Shake Off Their Bad Reputation?*, FIN. TIMES (Aug. 12, 2020), <https://www.ft.com/content/6eb655a2-21f5-4313-b287-964a63dd88b3>.

212. See Dale A. Oesterle, *The High Cost of IPOs Depresses Venture Capital in the United States*, 1 ENTREPRENEURIAL BUS. L. J. 369, at 372 (2006).

213. See Charles Duhigg, *The Pied Piper of SPACs*, NEW YORKER (June 7, 2021), <https://www.newyorker.com/magazine/2021/06/07/the-pied-piper-of-spacs> (quoting Chamath Palihapitiya, a SPAC proponent, as saying that the SPAC “democratizes access to high-growth companies”).

214. See Patrick M. Corrigan, *The Seller’s Curse and the Underwriter’s Pricing Pivot: A Behavioral Theory of IPO Pricing*, 13 VA. L. & BUS. REV. 335, 401 (2019) (summarizing the empirical literature on IPO share allocation).

would stay private and benefit just the sophisticated venture capitalists and other investment companies that could participate in capital raising rounds, are now listing their stock on public markets.²¹⁵ That should benefit companies, investors, and stock markets more generally.

But critics have pointed out a variety of worrisome features of SPACs. The first is that SPAC-bought companies tend to underperform. Numerous studies have shown that SPAC-backed companies do worse than the broader market. Between 2003 and 2013, for example, SPACs that acquired a target had an annual return of -14.1%, while the Russell 2000 index had a return of 5.9%.²¹⁶ SPAC-backed companies underperform both the stock market as a whole and companies that list via the traditional IPO process.²¹⁷ One study found that SPAC-backed companies had a mean return of 19.1% twelve months after mergers.²¹⁸ This may sound high, but it underperformed an index of IPOs by 50.9% and the Nasdaq index by 17.9%.²¹⁹ The performance was even worse when extended to November 1, 2021, a date after the SPAC bubble.²²⁰ The mean return for SPACs by that date underperformed a comparable IPO index by 100.4% and the Nasdaq by 64.1%.²²¹ Some of the losses have been spectacular. QuantumScape, a battery company, had its market capitalization fall by \$10.8 billion between

215. See Steven Davidoff Solomon, *In Defense of SPACs*, N.Y. TIMES: DEALBOOK (June 12, 2021), <https://www.nytimes.com/2021/06/12/business/dealbook/SPACs-defense.html> (“The SPAC, which has been around for decades, has brought back the I.P.O. market for innovative, smaller companies. . . . Should investors be exposed to these sorts of companies, which are inherently riskier? Make your own judgment, but it wasn’t long ago when people were worried about start-ups staying private for too long, depriving public investors of exposure to potential gains. Now that the SPAC solves this problem, regulators are backpedaling.”); Amrith Ramkumar & Maureen Farrell, *When SPACs Attack! A New Force Is Invading Wall Street*, WALL ST. J. (Jan. 23, 2021), <https://www.wsj.com/articles/when-spacs-attack-a-new-force-is-invading-wall-street-11611378007> (quoting the CEO of one SPAC target as saying “I’ve seen the benefit of my management team being ruthlessly focused on operations rather than fundraising. . . . That time has been valuable to the company.”).

216. See Paul Rose & Steven Davidoff Solomon, *Where Have All the IPOs Gone? The Hard Life of the Small IPO*, 6 HARV. BUS. L. REV. 83, 123 (2016).

217. See Michael Klausner et al., *supra* note 3, at 228.

218. *Id.* at 256.

219. *Id.* at 256.

220. *Id.* at 256.

221. *Id.* at 256.

February and September 2021.²²² Shares in Lordstown Motors, an electric truck company, fell from a high of \$29 shortly after its merger to \$1.63 by October 11, 2022 after news came out that both the SEC and federal prosecutors were investigating it.²²³ At least historically speaking, then, SPACs have been poor investments.²²⁴

A second critique characterizes SPACs as nothing more than old-fashioned regulatory arbitrage, a financial instrument that restructures a familiar transaction (an IPO) into something substantively similar but formally different (a SPAC) so as to avoid costly regulation.²²⁵ Several observers have suggested that the SPAC boom has been driven not by purely market forces, but rather by a desire to receive legal protections that are available in mergers but not in IPOs.²²⁶ Under the so-called “safe harbor” provisions of the Private Securities Litigation Act, private plaintiffs are barred from bringing actions based on false statements or material omissions in connection with “forward-looking statements,” in other words, financial projections.²²⁷ Importantly, though, this safe harbor is expressly *not* available in IPOs.²²⁸ In other words, participants in SPAC mergers receive liability protections not available to participants in IPOs when they make statements about

222. See Amrith Ramkumar, *SPAC Rout Erases \$75 Billion in Startup Value*, WALL ST. J., (Sept. 2, 2021), <https://www.wsj.com/articles/spac-rout-erases-75-billion-in-startup-value-11630575180>.

223. See Matthew Goldstein, *Federal Prosecutors Are Looking into Lordstown, the Electric Truck Company*, N.Y. TIMES (Sept. 30, 2021) <https://www.nytimes.com/2021/07/02/business/lordstown-investigation.html>.

224. At least post-merger. Pre-merger, due to the attractive terms offered to the investors in units of SPACs, which include mechanisms for both downside protection and upside potential, institutional investors have done reasonably well. See Sam Goldfarb, *Some Investors Find Stability in SPACs*, WALL ST. J. (Oct. 12, 2021), <https://www.wsj.com/articles/some-investors-find-stability-in-spacs-11634007742>; Amrith Ramkumar, *SPAC Mania Gives Early Investors Steady Returns with Little Risk*, WALL ST. J. (Jan. 13, 2020), <https://www.wsj.com/articles/spac-mania-gives-early-investors-steady-returns-with-little-risk-11610533800>.

225. See Bruce A. Ericson, Ari M. Berman & Stephen B. Amdur, *The SPAC Explosion: Beware the Litigation and Enforcement Risk*, HARV. L. SCH. F. ON CORP. GOV. (Jan. 14, 2021), <https://corpgov.law.harvard.edu/2021/01/14/the-spac-explosion-beware-the-litigation-and-enforcement-risk/>.

226. See Chris Bryant, *Why Chamath Palihapitiya Loves SPACs So Much*, BLOOMBERG (Jan. 27, 2021, 11:30 PM), <https://www.bloomberg.com/opinion/articles/2021-01-28/why-chamath-palihapitiya-loves-spacs-so-much>.

227. See 15 U.S.C. § 77z-2.

228. See *id.* at § 77z-2(b)(2)(D).

how the company is expected to perform in the future.²²⁹ And it just so happens that SPACs use this favorable regulatory regime to issue decidedly optimistic multi-year disclosures to investors about their future prospects.²³⁰ One survey found that of 50 recent or pending SPAC deals, the companies had an aggregate of \$1 billion in annual profits but forecast to investors that these profits would grow fifteen-fold, to \$15 billion, by 2023.²³¹ Half of the companies had lost money in the previous year.²³² In one extreme case, a healthcare litigation company that specialized in purchasing medical claims from government-funded healthcare programs like Medicare and Medicaid projected that its revenues would rise from \$0 in the current year to almost \$1 billion the following year, and then to \$23 billion by 2026.²³³ Some critics go further, arguing that SPAC sponsors are not just engaging in lawful deal structuring – they are illegally evading federal rules governing investment companies. A 2021 lawsuit against one large SPAC, for example, alleged that the SPAC falsely claimed to be an operating company when in actuality it was an investment company subject to the

229. *But see* John Coates, *SPACs, IPOs and Liability Risk Under the Securities Laws*, U.S. SEC. AND EXCH. COMM'N (Apr. 8, 2021), <https://www.sec.gov/news/public-statement/spacs-ipos-liability-risk-under-securities-laws> (“Any simple claim about reduced liability exposure for SPAC participants is overstated at best, and potentially seriously misleading at worst. Indeed, in some ways, liability risks for those involved are higher, not lower, than in conventional IPOs, due in particular to the potential conflicts of interest in the SPAC structure. . . . If these facts about economic and information substance drive our understanding of what an ‘IPO’ is, they point toward a conclusion that the PSLRA safe harbor should not be available for any unknown private company introducing itself to the public markets. Such a conclusion should hold regardless of what structure or method it used to do so. The reason is simple: the public knows nothing about this private company. Appropriate liability should attach to whatever claims it is making, or others are making on its behalf.”).

230. A slew of lawsuits has followed in the wake of SPAC mergers, alleging that SPACs issue unrealistic projections about their future revenues and profits. *See, e.g.*, *Welch v. Meaux*, W.D. La. 19-1260; *Rico v. Lordstown Motors Corp.*, N.D. Oh. 4:21-cv-00616-PAG; *Cohen v. Burns*, D. Del. 1:21-cv-604-LPS.

231. *Making Sense of the SPAC Spectacle*, *ECONOMIST* (Apr. 24, 2021), <https://www.economist.com/leaders/2021/04/24/making-sense-of-the-spac-spectacle>.

232. *Id.*

233. *See* Ortenca Aliaj & Miles Kruppa, *Can This US Healthcare Litigation Company Really Be Worth \$33 Billion?*, *FIN. TIMES* (July 16, 2021), <https://www.ft.com/content/72b3f4ec-daad-4bc0-9f24-50222d4dcffb>.

tougher standards of the Investment Company Act.²³⁴ While it is unclear how these various legal challenges will ultimately be resolved, the suspicion that SPAC creators are exploiting loopholes in financial regulation hovers over the industry.

The final and perhaps simplest critique of SPACs is about compensation. The managers that create SPACs receive enormous compensation packages. Before a SPAC's initial IPO, the sponsors acquire for a nominal price a block of units equivalent to 20% of the company's equity (this is sometimes referred to as their "promote"). Promotes can lead to enormous paydays if the company eventually completes an acquisition. One SPAC manager received a payout of \$207 million on an investment of just \$25,000, despite the fact that the SPAC's shares declined 20% after the merger was announced.²³⁵ One study found that SPAC founders received average returns of eight times their investment.²³⁶ So, while SPAC investors underperform the market, SPAC managers greatly outperform it. Their compensation is also rife with conflicts of interest. SPAC sponsors receive no compensation unless they find a target company and acquire it.²³⁷ They have to return the money (typically after two years) if they do not.²³⁸ As SPAC managers get close to the redemption date, they have strong incentives to find a target, *any target*, just to ensure their compensation—otherwise, they walk away empty-handed.²³⁹

The regulatory response to SPACs, again, has been overwhelmingly focused on disclosure. The SEC's enforcement actions have focused on inaccurate or misleading disclosures by SPACs, not by other types of misbehavior or wrongdoing. For example, after one SPAC sought to merge with a "space infrastructure" company whose launch technology had failed,

234. See Andrew Ross Sorkin, Jason Karain, Sarah Kessler, Stephen Gandel, Lauren Hirsch, Ephrat Livni & Anna Schaverien, *Bill Ackman's SPAC Gets Sued*, N.Y. TIMES: DEALBOOK (Aug. 17, 2021), <https://www.nytimes.com/2021/08/17/business/dealbook/bill-ackman-spac.html>.

235. See Joshua Franklin & Jessica DiNapoli, *Analysis: Investors Push Back on Blank-Check Company Insiders' Payout Bonanza*, REUTERS (Dec. 9, 2020) <https://www.reuters.com/article/spac-compensation-analysis/analysis-investors-push-back-on-blank-check-company-insiders-payout-bonanza-idINKBN28J1JX>.

236. See Ramkumar & Farrell, *supra* note 215.

237. See Klausner et al., *supra* note 3, at 247.

238. *Id.*

239. *Id.*

whose satellites were non-functional, and whose Russian founder was considered a national security risk by government agencies, the SEC's enforcement action focused on the fact that the SPAC had failed to adequately inform investors about this information. Ultimately, the target agreed to enhance its disclosure controls.²⁴⁰ Similarly, in 2021, an SEC Investor Advisory Committee that examined investor protection issues in SPACs made two recommendations: to more strictly enforce disclosure rules and to publish an analysis of the "players in the various SPAC stages, their compensation, and their incentives."²⁴¹

Scholars that have studied SPACs have similarly focused on the perceived efficiency (or inefficiency) of SPACs. Some scholars have asserted that the SEC should refrain from restricting SPAC companies from disclosing projections about future performance because doing so would "disrupt the free flow of information, hinder price discovery, reduce price efficiency, and dampen capital formation."²⁴² Others that criticize the SPAC phenomenon have done so based on the perceived information asymmetries present in the market— asymmetries that reduce the efficiency of capital markets.²⁴³ None have gone so far as to call the disproportionate balance of risk and reward in the SPAC industry simply unjust.

240. See Order Instituting Cease-and-Desist Proceedings, Momentus, Inc., Stable Road Acquisition Corp., Srcni Holdings, LLC & Brian Kabot, Securities Act Release No. 10955, Securities Exchange Act Release No. 92391, File No. 3-20393 (July 13, 2021).

241. See *Recommendations of the Investor as Purchaser and Investor as Owner Subcommittees regarding Special Purpose Acquisition Companies*, U.S. SEC. AND EXCH. COMM'N (Aug. 26, 2021), <https://www.sec.gov/spotlight/investor-advisory-committee-2012/draft-recommendation-of-the-iap-and-iao-subcommittees-on-spacs-082621.pdf>.

242. See Kimball Chapman, Richard M. Frankel & Xiumin Martin, *SPACs and Forward-Looking Disclosure: Hype or Information?* (Oct. 20, 2021) (unpublished manuscript) (available on SSRN), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3920714.

243. See Rodrigues & Stegemoller, *supra* note 3, at 47-48 ("What the SEC failed to grasp at a pivotal point in the SPAC evolution, however, was the importance of dissenters in protecting all investors from the information asymmetries and concomitant market frenzy that can distort the efficiency of capital markets."). *But see* Ganor, *supra* note 192, at 427 ("Retail shareholder power to act is often illusory, and without the knowledge how and when to use it, it might be worthless. The law deals with this problem mainly by imposing mandatory disclosure requirements and by relying on fiduciaries that owe the duty to promote the shareholders' best interests through guidance and active abuse prevention. This Article puts forward a different solution—the contingent shareholder action, which enables shareholders to follow sophisticated investors without the expense of processing disclosed information and is particularly useful in cases such as redemption decisions in SPACs.").

C. Cryptocurrency

It is hard to imagine a more disruptive financial innovation than cryptocurrency. Social trading apps are, at their heart, just cheaper ways for investors to buy stocks. SPACs are just an alternative path for a company to sell stocks to the public. Cryptocurrencies, on the other hand, seek to entirely remake our financial system, replacing money itself.²⁴⁴ Although cryptocurrencies in one form or another date back to the early days of the internet, the major leap forward came in 2009 with the creation of bitcoin by an anonymous coder going by the name of Satoshi Nakamoto.²⁴⁵ Bitcoin, as Nakamoto described it in a white paper posted on an obscure message board, would be a “purely peer-to-peer version of electronic cash” that would allow “online payments to be sent directly from one party to another without going through a financial institution.”²⁴⁶ Bitcoin promised to provide an alternative to our financial system by giving users of the virtual currency a way to transact with one another anonymously and reliably and without having to use traditional financial intermediaries such as banks and credit cards.²⁴⁷ It would be decentralized—the system would not be controlled by any single institution, but rather by the entire network of computers that ran the bitcoin code. It would be anonymous—users of the currency would be identified by randomly generated “addresses” with no connection to their real-world identity. And it would be secure—the distributed ledger that served as a record of bitcoin transactions would combine cutting edge cryptography with an incentive-based validation system called “proof of work.”²⁴⁸

244. See WILLIAM MAGNUSON, *BLOCKCHAIN DEMOCRACY: TECHNOLOGY, LAW AND THE RULE OF THE CROWD* 28–40 (2020) (describing the aspirations of cryptocurrency pioneers).

245. See NATHANIEL POPPER, *DIGITAL GOLD: BITCOIN AND THE INSIDER STORY OF THE MISFITS AND MILLIONAIRES TRYING TO REINVENT MONEY* 4–7 (2015).

246. SATOSHI NAKAMOTO, *BITCOIN: A PEER-TO-PEER ELECTRONIC CASH SYSTEM* 1 (2008), <https://bitcoin.org/bitcoin.pdf>.

247. *Id.*

248. See Saule T. Omarova, *New Tech v. New Deal: Fintech as a Systemic Phenomenon*, 36 *YALE J. REG.* 735 (2019); Usha R. Rodrigues, *Law and the Blockchain*, 104 *IOWA L. REV.* 679 (2019); Omri Marian, *A Conceptual Framework for the Regulation of Cryptocurrencies*, 82 *U. CHI. L. REV. DIALOGUE* 53 (2015–16); Michael Abramowicz, *Cryptocurrency-Based Law*, 58 *ARIZ. L. REV.* 359 (2016); William Magnuson, *Financial Regulation in the Bitcoin Era*, 23 *STAN. J. L. BUS. & FIN.* 159 (2018); William Magnuson, *Regulating Fintech*, 71 *VAND. L. REV.* 1167 (2018);

Fast forward twelve years, and the revolution that bitcoin unleashed on the world has outdone even Nakamoto's wildest dreams. Seemingly every day, the world's major newspapers feature major stories about cryptocurrencies—from its price swings²⁴⁹ to its billionaire investors²⁵⁰ to its connections to the dark web.²⁵¹ Bitcoin now has a market capitalization, in terms of the total value of currently outstanding currency, of \$1.2 trillion.²⁵² Large investment banks offer wealthy clients access to the industry.²⁵³ Exchange traded funds, crypto-exchanges, and miners, all catering to the cryptocurrency industry, have developed into major industries themselves.²⁵⁴

Perhaps just as importantly, other cryptocurrencies have emerged as well.²⁵⁵ The most significant of these is Ethereum, launched in 2013, by a 19-year-old Russian wunderkind named Vitalik Buterin.²⁵⁶ Ethereum uses the underlying technology that bitcoin was built on, blockchain, to allow for a much wider

Shaanan Cohny, David Hoffman, Jeremy Sklaroff & David Wishnick, *Coin-Operated Capitalism*, 119 COLUM. L. REV. 591 (2019); Tom C. W. Lin, *Infinite Financial Intermediation*, 50 WAKE FOREST L. REV. 643 (2015).

249. See Paul Vigna, Elaine Yu & Caitlin Ostroff, *Bitcoin Price Surges Past \$66,000, Reaching New Highs*, WALL ST. J. (Oct. 20, 2021), <https://www.wsj.com/articles/bitcoin-price-surges-to-record-high-11634743244>.

250. See Nathaniel Popper, *Here Are the World's Virtual Currency Billionaires (or at Least They Were)*, N.Y. TIMES (Feb. 7, 2018), <https://www.nytimes.com/2018/02/07/technology/forbes-virtual-currency-billionaires.html>.

251. See Jamie Tarabay, *How Cryptocurrency Turbocharged the Cybercrime Racket*, BLOOMBERG (July 7, 2021), <https://www.bloomberg.com/news/articles/2021-07-03/how-cryptocurrency-turbocharged-the-cybercrime-racket-quicktake?leadSource=uverify%20wall#xj4y7vzkg>.

252. See Turner Wright, *Crypto Market Cap Breaks \$2.5 Trillion – Is This the Season for ETFs?*, COINTELEGRAPH (Oct. 19, 2021), <https://cointelegraph.com/news/crypto-market-cap-breaks-2-5t-is-this-the-season-for-etfs>.

253. See Hugh Son, *Morgan Stanley Becomes the First Big U.S. Bank to Offer Its Wealthy Clients Access to Bitcoin Funds*, CNBC (Mar. 27, 2021), <https://www.cnbc.com/2021/03/17/bitcoin-morgan-stanley-is-the-first-big-us-bank-to-offer-wealthy-clients-access-to-bitcoin-funds.html>.

254. See Michael Wursthorn, *A Bitcoin ETF Is Here. What Does That Mean for Investors?*, WALL ST. J. (Oct. 19, 2021), <https://www.wsj.com/articles/a-bitcoin-etf-is-almost-here-what-does-that-mean-for-investors-11634376601>.

255. See Angela Walch, *The Path of the Blockchain Lexicon (and the Law)*, 36 REV. BANKING & FIN. L. 713 (2017).

256. See Nathaniel Popper, *The People Leading the Blockchain Revolution*, N.Y. TIMES, (June 27, 2018), <https://www.nytimes.com/2018/06/27/business/dealbook/blockchain-stars.html>.

variety of uses.²⁵⁷ While bitcoin was built to serve as a currency, allowing users to exchange value with one another, Ethereum was built to be able to do much more—to enable smart contracts, self-executing transactions, and decentralized organizations.²⁵⁸ Other cryptocurrencies offer still more features—Monero specializes in ensuring greater anonymity for users,²⁵⁹ Tether claims to offer greater stability by pegging its value to the dollar,²⁶⁰ and Cardano was designed to be able to process greater transaction volume.²⁶¹

Another major aspect of the blockchain world has been the use of the technology for other unrelated services, such as supply chain management,²⁶² financial transaction settlement,²⁶³ and most recently, a type of digital asset known as a “non-fungible token.”²⁶⁴ Non-fungible tokens (NFTs) provide a way for consumers to prove “ownership” of a digital asset, such as a virtual work of art or an image of a digital cat.²⁶⁵ In 2021, the digital artist Beeple sold an NFT of a JPG file of a collage of images for \$69 million in an auction conducted by Christie’s.²⁶⁶ The National Basketball Association

257. See Vitalik Buterin, *Ethereum Whitepaper*, ETHEREUM (2013), <https://ethereum.org/en/whitepaper/>.

258. See Carla L. Reyes, *If Rockefeller Were a Coder*, 87 GEO. WASH. L. REV. 373 (2019).

259. See Justin Scheck & Shane Shifflett, *How Dirty Money Disappears into the Black Hole of Cryptocurrency*, WALL ST. J. (Sept. 28, 2018), <https://www.wsj.com/articles/how-dirty-money-disappears-into-the-black-hole-of-cryptocurrency-1538149743>.

260. See Jeanna Smialek, *Why Washington Worries About Stablecoins*, N.Y. TIMES (Sept. 17, 2021), <https://www.nytimes.com/2021/09/17/business/economy/federal-reserve-virtual-currency-stablecoin.html>.

261. See Caitlin McCabe, *Cardano’s Ada Is the Latest Cryptocurrency to Surge. Here’s What You Need to Know*, WALL ST. J. (Aug. 28, 2021), <https://www.wsj.com/articles/cardanos-ada-is-the-latest-cryptocurrency-to-surge-heres-what-you-need-to-know-11630143002>.

262. See Knut Alicke, Alan Davies, Markus Leopoldeder & Alex Niemeyer, *Blockchain Technology for Supply Chains – A Must or a Maybe?*, MCKINSEY & CO. (Sept. 12, 2017), <https://www.mckinsey.com/business-functions/operations/our-insights/blockchain-technology-for-supply-chains-a-must-or-a-maybe>.

263. See Angela Walch, *The Bitcoin Blockchain as Financial Market Infrastructure: A Consideration of Operational Risk*, 18 N.Y.U. J. LEGIS. & PUB. POL’Y 837 (2015).

264. See Juliet M. Moringiello & Christopher K. Odinet, *The Property Law of Tokens*, 75 FLA. L. REV. 607 (2022); Caitlin Ostroff, *The NFT Origin Story, Starring Digital Cats*, WALL ST. J. (May 8, 2021), <https://www.wsj.com/articles/the-nft-origin-story-starring-digital-cats-11620446425>.

265. Ostroff, *supra* note 264.

266. See Scott Reyburn, *JPG File Sells for \$69 Million, as ‘NFT Mania’ Gathers Pace*, N.Y. TIMES (Mar. 11, 2021), <https://www.nytimes.com/2021/03/11/arts/design/nft-auction-christies-beeple.html>.

has issued NFTs in virtual basketball cards that have sold for as much as \$200,000.²⁶⁷ Martha Stewart issued NFTs in past Halloween costumes.²⁶⁸ And, horror of all horrors, one law professor has sold an NFT of the Brooklyn Bridge (it sold for \$500).²⁶⁹

The motivations of players in the cryptocurrency world are diverse and eclectic. Many of the original proponents of bitcoin were fiercely anti-authoritarian and even anarchistic, viewing cryptocurrency as a mechanism for avoiding the snooping eye of governments and financial institutions.²⁷⁰ Over time, as more institutional investors have entered the industry, the profit motive has become more pronounced.²⁷¹ A craze of “initial coin offerings” reaped billions of dollars for creators, and buyers often sought to turn a quick profit from their investments.²⁷² Still others are interested in cryptocurrencies as a way of improving our financial system by making transactions cheaper, faster, and reducing or even eliminating the need for intermediaries that add costs.²⁷³ Artists, on the other hand, have viewed NFTs as a new avenue for attracting attention to and monetizing their work.²⁷⁴

But a veritable parade of terribles has followed in the wake of the onward march of cryptocurrency. First on the list is crime.

267. See Jabari Young, *People Have Spent More than \$230 Million Buying and Trading Digital Collectibles of NBA Highlights*, CNBC (Feb. 28, 2021), <https://www.cnbc.com/2021/02/28/230-million-dollars-spent-on-nba-top-shot.html>.

268. See Helen Holmes, *Martha Stewart Is Offering Halloween-Inspired NFTs on a Newly Launched Website*, OBSERVER (Oct. 20, 2021, 1:27 PM), <https://observer.com/2021/10/martha-stewart-is-offering-halloween-inspired-nfts-on-a-newly-launched-website/>.

269. See Daniel Kuhn, *NFT Artist Brian Frye Wants You to Steal This Article*, CoinDesk, Oct. 21, 2021, <https://www.coindesk.com/policy/2021/10/21/nft-artist-brian-frye-wants-you-to-steal-this-article/>.

270. See MAGNUSON, *supra* note 244, at 17–40 (describing the philosophical origins of the creators of cryptocurrencies).

271. See Paul Sullivan, *As Bitcoin's Price Surges, Affluent Investors Start to Take a Look*, N.Y. TIMES (Jan. 29, 2021), <https://www.nytimes.com/2021/01/29/your-money/bitcoin-wealth-investors.html>.

272. See Jonathan Rohr & Aaron Wright, *Blockchain-Based Token Sales, Initial Coin Offerings, and the Democratization of Public Capital Markets*, 70 HASTINGS L.J. 463 (2019); *The Meaning in the Madness of Initial Coin Offerings*, ECONOMIST (Nov. 9, 2017), <https://www.economist.com/leaders/2017/11/09/the-meaning-in-the-madness-of-initial-coin-offerings>.

273. See Knowledge at Wharton Staff, *How the Blockchain Will Impact the Financial Sector*, KNOWLEDGE AT WHARTON (Nov. 16, 2018), <https://knowledge.wharton.upenn.edu/article/blockchain-will-impact-financial-sector/>.

274. See Anil Dash, *NFTs Weren't Supposed to End Like This*, ATLANTIC (Apr. 2, 2021), <https://www.theatlantic.com/ideas/archive/2021/04/nfts-werent-supposed-end-like/618488/>.

Because of the anonymity offered by cryptocurrencies, criminal organizations have adopted cryptocurrencies as their currency of choice, both to fund their operations and to hide their cash flows from law enforcement agencies.²⁷⁵ Similarly, hackers have viewed cryptocurrencies as a ripe target for theft.²⁷⁶ They have heavily targeted cryptocurrency exchanges—the companies that serve as the primary avenue for regular investors to acquire cryptocurrencies—and it is estimated that in 2020 alone, hackers made away with \$3.8 billion in cryptocurrency.²⁷⁷ Similarly, ransomware attackers typically request payment in bitcoin when they paralyze critical computer infrastructures of hospitals, schools, and pipelines.²⁷⁸ Second is national security. Russian intelligence agencies have been quoted as saying that “the internet belongs to the Americans – but blockchain will belong to us.”²⁷⁹ It is believed that North Korea has stolen billions of dollars in cryptocurrency to fund its nuclear program.²⁸⁰ Third is environmental. Most cryptocurrencies use a highly energy-intensive system for maintaining and verifying transactions, a system known as “proof of work,” that incentivizes miners to use ever more electricity to earn cryptocurrency rewards.²⁸¹ This has led to blockchain consuming a tremendous amount of energy

275. See Diego Ore, *Latin American Crime Cartels Turn to Cryptocurrencies for Money Laundering*, REUTERS (Dec. 8, 2020, 5:16 AM), <https://www.reuters.com/article/mexico-bitcoin-insight/latin-american-crime-cartels-turn-to-cryptocurrencies-for-money-laundering-idUSKBN28I1KD>.

276. See Tom Foremski, *Billions Were Stolen in Blockchain Hacks Last Year*, ZDNET, (Jan. 12, 2021), <https://www.zdnet.com/article/billions-were-stolen-in-blockchain-hacks-in-2020/>.

277. *Id.*

278. See William Turton & Kartikay Mehrotra, *Hackers Breached Colonial Pipeline Using Compromised Password*, BLOOMBERG (June 4, 2021, 1:58 PM), <https://www.bloomberg.com/news/articles/2021-06-04/hackers-breached-colonial-pipeline-using-compromised-password#xj4y7vzkg>.

279. See Nathaniel Popper, *Blockchain Will Be Theirs, Russian Spy Boasted at Conference*, N.Y. TIMES (Apr. 29, 2018), <https://www.nytimes.com/2018/04/29/technology/blockchain-iso-russian-spies.html>.

280. See Robert McMillan & Aruna Viswanatha, *North Korea Turning to Cryptocurrency Schemes in Global Heists, U.S. Says*, WALL ST. J. (Feb. 17, 2021, 5:47 PM), <https://www.wsj.com/articles/u-s-authorities-charge-north-koreans-in-long-running-hacking-scheme-11613581358>.

281. See Jon Huang, Claire O’Neill & Hiroko Tabuchi, *Bitcoin Uses More Electricity Than Many Countries. How Is That Possible?*, N.Y. TIMES, (Sept. 3, 2021), <https://www.nytimes.com/interactive/2021/09/03/climate/bitcoin-carbon-footprint-electricity.html>.

every year.²⁸² By some estimates, the amount of electricity used by bitcoin alone amounts to the amount of energy used by the entire country of the Netherlands in a year.²⁸³ A single transaction in bitcoin consumes as much energy as a Dutch household uses in an entire month.²⁸⁴

Despite the wide-ranging concerns about cryptocurrency, regulatory efforts to date have focused on a limited set of issues. In obvious cases of crime—such as money laundering or theft—law enforcement agencies have prosecuted wrongdoing.²⁸⁵ Enforcement is difficult given that wrongdoers go to great lengths to maintain their anonymity, are often located abroad, and can be difficult to arrest, but there have been some notable successes.²⁸⁶ The Department of Justice recently created an enforcement team specifically devoted to cryptocurrency-related crime that may lead to further progress.²⁸⁷ In the absence of criminal wrongdoing, however, financial regulators have largely focused their attention on faulty disclosures.²⁸⁸ All of the major enforcement actions brought by U.S. financial regulators in the previous year have revolved around information or registration failures. For example, the SEC brought an enforcement action against Poloniex, a website that offered a trading platform for users to buy and sell digital assets, and claimed that the company operated an exchange and

282. *Id.*

283. *Id.*

284. *New Academic Paper: Bitcoin's Growing Energy Problem*, DIGICONOMIST (May 16, 2018), <https://digiconomist.net/bitcoins-growing-energy-problem>; *How Much Electricity Does an American Home Use?*, U.S. ENERGY INFO. ADMIN. (Oct. 7, 2021), <https://www.eia.gov/tools/faqs/faq.php?id=97&t=3>.

285. *See, e.g.,* Kadhim Shubber, *US Charges Bitcoin Exchange Founders Over Money Laundering*, FIN. TIMES (Oct. 1, 2020), <https://www.ft.com/content/1672e8fe-1072-448a-92e7-cde9cb6dce6f>; U.S. DEP'T TREASURY'S OFF. FOREIGN ASSETS CONTROL, *UPDATED ADVISORY ON POTENTIAL SANCTIONS RISKS FOR FACILITATING RANSOMWARE PAYMENTS*, (Sept. 21, 2021).

286. *See* Paul Vigna & Caitlin Ostroff, *Why Hackers Use Bitcoin and Why It is So Difficult to Trace*, WALL ST. J. (July 16, 2020), <https://www.wsj.com/articles/why-hackers-use-bitcoin-and-why-it-is-so-difficult-to-trace-11594931595>.

287. *See* Press Release, Deputy Attorney General Lisa O. Monaco Announces National Cryptocurrency Enforcement Team, U.S. Dept. Justice (Oct. 6, 2021).

288. *See* Jamie Boucher, Alexander C. Drylewski, Eytan J. Fisch, Stuart D. Levi, Jessie K. Liu, Peter B. Morrison & William Ridgeway, *Cryptocurrency Regulation and Enforcement at the US Federal and State Levels*, SKADDEN, ARPS, SLATE, MEAGHER & FLOM LLP (Sept. 28, 2021), <https://www.skadden.com/en/insights/publications/2021/09/quarterly-insights/cryptocurrency-regulation-and-enforcement-at-the-us-federal-and-state-levels>.

thus should have registered with the SEC.²⁸⁹ Poloniex settled the charges without admitting wrongdoing and paid a fine of around \$10 million.²⁹⁰ The SEC has also brought numerous cases against the issuers of cryptocurrencies in so-called “initial coin offerings,” alleging either that they failed to properly register the cryptocurrencies with the SEC or that they provided false or misleading information to investors.²⁹¹ The Commodity Futures Trading Commission has similarly brought charges against crypto-exchanges for operating swaps facilities without proper registration.²⁹² Regulators have also provided guidance about how companies can issue ICOs properly, guidance that generally recommends better disclosures to investors about the risks and functions of their digital assets.²⁹³ This, too, has been hamstrung by crypto companies simply issuing broad disclaimers about their products. One company raised over \$4 billion in 2018 by offering a cryptocurrency that—it informed investors—did “not have any rights, uses, purpose, attributes, functionalities or features, express or implied.”²⁹⁴ Coinbase, the largest cryptocurrency exchange in the U.S., simply discloses to investors that its operating results will fluctuate due to the “highly volatile nature of crypto”; that if the price or volume of crypto transactions declines, its business “would be adversely affected”; and that “the future development and growth of crypto is subject to a variety of factors that are difficult to predict and evaluate.”²⁹⁵

289. See *In the Matter of Poloniex, LLC*, Securities Exchange Act Release No. 92607, at 1–3 (Aug. 9, 2021), <https://www.sec.gov/litigation/admin/2021/34-92607.pdf>.

290. *Id.* at 8.

291. See, e.g., *SEC v. Ripple Labs, Inc.*, No. 1:20-cv-10832, (S.D.N.Y. Dec. 22, 2020) (alleging that Ripple Labs sold digital assets worth over \$1.4 billion without registering the assets with the SEC as required by the securities laws).

292. See *Commodity Futures Trading Comm’n v. HDR Global Trading Ltd.*, 20-cv-08132, at 2, (S.D.N.Y. Oct. 1, 2020) (alleging that the defendant was “operating as an unregistered futures commission merchant . . . and operating a facility for the trading of swaps without being registered as a swap execution facility . . . or as a designated contract market”).

293. See *Framework for “Investment Contract” Analysis of Digital Assets*, U.S. SEC. AND EXCH. COMM’N (Apr. 3, 2019), https://www.sec.gov/corpfin/framework-investment-contract-analysis-digital-assets#_edn1.

294. See *Block.one, EOS Token Purchase Agreement 2* (Sept. 4, 2017), https://d340lr3764rrcr.cloudfront.net/purchase_agreement/block.one+-+EOS+Token+Purchase+Agreement+-+September+4%2C+2017.pdf.

295. *Coinbase Global, Inc., Registration Statement (Form S-1) 15–17* (Feb. 25, 2021).

One glaring exception to this relatively hands-off approach to the cryptocurrency industry has come from China.²⁹⁶ The Chinese government, worried about the dangers of cryptocurrency and its financial and environmental risks, has steadily tightened its grip on the crypto-industry to the extent that nearly all activities related to cryptocurrencies are effectively banned there today.²⁹⁷ First, in 2013, China's central bank, the People's Bank of China, prohibited financial institutions in the country from handling bitcoin transactions, explaining that the ban was enacted to "protect the status of the renminbi as the statutory currency, prevent risks of money laundering and protect financial stability."²⁹⁸ Then, in 2018, the central bank instructed local governments that they should order cryptocurrency mining companies to "exit" the country.²⁹⁹ Finally, in a joint statement issued by a group of Chinese financial regulators in 2021, the government simply provided that all transactions involving cryptocurrencies are illegal. The outright ban on cryptocurrency in the country was instituted, the regulators explained, to prevent the "the blind and disorderly development" of the industry.³⁰⁰ Such a heavy-handed approach has been met with some consternation among industry observers and words of disavowal from U.S. regulators, who have clarified that they have no intentions to follow a similar approach in the U.S.³⁰¹

* * *

Witnessing the upheaval in financial markets of the last few years, in areas as diverse as social trading apps and SPACs and cryptocurrencies, it is hard not to be reminded of the unruly beginnings of stock markets themselves. The parallels are so close that it may be worthwhile to examine Adam Anderson's classic description of London during the South Sea Bubble of 1720:

296. See Coco Feng, *China Puts Cryptocurrency Mining on Industrial Blacklist in Final Step to Eliminate the Activity*, SOUTH CHINA MORNING POST (Oct. 22, 2021, 9:00 PM) <https://www.scmp.com/tech/policy/article/3153311/china-puts-cryptocurrency-mining-industrial-blacklist-final-step>.

297. *Id.*

298. See Gerry Mullany, *China Restricts Banks' Use of Bitcoin*, N.Y. TIMES, Dec. 5, 2013.

299. See Chen Jia & Ren Xiaojin, *PBOC Gets Tougher on Bitcoin*, CHINA DAILY, Jan. 5, 2018.

300. See Amy Qin & Ephrat Livni, *China Cracks Down Harder on Cryptocurrency with New Ban*, N.Y. TIMES, Sept. 24, 2021.

301. See Benjamin Bain, *SEC Chief Says the U.S. Won't Ban Cryptocurrencies*, BLOOMBERG, Oct. 5, 2021.

From morning till evening the dealers therein, as well as in South Sea-Stock, appeared in continual crowds all over Exchange Alley, so as to choak up the passage through it. Not a weekday passed without fresh projects recommended by pompous advertisements in all the newspapers, which were now swelled enormously, directing where to subscribe to them. . . . Some of the obscure keepers of those books of subscription, contenting themselves with what they had got in the forenoon, by the subscription of one or two millions . . . were not to be found in the afternoon of the same day, the room they had hired for a day being shut up, and they and their subscription books never heard of more

Persons of quality of both sexes were deeply engaged in many of these bubbles, avarice prevailing at this time over all considerations of either dignity or equity; the males coming to taverns and coffee-houses to meet their brokers, and the ladies to the shops of milliners and haberdashers for the same ends. Any impudent impostor, whilst the delusion was at its greatest height, needed only to hire a room at some coffeehouse or other house near that alley, for a few hours, and open a subscription book, for somewhat relative to commerce, manufacture, plantation, or of some supposed invention, either newly hatched out of his own brain, or else stolen from some of the many abortive projects of which we have given an account in former reigns, having first advertised it in the newspapers the preceding day, and he might, in a few hours, find subscribers for one or two millions (in some cases more) of imaginary stock. Yet many of those very subscribers were far from believing those projects feasible: it was enough for their purpose that there would very soon be a premium on the receipts for those subscriptions; when they generally got rid of them in the crowded alley to others more credulous than themselves. . . . The infatuation was at length so strong that one project was, in the newspapers, advertised thus: 'For subscribing two Millions to a certain promising or profitable Design, which will hereafter be promulgated.'³⁰²

We have come a long way from the days of the South Sea Bubble, but, in many ways, the fundamental problem of the market is the same. Markets today may be more efficient at matching willing buyers and sellers, or at executing orders quickly, or at reducing trading fees. But the spirit of finance, of creating a fair,

302. ADAM ANDERSON, AN HISTORICAL AND CHRONOLOGICAL DEDUCTION OF THE ORIGIN OF COMMERCE, Vol. III 102-03 (1787).

just, and moral economy, has no more been solved today than it was in the days of the East India Company. If anything, the focus of financial regulators on improving information flows, rather than policing broader market behavior, has detracted from our ability to improve financial markets. By relying on the assumption that the proper role of financial law is to ensure that investors have information about financial products and then let investors do as they like, financial regulation has turned into a stilted, paralyzed institution. We can do better.

IV. REFORMING MARKET EFFICIENCY

Thus far, this Article has argued that financial regulation has become too beholden to a cramped view of market efficiency, that this view has led financial regulators to abstain from regulating the financial markets more fulsomely, and that a variety of dangerous market dynamics have flourished as a result. It has also sketched out a few areas where we might do more to regulate market transactions, even when willing buyers and willing sellers contract in information-rich, competitive environments—the hallmarks of efficient markets. In this Part, the Article will explore potential reforms to market regulation that could help close the gap between the spirit of finance and its practice. In particular, it will argue that financial regulation should adopt a toolkit of both structural and substantive reforms aimed at making financial markets fairer, freer, and more just. Some of these reforms would require legislation from Congress. Others could be implemented by federal regulators more directly. Still others would need the involvement of state courts. But the overriding purpose of all these reforms is to allow markets to correspond more closely with our visions of justice.

A. Distributional Problems

How might regulation solve the problem of unfair distributions that are caused by free market transactions? To return to our Treasure Island example, consider the case of Long John Silver, the excellent negotiator, pitted against Jim Hawkins, the gullible youngster. Long John Silver manages to extract three turtles from Jim Hawkins for just one of his own coconuts, leaving Long John Silver with almost all of the island's coconuts and half of its turtles. Long John Silver is much richer than Jim Hawkins as a result.

Is there any way to even the odds in a way that might lead to a more equitable distribution of the island's bounty?

1. *Fee Caps*

First, and most intrusively, regulators could regulate compensation and prices directly, through caps, collars, or minimum prices. We might, for example, establish a rule that the maximum price for one coconut is one turtle. If Long John Silver wanted three turtles, he would have to trade an equal number of coconuts to get them. This would ensure that Long John Silver's negotiation skills would not lead to excessive payouts to him. If we wanted to allow for some differentiation in pricing, we could set the cap higher (at, say, two turtles per coconut). Or, if we were not sure ahead of time whether Long John Silver or Jim Hawkins would prove the better negotiator, we could set a collar: coconuts can't be sold for a price higher than two turtles, or a price lower than one half of a turtle. This would protect against disproportionate accumulations of wealth on the part of *either* party. We could also change the structure of payment, by, for example, compensating Long John Silver based on how many hours he worked collecting coconuts. This might provide Jim Hawkins with greater leverage in negotiating if it became clearer just what an extravagant lifestyle he was affording Long John Silver.

Price and fee caps might be considered a radical intervention in the financial markets,³⁰³ but they are in fact a widely used tool in many areas outside of finance and have occasionally been used

303. See, e.g., Richard S. Markovits, "Public Utility" Regulation: Some Economic and Moral Analyses, 35 *YALE J. ON REGUL.* 875, 901 (2018) ("I do not think that the decision of any type of business to charge a high price for its product is moral-rights-violative. Although I know some will disagree, I believe that, in liberal, moral-rights-based societies, businesses are morally and legally obligated to price their products to maximize the interests of their shareholders/owners unless the law prohibits their doing so. The prices that are charged may be high relative to marginal or average total cost, may be 'exploitative' in the sense that they yield the seller a high percentage of the transaction surplus its transactions generate, may deny some potential or actual buyers significant economic opportunities, may reduce utility or 'welfare,' and may increase economic inequality. . . . However, even if the relevant pricing produces such undesirable results—indeed, even if it critically reduces the opportunity of some potential buyers to lead lives of moral integrity—and even if such pricing is 'undemocratic,' those realities do not make the business' pricing moral-rights-violative. In liberal, moral-rights-based societies, businesses have no moral obligation to benefit their customers and, I believe, morally ought not sacrifice their shareholders' interest to do so.").

within finance as well.³⁰⁴ Price caps have a long history in the telecommunications,³⁰⁵ railroad,³⁰⁶ and utility industries.³⁰⁷ Massachusetts has fee caps for third-party delivery apps like DoorDash and Grubhub.³⁰⁸ The Dodd-Frank Act introduced half-hearted executive compensation regulation when it required public companies to submit executive compensation packages to a nonbinding shareholder vote.³⁰⁹ Similarly, after the federal government bailed out large financial institutions in the 2008–09 financial crisis, the Obama administration announced that executives of financial institutions that received bailout funds would face a compensation cap of \$500,000.³¹⁰ The CFPB has gone further, introducing caps on credit card penalty fees and interest-rate increases.³¹¹

Price and fee cap regulation could apply in a number of ways to financial markets today. With social trading apps, one of the worries has been that trading apps that receive high payments for order flow (that is, that sell customer orders to third-party investment companies who, in turn, fulfill the orders for the customers) tend to offer worse stock prices for customers than competitors with lower payments for order flow. In other words, social trading apps and investment companies are enriching

304. See, e.g., BARBARA H. FRIED, *THE PROGRESSIVE ASSAULT ON LAISSEZ FAIRE* 162–65, 196–97 (2009); William J. Novak, *The Public Utility Idea and the Origins of Modern Business Regulation*, in *CORPORATIONS AND AMERICAN DEMOCRACY* 13 (Naomi R. Lamoreaux & William J. Novak eds., 2017); Jim Rossi & Morgan Ricks, *Foreword to Revisiting the Public Utility*, 35 *YALE J. REGUL.* 711 (2018).

305. See Robert W. Crandall, *Surprises from Telephone Deregulation and the AT&T Divestiture*, 78 *AM. ECON. REV.* 323 (1988).

306. See Herbert Hovenkamp, *Regulatory Conflict in the Gilded Age: Federalism and the Railroad Problem*, 97 *YALE L.J.* 1017 (1988).

307. See Jim Rossi, *The Political Economy of Energy and Its Implications for Climate Change Legislation*, 84 *TUL. L. REV.* 379, 383 (2009) (“Once a franchise is defined, the traditional approach to regulating the electric utility is to regulate rates in a manner designed to approximate the results of a competitive market.”).

308. See Brendan Pierson, *Massachusetts Accuses Grubhub of Violating Pandemic Fee Cap*, *REUTERS*, July 29, 2021.

309. See Randall S. Thomas, Alan R. Palmiter & James F. Cotter, *Dodd-Frank’s Say on Pay: Will It Lead to a Greater Role for Shareholders in Corporate Governance?*, 97 *CORNELL L. REV.* 1213 (2012).

310. See Mary Williams Walsh, *U.S. Faulted Over Pay at Rescued Firms*, *N.Y. TIMES*, Jan. 24, 2012.

311. See Natasha Sarin, *The Salience Theory of Consumer Financial Regulation*, *PENN L.: LEGAL SCHOLARSHIP REPOSITORY* (Aug. 1, 2018), https://scholarship.law.upenn.edu/faculty_scholarship/2010.

themselves off of customer orders while *appearing* to offer free stock trading. In order to remedy this, regulators might limit (or even prohibit) payment for order flow as a compensation structure. Alternatively, if we believe that payment for order flow is a valuable market structure, we might set tighter collars around the price that consumers receive when they purchase and sell stock. In the context of SPACs, on the other hand, fee caps could come in the form of restrictions on how much compensation SPAC sponsors receive for their efforts in finding suitable target companies to acquire.³¹² When financial executives receive hundreds of millions of dollars in compensation for transactions that, on balance, perform worse than the stock market as a whole, there are strong reasons to object. Alternatively, we could change the structure of payment in order to make prices more commensurable to other forms of work, by, for example, forcing sponsors to charge on an hourly basis, rather than as a percentage of equity. Fee caps would be more difficult to implement in the cryptocurrency world but could conceivably be used to restrict the compensation of cryptocurrency creators and developers. One way to do so might be to regulate more directly the “pre-mining” of cryptocurrency, a practice in which cryptocurrency creators issue to themselves a large block of the currency before they offer it to the public. The two cofounders of one cryptocurrency, Ripple, made some \$600 million from selling their units of the currency.³¹³ A more balanced distribution of the risks and rewards of finance is a legitimate goal of regulation.

312. In 2021, the House Committee on Financial Services endorsed a similar approach, voting in favor of a bill that would prohibit brokers from facilitating sales of securities in SPACs to unaccredited investors unless either (1) the “promote” given to sponsors of the SPAC is less than 5% or (2) the SPAC makes certain disclosures “necessary or appropriate in the public interest or for the protection of investors.” See Protecting Investors from Excessive SPACs Fees Act, H.R. 5913, 117th Cong. (1st Sess 2021), <https://www.congress.gov/bill/117th-congress/house-bill/5913/text?r=79&s=1>; *Committee Passes Legislation to Protect Retail Investors from Predatory Practices and Promote Fair Hiring Opportunities*, U.S. HOUSE COMM. FIN. SERVS. (Nov. 16, 2021), <https://financialservices.house.gov/news/documentsingle.aspx?DocumentID=408688>.

313. See Complaint at 2, Sec. & Exch. Comm’n v. Ripple Labs, Inc., 20 Civ. 10832 (AT) (S.D.N.Y. Oct. 4, 2021).

2. *Expert Delegation*

A second tool for addressing distributive problems is the use of expert delegation. Instead of having Jim Hawkins rely on his own (poorly calibrated) negotiation instincts, we could introduce a new actor onto the island, perhaps Hawkins' more world-wise friend, Dr. Livesey, and force Long John Silver to negotiate with him. If we think the playing field is tilted in favor of sophisticated actors, then adding another sophisticated actor on the other side of the equation might well even the odds. *Long John Silver v. Dr. Livesey* might lead to fairer distributional outcomes than *Long John Silver v. Jim Hawkins*.

Introducing sophisticated repeat players to neutralize the negotiating leverage of one party has long precedent in the world of finance. In private equity, for example, the Institutional Limited Partners Association (ILPA) has been used by pension funds and endowments to create standard terms and default fee structures that better protect their investments in private equity firms.³¹⁴ ILPA was created in response to the perception that private equity firms were creating investment structures and terms that were overly protective of the interests of their firms at the expense of investors.³¹⁵ A similar role in public capital markets has been staked out by proxy advisory firms, who assist shareholders in making decisions about corporate governance issues.³¹⁶

Expert delegation could be used more broadly in markets. With SPACs, regulators could force SPAC sponsors to negotiate with a public investor association on the terms of their SPACs before they could list on stock exchanges. In the context of social trading apps, a public investor association might be empowered to review compensation structures and price-improvement mechanisms to better ensure that investors are receiving a fair deal. Cryptocurrencies, again, present difficult issues, but blockchain

314. See William Clayton, *Preferential Treatment and the Rise of Individualized Investing in Private Equity*, 11 VA. L. & BUS. REV. 249, 304 (2017). For a cautionary tale about the role of financial experts, see Colleen Honigsberg, Edwin Hu & Robert J. Jackson, Jr., *Regulatory Arbitrage and the Persistence of Financial Misconduct*, 74 STAN. L. REV. 737 (2022).

315. See William Magnuson, *The Public Cost of Private Equity*, 102 MINN. L. REV. 1847, 1908-09 (2018).

316. See Andrew F. Tuch, *Proxy Advisor Influence in a Comparative Light*, 99 B.U. L. REV. 1459 (2019).

investor groups could vet cryptocurrencies before initial coin offerings to protect investors from unreasonable bargains.

3. Taxation

Finally, and perhaps most prosaically, we could use the taxation system to redistribute the end result of market transactions. Instead of intervening in the market itself, we could instead tax income or profits or wealth at some regularly recurring interval, say every day (on Treasure Island) or every year (in the real world). Taxation is a common and well-accepted way of solving distributional issues.³¹⁷ Indeed, one of the common defenses of Kaldor-Hicks efficiency is that, by definition, any time there is a Kaldor-Hicks improvement, those that are made better off by the structure could compensate those who are harmed by it through a redistribution of their assets. Taxation is an important, indeed essential, tool for fairness in markets and societies alike. At the same time, one downside of relying on taxation alone as a method of solving distributional issues in markets is that it tends to lag real-world changes in wealth that create competing ethical claims.³¹⁸ The winners in the market—say Long John Silver—may well come to believe that they *deserve* all of the world's coconuts and turtles and other resources, since they managed to negotiate for them in a free market. When the government comes and tells Long John Silver that he has to give up some of his coconuts to pay his taxes, he may well consider this an unjust imposition.³¹⁹ The market provided him a fair value, and it is unjust to take that value away. If, instead, he had simply been paired against a more agile negotiator, and he agreed in the first place to a fairer distribution,

317. See, e.g., Louis Kaplow and Steven Shavell, *Why the Legal System is Less Efficient than the Income Tax in Redistributing Income*, 23 J. LEGAL STUD. 667 (1994).

318. See, e.g., Zachary Liscow, *Redistribution for Realists*, 107 IOWA L. REV. 495, 500 (footnotes omitted) (“Most think the money people earn is in some meaningful sense ‘theirs’ and are thus reluctant to adopt—even hostile to—heavily redistributionist taxation. The irony, then, is that the one domain where economic theory has insisted all redistribution should take place is also one of the places where redistribution proves most difficult. The economist’s recipe for reducing inequality turns out to be a recipe for failure . . . [with] insufficient redistribution through any type of policy that leaves society far worse off.”).

319. See Lee Anne Fennell & Richard H. McAdams, *Inversion Aversion*, 86 U. CHI. L. REV. 797, 806 (2019) (arguing that “it may be more difficult politically to move money through the tax system than through a substantive legal rule”).

Long John Silver would have less of a claim based on desert, since he never received the coconuts in the first place.

B. Behavioral Problems

What about markets that present behavioral problems? Two behavioral problems of particular concern in markets are the targeting (and sometimes creation) of behavioral biases and the effect of markets on the character of their participants. We might be concerned if Long John Silver discovered that Jim Hawkins would be willing to buy coconuts at exorbitant prices at particular moments in the day, say after he had just finished a long run. In these moments of exhaustion or passion or distraction, Jim Hawkins might exhibit different preferences and behaviors than he would in a more contemplative or reasoned mood. Similarly, society might be concerned if the daily haggling with Long John Silver in some way changed the character of Jim Hawkins for the worse—he might become convinced that a life of skullduggery and piracy is the best of lives. In both of these circumstances, we might conclude that the market was cultivating objectionable moral practices. What might we do about it?

1. Choice Architecture

One particularly promising area of scholarship over the last few decades has examined the effect of the structure of choices on individual behavior. The field known as choice architecture has made major strides in showing how defaults, nudges, and the presentation of options can make significant differences in how individuals make choices.³²⁰ Choice architecture generally focuses on the context in which decisions are made: where, when, and how individuals make decisions.³²¹ It then seeks to change those contexts in ways that might affect decision-making in desirable ways. Companies, of course, do this all the time.³²² Clothing stores

320. See Cass R. Sunstein & Richard H. Thaler, *Libertarian Paternalism Is Not an Oxymoron*, 70 U. CHI. L. REV. 1159 (2003); Cass R. Sunstein, *The Ethics of Nudging*, 32 YALE J. ON REGUL. 413 (2015).

321. See RICHARD THALER & CASS R. SUNSTEIN, *NUDGE* 3 (2008) (“A choice architect has the responsibility for organizing the context in which people make decisions.”).

322. See Jon D. Hanson & Douglas A. Kysar, *Taking Behavioralism Seriously: The Problem of Market Manipulation*, 74 N.Y.U. L. REV. 630, 635 (1999) (“[T]he presence of unyielding

play loud, peppy music in order to encourage people to buy more clothes.³²³ Shoe companies track your online searches and show you ads if you've searched for shoes lately.³²⁴ And, in the financial world, financial institutions engage in a number of strategies to attract and retain business. Social trading apps present the most stark example of this, with their combination of attractive-looking apps and fun notifications, but other actors use them as well: SPACs have relied heavily on celebrity backers to drum up interest in their funds, and initial coin offerings have used urgency and optimistic projections to attract investors.³²⁵ All of these are examples of choice architecture: if you change the environment in which individuals make decisions, you can change the decisions as well.

Choice architecture also presents a way to *remedy* the behavioral problems that have emerged in financial markets. If we believe that financial institutions or structures are exploiting customers by constructing interactions in manipulative ways, we can reduce the opportunities for manipulation by reconstructing the environment. In the context of social trading apps, if we think that the video-game mindset is inappropriate for individuals when they are making important, and risky, financial decisions, regulators would be justified in prohibiting gamification features on financial apps. We might prohibit companies from engaging in these kinds of behaviors, or we could hold them liable when they result in harm. In the context of cryptocurrencies, where regulators have grown concerned about the speculative fervor that surrounds many cryptocurrencies, and where unsophisticated consumers gather on Reddit forums to discuss what the next "hot" cryptocurrency

cognitive biases makes individual decisionmakers susceptible to manipulation by those able to influence the context in which decisions are made. More particularly, we believe that market outcomes frequently will be heavily influenced, if not determined, by the ability of one actor to control the format of information, the presentation of choices, and, in general, the setting within which market transactions occur."); Jon D. Hanson & Douglas A. Kysar, *Taking Behavioralism Seriously: Some Evidence of Market Manipulation*, 112 HARV. L. REV. 1420 (1999).

323. See Pernille K. Andersson, Per Kristensson, Erik Wastlund & Anders Gustafsson, *Let the Music Play or Not: The Influence of Background Music on Consumer Behavior*, 19 J. RETAIL. CONSUM. SERV. 553 (2012).

324. See Miguel Helft & Tanzina Vega, *Retargeting Ads Follow Surfers to Other Sites*, N.Y. TIMES, Aug. 29, 2010.

325. See S.E.C., *Celebrity Involvement With SPACs – Investor Alert*, Mar. 10, 2021; SEC, *Investor Bulletin: Initial Coin Offerings*, July 25, 2017.

will be, we might introduce choice architectures that slow down decision-making, requiring investors to spend time on the decision or delaying the effectiveness of their transactions, in order to negate the effects of urgency and fear of missing out that often typify these transactions. The current choice architecture of SPACs is particularly convoluted and complex, with multiple decision points and shareholder actions and class votes and redemption options, making it easy for unsophisticated users to lose out on value available to more sophisticated actors simply because of a lack of attention or knowledge. We could remedy these problems by reducing decision points, changing default actions, or changing the effect of shareholder voting.³²⁶

2. *Fiduciary Duties*

Another, quite different approach to resolving behavioral issues within financial markets is fiduciary law. Fiduciary law is one of the most powerful mechanisms available for holding market actors accountable for misbehavior. Fiduciary duties generally require fiduciaries to act carefully and loyally; that is, they must act with reasonable diligence and in an informed manner, and they must elevate the interests of their constituencies over their own personal interests. Fiduciary duties are, of course, a mainstay of corporate law, where they shape our understandings of the expectations of directors and officers. But fiduciary law also applies widely in the realm of finance.³²⁷ The Investment Advisers Act imposes fiduciary duties on investment advisers, requiring them to place their clients' interests above their own.³²⁸ Under state law, investment banks often owe fiduciary duties to clients in mergers and capital markets transactions.³²⁹ In 2019, the SEC considered adopting rules that would have made broker-dealers fiduciaries of

326. See Ganor, *supra* note 192.

327. See Andrew W. Tuch, *Fiduciary Principles in Banking*, in THE OXFORD HANDBOOK OF FIDUCIARY LAW (E.J. Criddle, P.B. Miller & R.H. Sitkoff eds., 2019) (exploring the fiduciary obligations of financial institutions and the efforts of banks to avoid them).

328. See *Transamerica Mortgage Advisors, Inc. v. Lewis*, 444 U.S. 11, 17 (1979) (citation omitted) (“§ 206 establishes ‘federal fiduciary standards’ to govern the conduct of investment advisers.”).

329. See Andrew F. Tuch, *Banker Loyalty in Mergers and Acquisitions*, 94 TEX. L. REV. 1079, 1083 (2016) (concluding that “M&A advisors are properly characterized as fiduciaries of their clients”); Andrew Tuch, *Investment Banks as Fiduciaries: Implications for Conflicts of Interest*, 29 MELB. U. L. REV. 478 (2005).

the clients they advised but ultimately failed to do so.³³⁰ Studies have shown that imposing fiduciary duties on financial advisors significantly changes the advice that they provide consumers and in positive ways.³³¹

Fiduciary duties might not be appropriate on Treasure Island, where Long John Silver and Jim Hawkins are independent, arms-length actors negotiating with one another. But they have obvious applications to SPACs, social trading apps, and cryptocurrencies, where investors are forced into a position of trust and confidence with sophisticated market actors. In SPACs, we could impose stronger fiduciary duties on the executives managing blank-check companies, forcing them to act in the best interest of shareholders rather than preferring their own personal interests. In social trading apps, we could require financial institutions to promote the interests of investors over their own profits. In cryptocurrencies, we could impose fiduciary duties on the developers of cryptocurrencies, as well as cryptocurrency exchanges, to provide better incentives for these actors to protect their users.³³² In all these scenarios, fiduciary duties could act to prohibit the kinds of manipulative behavioral problems so prevalent in these industries.

One might assume that SPACs, being public companies, must benefit from broad fiduciary protections, but in fact, the opposite is the case. Most SPACs are formed in the Cayman Islands, a jurisdiction known for its manager-friendly corporate law.³³³

330. See Commissioner Robert J. Jackson, Jr., *Statement on Final Rules Governing Investment Advice*, U.S. SEC. & EXCH. COMM'N, June 5, 2019 <https://www.sec.gov/news/public-statement/statement-jackson-060519-iabd> (footnote omitted) (“As to brokers, today’s rule . . . fails to require that investor interests come first. Congress expressly authorized us to take that step in Dodd-Frank—authority we should have used today. Instead, the core standard of conduct set forth in Regulation Best Interest remains far too ambiguous about a question on which there should be no confusion. As a result, conflicts will continue to taint the advice American investors receive from brokers.”).

331. See Vivek Bhattacharya, Gaston Illanes & Manisha Padi, *Fiduciary Duty and the Market for Financial Advice* (Nat’l Bureau of Econ. Rsch., Working Paper No. 25861, 2019), <https://www.nber.org/papers/w25861.pdf>.

332. For a fuller discussion of the pros and cons of fiduciary duties in cryptocurrencies, see Angela Walch, *In Code(rs) We Trust: Software Developers as Fiduciaries in Public Blockchains*, in *REGULATING BLOCKCHAIN: TECHNO-SOCIAL AND LEGAL CHALLENGES* 58 (Philipp Hacker et al. eds., 2019).

333. See Ann Beth Stebbins & Maxim Mayer-Cesiano, *What Am I Getting Myself Into? Five Questions Prospective SPAC Directors Should Ask*, SKADDEN, ARPS, SLATE, MEAGHER & FLOM LLP: THE INFORMED BOARD, Apr. 13, 2021 (noting that “[r]oughly 80% of SPACs are

Among other things, Cayman law allows corporations to waive conflict-of-interest rules that would otherwise prohibit directors from engaging in actions where they have personal interests adverse to the corporation's interest—for example, if a SPAC director owned the company that the SPAC was acquiring.³³⁴ Many SPACs include exculpatory clauses in their articles of incorporation and bylaws that shield directors from liability for fiduciary duty breaches.³³⁵ In fact, exculpating directors from fiduciary duty breaches is the first recommendation on one major law firm's list of ways for SPACs to "mitigate their exposure" to litigation.³³⁶ Consider, for example, the case of Slam Corp., a SPAC formed by baseball star Alex Rodriguez. Slam's IPO documents state repeatedly that shareholders face major risks due to the structure of the SPAC. A few examples of the more egregious disclosures are illustrative: the company's success is "totally dependent" on a small group of executives, but the company does not require those executives to spend time on the company's affairs; after an acquisition, executives might live outside the U.S., preventing investors from enforcing federal securities laws against them; the company has no obligation to receive a fairness opinion verifying that it is paying a fair price for its acquisition target; executives have fiduciary obligations to other companies, including other blank check companies and potentially acquisition targets of the SPAC, that may conflict with their duties; and, perhaps worst of all, "the personal and financial interests of our directors and officers may influence their motivation in timely identifying and selecting a target business and completing a business combination."³³⁷ In other words, the executives tasked with managing the investors' money may be better off by forcing the investors to lose money. In another section giving a lengthy description of the legal regime in place in

formed in the Cayman Islands, where corporate law may be more deferential to directors than Delaware law").

334. See Jonathon Milne & Erik Bodden, *SPAC Litigation: What Happens if the "Blank Check" Bounces?*, CONYERS (May 2021), <https://www.conyers.com/publications/view/spac-litigation-what-happens-if-the-blank-check-bounces/>.

335. See Paul, Weiss, Rifkind, Wharton & Garrison LLP, *What SPAC Sponsors, Directors and Officers Can Do to Mitigate Their Litigation Exposure*, PAUL, WEISS (Mar. 17, 2021), https://www.paulweiss.com/media/3980948/what_spac_sponsors_directors_and_officer_s_can_do_to_mitigate_their_litigation_exposure.pdf.

336. *Id.*

337. Slam Corp., Registration Statement (Form S-1) 54-75 (Feb. 4, 2021).

the Cayman Islands, Slam concludes that “[a]s a result of all of the above, public shareholders may have more difficulty in protecting their interests in the face of actions taken by management, members of the board of directors or controlling shareholders than they would as public shareholders of a United States company.”³³⁸ Thus, due to the executives’ decision to create the SPAC as an offshore entity, investors may have a hard time suing the company if wrongdoing occurs. And, finally, just to ensure that any lawsuits that manage to find their way through these formidable obstacles to protecting their rights will ultimately be of no avail, the company adds that Cayman law does not limit the extent to which a company can indemnify officers and directors against lawsuits and so the company will, accordingly, “provide for indemnification of our officers and directors to the maximum extent permitted by law.”³³⁹

Social trading apps could also have stricter fiduciary duties imposed on them. Robinhood, for example, was sued by Massachusetts in 2020 under a state fiduciary duty law, a case in which Massachusetts argued that “[t]reating [investing] like a game and luring young and inexperienced customers to make more and more trades is not only unethical, but also falls far short of the standards we require in Massachusetts.”³⁴⁰ Robinhood replied by turning around and suing Massachusetts’ Secretary of the Commonwealth right back, arguing that the fiduciary duty law making brokerage firms fiduciaries was unconstitutional; that even if it wasn’t unconstitutional, it did not apply to Robinhood, which was a “self-directed’ brokerage firm that explicitly did not provide advice to users; and that by applying the rule to Robinhood, Massachusetts was violating Robinhood’s free speech rights.³⁴¹ Fiduciary law could establish a more balanced relationship between trading apps and their users.

338. *Id.* at 81.

339. *Id.* at 142.

340. See Pippa Stevens, *Massachusetts Regulators File Complaint Against Robinhood, Alleging Manipulation of Customers*, CNBC (Dec. 16, 2020, 9:02 AM), <https://www.cnbc.com/2020/12/16/robinhood-reportedly-facing-complaint-by-massachusetts-regulators-over-targeting-young-users.html>.

341. Complaint for Injunctive and Declaratory Relief, *Robinhood Fin., L.L.C. v. Galvin*, Nos. 147344, 2084CV00884-BLS2, 2021 Mass. Super. LEXIS 493 (May 27, 2021).

C. Product Problems

Finally, let us consider how we might deal with a third category of potential harms from markets, where the product itself is deemed excessively dangerous or harmful. On Treasure Island, the crux of the problem was that the island's coconuts were poisonous. Despite this fact, and in full knowledge of it, Jim Hawkins still traded his nutritious and healthy turtles for coconuts, simply because he liked the taste of coconuts so much. We concluded that governments had a justifiable interest in regulating the sale of coconuts in these circumstances. The claim might be framed in terms of communitarian values – the community should not let its citizens be harmed unnecessarily, even if individuals actively choose to suffer the harm—or it might be framed in terms of autonomy – anyone who actively chooses to harm themselves in these ways cannot be acting in accordance with a spirit of reasoned deliberation. But however it is framed, regulating a product itself due to harms stemming from the nature of the product can find strong normative justification. Financial regulation has largely steered away from substantive rules aimed at deeming an entire class of investment products harmful.³⁴² Instead, it has focused on promoting competition and information production. But where financial innovations create harms to participants by the very nature of the product, competition and information will not always be sufficient. This Subpart will examine two methods for addressing the problem.

1. Investment Product Liability

One particularly relevant body of law that might apply more broadly in market regulation is product liability. Product liability rules generally aim to force creators of dangerous goods to bear the

342. One major exception here is the regulation of systemic risk. Financial regulators take a much more hands-on approach in protecting against systemic risk problems, from mandating adequate capital reserves to banning certain types of financial products. See Steven L. Schwarcz, *Systematic Regulation of Systemic Risk*, 2019 WISC. L. REV. 1 (2019). Systemic risk is also clearly implicated in the financial innovations discussed in this Article, from SPACs to social trading apps to cryptocurrencies. However, because systemic risk regulation is so firmly established within the financial sector, and is largely unchallenged as a normative goal, it is one of the select areas where truly substantive, rather than competition- and disclosure-oriented, rules have been the standard approach. For that reason, this Subpart will not address systemic risk reforms.

cost of (some of) the harms created by those goods.³⁴³ Product liability doctrine has developed a number of useful concepts, ranging from product design to use and misuse to liability and recall regimes.³⁴⁴ All of these serve as potential mechanisms for reducing or eliminating transactions in goods that are deemed dangerous or of little social value.

Consider two paradigmatic regulatory frameworks from product liability law: strict liability and pre-market approval. Strict liability is a product liability doctrine that aims to reduce and restrict harmful products or activities.³⁴⁵ Strict liability regimes typically apply to “abnormally” dangerous activities, such as the possession of wild animals, and require actors to bear responsibility for any harms stemming from those activities, even when the actors have taken precautions to prevent the harms. Financial regulators could similarly establish strict liability regimes for certain types of abnormally dangerous investment products, forcing the sellers of the product to compensate users for losses. If regulators believed that cryptocurrencies were abnormally harmful, either with respect to crime or environmental harm, they might impose strict liability on the creators for related harms. If legislators believed that social trading apps were creating a harmful product that spurred dangerously high level of trading by unsophisticated investors, they could establish rules forcing these apps to be liable for trading losses connected to the activity. If regulators concluded that SPACs were unsuitable investment vehicles, they could require SPAC creators to be liable for future losses by investors. Strict liability might also work, not to prevent loss, but rather to limit profits. For example, Section 16 of the Exchange Act provides that directors of public corporations are strictly liable for any “short swing” profits they make from buying and selling stock within a six-month period.³⁴⁶ Similar rules might be implemented to reduce windfall

343. See generally James A. Henderson, Jr. & Aaron D. Twerski, *Achieving Consensus on Defective Product Design*, 83 CORNELL L. REV. 867 (1998) (describing the development of American product liability law).

344. See Oren-Bar Gill & Elizabeth Warren, *Making Credit Safer*, 157 U. PA. L. REV. 1, 1 (2008) (arguing that “[b]ecause financial products are analyzed through a contract paradigm rather than a products paradigm, consumers have been left with unsafe credit products”).

345. See William L. Prosser, *The Assault upon the Citadel (Strict Liability to the Consumer)*, 69 YALE L. J. 1099, 1119–24 (1960) (discussing the rationales behind strict liability).

346. See Merritt B. Fox, *Insider Trading Deterrence Versus Managerial Incentives: A Unified Theory of Section 16(b)*, 92 MICH. L. REV. 2088 (1994).

gains from SPACs or cryptocurrencies. We could force insiders in these industries to disgorge any profits made from particular transactions, perhaps within a certain timeframe surrounding capital-raising events. The overriding principle would be deterring dangerous financial products from being created and sold by changing the structure of the market itself.

Alternatively, regulators could establish premarket approval processes similar to those used by the Food and Drug Administration.³⁴⁷ These processes could require financial actors, not just to demonstrate that they have made ample disclosures of their risks, but also to demonstrate the value, safety, and effectiveness of their product before opening it up for investors.³⁴⁸ Financial regulators, of course, often require companies to register with a central administrator—a rudimentary form of premarket approval—but registration is generally a disclosure-oriented rather than substance-oriented affair. Premarket approval processes could be used more widely to rein in financial markets that society concludes are dangerous or simply immoral.

2. Bans

A final and perhaps most extreme regulatory response would simply be to ban certain market transactions. If we believe that a particular type of financial product such as a SPAC or a cryptocurrency too blatantly breaches social norms about value, desert, or harm, we might simply prohibit actors from creating and selling the products in the first place. Just as we prohibit the sale of drugs and gambling based, at least partially, on the harms that stem from them, financial regulators should consider outright bans of financial products that are deemed excessively harmful or dangerous.

There is more statutory authority for bans than one might assume from the hands-off approach to markets that financial regulators display today. Section 10(b) of the Exchange Act provides that it is unlawful for any person to use or employ “any

347. For a history of the use and development of the FDA’s pre-market approval process, see Richard A. Merrill, *The Architecture of Government Regulation of Medical Products*, 82 VA. L. REV. 1753 (1996).

348. See Hilary J. Allen, *The Road to Precautionary Review of Financial Products* (Suffolk Univ. L. Sch., Working Paper No. 15-32, 2015), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2638188.

manipulative or deceptive device or contrivance in contravention of such rules and regulations as the Commission may prescribe as necessary or appropriate in the public interest or for the protection of investors.”³⁴⁹ Section 5(a) of the Federal Trade Commission Act provides that “unfair methods of competition in or affecting commerce and unfair or deceptive acts or practices in or affecting commerce” are unlawful.³⁵⁰ Section 6b of the Commodity Exchange Act makes it unlawful for any person to “cheat or defraud or attempt to cheat or defraud” or “willfully to deceive or attempt to deceive” another person “by any means whatsoever” another person in connection with the sale of commodities.³⁵¹ Section 206 of the Investment Advisers Act makes it unlawful for investment advisers to “employ any device, scheme or artifice to defraud” or to “engage in any transaction, practice or course of business which operates as a fraud or deceit” upon any client or prospective client and authorizes the SEC to “define and prescribe means reasonably designed to prevent, such acts, practices, and courses of business as are fraudulent, deceptive or manipulative.”³⁵² Section 39 of the Federal Deposit Insurance Act requires financial regulators to establish safety and soundness regulations for financial institutions, including standards relating to “asset growth” and “compensation, fees, and benefits,” and “such other operational and managerial standards as the agency determines to be appropriate.”³⁵³ Title X of the Dodd-Frank Act prohibits regulated actors from engaging in “any unfair, deceptive, or abusive act or practice” in connection with financial products.³⁵⁴ These are broad statutory mandates that empower regulators to prohibit harmful,

349. 15 U.S.C. § 78j(b).

350. The Federal Trade Commission interprets these broad statements much more narrowly than the statutory language itself would suggest. *See* *Cliffdale Assocs., Inc.*, 103 F.T.C. 110 app. at 174 (1984) (letter dated Oct. 14, 1983, from FTC Commissioner James C. Miller III to Representative John D. Dingell); *Int'l Harvester Co.*, 104 F.T.C. 949 app. At 1070 (1984) (letter dated Dec. 17, 1980, from Michael Pertschuk, Chairman, Fed. Trade Comm'n et al., to the Honorable Wendell H. Ford & the Honorable John C. Danforth, Consumer Subcomm., Comm. on Commerce, Sci. & Transp., U.S. Senate, Commission Statement of Policy on the Scope of the Consumer Unfairness Jurisdiction).

351. 7 U.S.C. § 6b(a)(2).

352. 15 U.S.C. § 80b-6.

353. 12 U.S.C. § 1831p-1(a).

354. 12 U.S.C. § 5536.

abusive, or manipulative behavior in capital markets. They should be used more actively to police toxic financial products.³⁵⁵

CONCLUSION

Financial regulation exhibits a deep bias in favor of efficiency. The idea that efficiency could be biased might strike some as an oxymoron. It is not. Over the last two decades, legislation, regulation, and case law have all elevated a particular form of market efficiency over other values in structuring our markets. The result has been financial markets that are fast, frictionless, and information-rich. But too often, they are also unfair, manipulative, and dangerous. This Article has sought to explore the root of these problems and explain how they have played out in the real world. But more importantly, it has sought to provide an alternative, more ethical vision of finance, one that better promotes the common good of the state and the citizen. There was nothing inevitable about the triumph of efficiency over virtue, and it is high time for us to find a better balance.

* * *

355. It should be noted that courts have played a role in channeling financial regulation towards narrow, efficiency-oriented rules, rather than broader substantive rules. For example, in 1990, the D.C. Circuit struck down an effort by the SEC to prohibit stock exchanges from listing the shares of corporations that disenfranchised shareholders. The D.C. Circuit concluded that the SEC's attempted action exceeded the agency's authority because "the Exchange Act cannot be understood to include regulation of an issue that is so far beyond matters of disclosure." *Bus. Roundtable v. SEC*, 905 F.2d 406, 408 (D.C. Cir. 1990). More recently, in 2011, the D.C. Circuit struck down an SEC effort to remove impediments to shareholder voting rights related to the nomination of directors. In doing so, the court concluded that the SEC had acted arbitrarily and capriciously by failing to adequately connect its rulemaking with efficiency and competition concerns. "The Commission has a unique obligation to consider the effect of a new rule upon 'efficiency, competition, and capital formation,'" the court stated, "and its failure to 'appraise itself—and hence the public and the Congress—of the economic consequences of a proposed regulation' makes promulgation of the rule arbitrary and capricious and not in accordance with law." *Bus. Roundtable v. SEC*, 647 F.3d 1144, 1148 (D.C. Cir. 2011) (quoting 15 U.S.C. §§ 78c(f), 78w(a)(2), 80a-2(c) and *Chamber of Com. of the U.S. v. SEC*, 412 F.3d 133, 144 (2005)). For discussions of the increasingly activist role of courts in striking down SEC actions, see James D. Cox, *Premises for Reforming the Regulation of Securities Offerings: An Essay*, 63 *LAW & CONTEMP. PROBS.* 11, 37-39 (2000); Cox & Baucom, *supra* note 53. This Article hopes that future courts will be less beholden to this approach to market efficiency.