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## Fairness, Utility, and Market Risk

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Recent financial turmoil has provided added salience to the long-simmering debate about the intellectual cogency of securities regulation.<sup>1</sup> The goal of the regulatory regime is investor protection and the primary mode of regulation is mandated disclosure.<sup>2</sup> But the link between mission and means has never been clear.<sup>3</sup> This ambiguity calls into question the legitimacy of our regulatory structure and makes it difficult to arrive at convincing rationales for reform efforts. In this Article, I seek to address this ambiguity by proposing a new way to view securities regulation—one that situates the regulations in a broader theoretical and institutional context. I then use this new perspective as a basis on which to both comment on traditional reform proposals and offer new ones.

Specifically, I argue that securities regulation is best viewed as part of a larger societal framework that serves to protect individuals from stock market risk. I contend that management of market risk is a valid societal goal; that securities regulation is one component of a societal risk-management structure that has never been identified as such; and that we can improve upon this structure, not by pursuing traditional avenues of securities law reform, but by restructuring the institutional framework through which investors participate in the stock market.

This conception of securities regulation is both an extension of and a response to the modern law-and-economics narrative about how our current regime protects investors. The law-and-economics account is that investors are protected by the integrity of market prices, and that mandated disclosures help to assure such integrity.<sup>4</sup> According to the

<sup>1</sup> For an excellent review of this debate, see LOUIS LOSS ET AL., 1 SECURITIES REGULATION 257–325 (4th ed. 2006).

<sup>2</sup> See *infra* Part I.A.

<sup>3</sup> See LOSS ET AL., *supra* note 1, at 263–65. Securities regulation covers a range of investments, including debt instruments, but the focus of this Article is on securities regulation as it pertains to publicly traded equity.

<sup>4</sup> What I refer to as the “law-and-economics” account stems from mainstream economic analysis. Some economists, however, would likely have a different take. For instance, as

efficient markets hypothesis (EMH), security prices rationally and immediately reflect all available information (including disclosures required by the Securities and Exchange Commission (SEC)).<sup>5</sup> Therefore, when investors purchase a security, they are protected in the sense that they are paying the right price.<sup>6</sup> SEC-mandated disclosures are important in that they are part of what allow prices to achieve this high level of accuracy.<sup>7</sup>

The above reasoning is the closest thing we have today to a justificatory theory of securities regulation. But this popular and intuitive notion is unsatisfying because it fails to explain exactly why accurate stock prices offer meaningful investor protection. Intuitively, accurate prices would seem to provide some safeguard against poor decisions and, in a certain sense, they seem fair. A closer inspection reveals, however, that they do little, if anything, to protect investors from making suboptimal investment choices.<sup>8</sup> Nor are they any fairer than stock prices that are random and irrational.<sup>9</sup> In its present form, therefore, our modern notion of how securities regulation contributes to investor protection lacks intellectual purchase.

We can better understand the role of securities regulation if we shift our focus to market risk. In finance, risk is synonymous with volatility. The notion that protection from volatility benefits investors rests on much sounder footing. Leading works of political philosophy by John Rawls, whose ideas are based on notions of fairness, and John Harsanyi, whose ideas are grounded in utilitarianism, contemplate a role for government in protecting individuals from chance.<sup>10</sup> Because stock market volatility is one instance where chance enters people's lives, it is one instance where, under both Rawls's and Harsanyi's logic, government intervention is potentially beneficial.

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discussed *infra* Part I.A, some may argue that the market would function just fine without disclosure.

<sup>5</sup> See *infra* Parts I.A., II.B.1.a.

<sup>6</sup> See *infra* Part I.A. As discussed *infra* notes 34–35 and accompanying text, according to EMH, stock prices are right, not in an absolute sense, but in that they represent society's best guess based on available information.

<sup>7</sup> See *infra* Part I.A.

<sup>8</sup> See *infra* Part I.B.

<sup>9</sup> See *infra* Part I.B.

<sup>10</sup> See *infra* Part II.A.

This can also be put more tangibly. The stock market is the primary mechanism through which individuals save for retirement.<sup>11</sup> Its gyrations over time, therefore, significantly impact the financial well-being of millions of individuals. Some investors do well, others do poorly, depending on market vacillations while they are in it. Intuitively, however, it seems both unjust and inefficient that chance rewards some and punishes others. It would seem to make sense, therefore, for the government to seek to provide investors shelter from such arbitrariness. Rawls's and Harsanyi's works are consistent with this intuition. By applying their logic to this area, we have more rigorous support for the notion that government intervention to shield investors from market risk would provide meaningful protection.

In fact, we have a structure for providing this protection already in place, though its various elements have never been conceptualized as making up a unified risk-management framework. Theoretically, there are two compatible ways the government can help investors manage market risk: the first is to endeavor to make the market itself less volatile; the second is to set up or foster institutions that help investors control their exposure to the market, however volatile it may be. The way we currently deal with market risk can be organized according to these two prongs.

Securities regulation fits into this paradigm as an endogenous mechanism for making the market itself less volatile. Theoretical and empirical works suggest that disclosures make stock prices more accurate; more accurate stock prices evidence less volatility.<sup>12</sup> While EMH suggests that mandated disclosures feed into a market process that yields share prices that are actually correct (and where volatility

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<sup>11</sup> See PETER D. HART RESEARCH ASSOCIATES, NASDAQ STOCK MARKET, A NATIONAL SURVEY AMONG STOCK INVESTORS, 5 (Jan. 1997) (conducting a survey of investors showing that eighty-nine percent were invested in the stock market for retirement purposes). More generally, as discussed *infra* Part III.B.3, defined contribution plans, such as 401(k)s, provide the main source of retirement savings for most Americans. Approximately two-thirds of 401(k) assets are in equities. *401(k) Plan Asset Allocation, Account Balances, and Loan Activity in 2007*, RESEARCH PERSPECTIVE (Investment Company Institute, D.C.), Dec. 2008, at 1, available at <http://www.ici.org/pdf/per14-03.pdf>; see also ALICIA H. MUNNELL & DAN MULDOON, CTR. FOR RET. RESEARCH, ARE RETIREMENT SAVINGS TOO EXPOSED TO MARKET RISK? 2 tbl.1 (2008) (estimating that as of October 2008, individuals held \$2.7 trillion in equities as part of their retirement savings accounts).

<sup>12</sup> See *infra* Part II.B. This Article focuses on disclosure as a force for reducing volatility. It is worth noting, however, that other aspects of securities regulation, such as the recently adopted short-selling restrictions and stock-exchange circuit breakers, arguably reduce volatility as well. See Amendments to Regulation SHO, Exchange Act Release No. 34-61595, 75 Fed. Reg. 11232 (Mar. 10, 2010); see also *infra* note 267.

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has therefore been minimized), I argue that we should embrace a more modest account.<sup>13</sup> Behavioral finance scholarship has shown that the notion that share prices are correct rests on shaky theoretical and empirical underpinnings. Meanwhile, considerations regarding the epistemology of finance and the financial influence of so-called fat-tail events<sup>14</sup> call into question whether prices are or can be accurate in any meaningful sense of the word. Based on all of this, it seems that, while we can legitimately claim that securities regulation helps make stock prices more accurate and therefore less volatile, we should omit any declaration that share prices are actually right.

Despite the contribution that securities regulation makes to relative stock-price accuracy, however, much volatility remains in the market.<sup>15</sup> Such volatility can be addressed exogenously. Today, rather than set up governmental institutions to help investors control their exposure to risk, we foster a mutual fund marketplace that gives individuals the opportunity to manage volatility on their own. The expectation is that by investing in mutual funds for the long term and by diversifying their portfolios, individuals can choose the extent to which they are exposed to the market's swings.

It is questionable, however, how much protection this relatively hands-off approach actually provides.<sup>16</sup> Contrary to popular opinion, long-term investing is not proven to lessen volatility. Portfolio diversification, while it does reduce risk, is both limited and difficult for ordinary investors to master. These shortcomings in the mechanisms that are available and in the abilities of ordinary investors mean that it is unlikely that people are effectively managing the significant amount of volatility that securities regulation leaves behind.

I argue, therefore, that we should think about reform proposals with the potential to make it easier for investors to shield themselves from volatility without overly compromising returns.<sup>17</sup> One avenue would be to reform securities regulation. It is alluring to think that more or better regulation would lead to improved accuracy and reduced volatility without dousing market returns. I contend, however, that reforms along these lines offer limited potential because

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<sup>13</sup> See *infra* Part II.B.

<sup>14</sup> This term is defined and discussed *infra* notes 251–258 and accompanying text.

<sup>15</sup> See *infra* Part II.C.

<sup>16</sup> See *infra* Part II.C.

<sup>17</sup> See *infra* Part III.

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remaining stock-price inaccuracy stems from barriers related to the structure of the market, the incentives of market actors, and bounded cognition. Those are all problems that securities rules are ill equipped to effectively confront.

On the other hand, I argue that we can potentially do a great deal of good through reforms targeted outside of the market.<sup>18</sup> I consider three different approaches. The first works largely within the existing paradigm, where investors are expected to manage and bear market risk on their own. I look at how to improve portfolio-diversification options and guide individuals toward good investing decisions. After that, I consider mechanisms that represent a more dramatic departure from today's framework in that they contemplate risk sharing through governmental or private institutions. Specifically, I look at the potential for private-sector companies or the government to insure market returns and consider various mechanisms that link retirement savings to lifetime earnings rather than to market performance. I contend that while the option that builds on our existing template is alluringly incrementalist, the latter alternatives have the potential to much more fully insulate investors from market swings, and they are, therefore, worth a serious look.

This Article proceeds in three Parts. In the first, I argue that we lack a satisfactory theory about how securities regulation protects investors. I focus on the lack of a sound intellectual foundation for the modern notion that it is accurate share prices, which come about thanks in part to SEC-mandated disclosures, that provide protection. In the next Part, I describe a new theory for how to conceptualize securities regulation. I argue that we can rationalize our regulatory framework if we look at it as part of a larger societal risk-management system. I first discuss why protection from risk is a valid societal goal; then, I outline what securities regulation contributes to this endeavor (I focus on whether EMH should continue to inform our understanding of securities regulation even under this new framework); and last, I look at the exogenous mechanisms available to investors for managing market risk. In the final Part of this Article, I analyze the normative implications of this analysis. I argue that today's risk-management framework does not do enough to help investors and consider several avenues of reform.

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<sup>18</sup> See *infra* Part III.B.

## I

## SECURITIES REGULATION AND INVESTOR PROTECTION

A. *Theories of Investor Protection*

Since its inception, investor protection has been the central goal of securities regulation. In the year of its enactment, William O. Douglas and George E. Bates stated in the *Yale Law Journal* that investor protection was the “fundamental purpose” of the Securities Act of 1933.<sup>19</sup> The SEC has repeatedly called investor protection the “basic purpose” of the Securities Exchange Act of 1934.<sup>20</sup> Finally, in discussing the purpose of the SEC, its former chairman, Arthur Levitt, had this to say: “Investor protection is our legal mandate. Investor protection is our moral responsibility. Investor protection is my top personal priority.”<sup>21</sup>

To provide this protection, the regulations require that public companies produce reams of disclosure.<sup>22</sup> Regulators often act as if it is axiomatic that transparency benefits investors,<sup>23</sup> but scholars have

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<sup>19</sup> William O. Douglas & George E. Bates, *The Federal Securities Act of 1933*, 43 YALE L.J. 171, 173 (1933).

<sup>20</sup> See *In the Matter of the Application of Howard Brett Berger*, Exchange Act Release No. 34-58950, 2008 WL 4899010, at \*4 (SEC Admin. Proceeding Nov. 14, 2008).

<sup>21</sup> Arthur Levitt, Chairman, SEC, *A Question of Integrity: Promoting Investor Confidence by Fighting Insider Trading* (Feb. 27, 1998) (transcript available at <http://www.sec.gov/news/speech/speecharchive/1998/spch202.txt>). Although other goals, such as ensuring market transparency or building investor confidence, are often ascribed to our securities laws, these can all be seen as different conceptions of investor protection rather than as additional objectives. They are discussed *infra* in the text accompanying notes 41–49. It is also worth noting that investor protection is not an absolute goal. Our securities laws are designed to protect investors. But they seek to do so without overly burdening the marketplace, compromising investor autonomy, or stymieing widespread market participation. See 15 U.S.C. § 78c(f) (2006) (requiring the SEC, in its rulemaking, to take into account a new rule’s effect on efficiency, competition, and capital formation); LOSS ET AL., *supra* note 1.

<sup>22</sup> See Troy A. Paredes, *Blinded by the Light: Information Overload and Its Consequences for Securities Regulation*, 81 WASH. U. L.Q. 417, 417–18 (2003). The disclosure template is buttressed by anti-fraud rules. See 15 U.S.C. § 77q (2006).

<sup>23</sup> The assumption likely stands on Louis Brandeis’s famous aphorism: “Sunlight is said to be the best of disinfectants . . . .” LOUIS D. BRANDEIS, *OTHER PEOPLE’S MONEY AND HOW THE BANKERS USE IT* 89 (Melvin I. Urofsky ed., Bedford Books of St. Martin’s Press 1995 (1914)). The phrase has been a staple of SEC rhetoric. See, e.g., Christopher Cox, Chairman, SEC, *Opening Statement—Open Meeting on the Use of Technology to Improve Financial Reporting* (May 14, 2008) (transcript available at <http://www.sec.gov/news/speech/2008/spch051408cc.htm>); Christopher Cox, Chairman, SEC, *Remarks at the 12th XBRL International Conference* (Nov. 7, 2005) (transcript available at <http://www.sec.gov/news/speech/spch110705cc.htm>); Laura S. Unger, Acting Chairman, SEC, *This Year’s Proxy Season: Sunlight Shines on Auditor Independence and Executive*

long struggled to provide a satisfying intellectual foundation for this intuitive notion. The populist way to fill this gap is to assert that disclosure contributes to informed investor decision making. You can find a version of this story on the SEC's Web site, where it is explained that disclosure "provides a common pool of knowledge for all investors to use to judge for themselves whether to buy, sell, or hold a particular security."<sup>24</sup> According to this theory, disclosure protects investors by giving them the tools to look out for themselves.

Some criticize the very foundation of this theory, arguing that mandated disclosures do nothing to improve the informational landscape. According to this critique, issuers are adequately incentivized to provide information to the investing public. If they fail to provide information, they will fail to have investors. Essentially, the argument is that natural competition for investor dollars renders securities regulation irrelevant.<sup>25</sup>

This free market critique held much sway in the 1970s and still claims adherents.<sup>26</sup> It is unpersuasive, however, because it runs counter to powerful theoretical arguments and empirical evidence. As I and others have argued elsewhere, companies have ample incentive to hide, mischaracterize, and massage information.<sup>27</sup> Moreover, studies predating the adoption of the mandated disclosure regime showed the widespread failure of firms to report basic financial information;<sup>28</sup> later studies of firms that were exempt from the SEC's disclosure requirements produced similar results.<sup>29</sup> Thus, it seems quite reasonable to maintain that mandating disclosures and punishing those who fail to comply holds promise for improving the quality of information available.

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Compensation (June 25, 2001) (transcript available at <http://www.sec.gov/news/speech/spch502.htm>).

<sup>24</sup> SEC, *The Investor's Advocate: How the SEC Protects Investors, Maintains Market Integrity, and Facilitates Capital Formation*, May 3, 2010, <http://www.sec.gov/about/whatwedo.shtml>.

<sup>25</sup> Scholarship in this vein is discussed in LOSS ET AL., *supra* note 1, at 282–87.

<sup>26</sup> Roberta Romano, for instance, has argued along these lines. See Roberta Romano, *Empowering Investors: A Market Approach to Securities Regulation*, 107 YALE L.J. 2359 *passim* (1998).

<sup>27</sup> See LOSS ET AL., *supra* note 1, at 287–89; John C. Coffee Jr., *Market Failure and the Economic Case for a Mandatory Disclosure System*, 70 VA. L. REV. 717, 723–33 (1984); Jeff Schwartz, *Reconceptualizing Investment Management Regulation*, 16 GEO. MASON L. REV. 521, 538–42 (2009).

<sup>28</sup> See LOSS ET AL., *supra* note 1, at 288–305.

<sup>29</sup> See *id.* at 305–11.



Additional information, however, is not enough to protect investors. We must have some theory about what happens to this information after it is disseminated. The claim on the SEC's Web site, referenced above, is that investors are reading the disclosures and using them to make investing decisions.<sup>30</sup> But this is unconvincing. In fact, Professor Langevoort has gone so far as to characterize this notion as a "myth-story" in which "few have deep faith."<sup>31</sup> The reason for doubt is that hardly any individual investors have the time, desire, or skill to wade through a company's prospectus or related documents. Indeed, it strains credulity to believe that individual investors are taking into consideration multiple regulatory filings that can stretch for hundreds of pages and are littered with financial and legal jargon in order to decide how to allocate their investments. Put more technically, individuals are boundedly rational. Because they have limited resources with which to process information, they "satisfice"; that is, they cut short their analyses and render decisions based on limited, rather than exhaustive, investigation.<sup>32</sup>

Even if ordinary investors are not paying attention, however, the disclosure regime may still provide them with protection, albeit indirectly. This theory of investor protection, which I have referred to as the law-and-economics account, keys in on the role played by sophisticated traders. According to this notion, not only do these investors have the capability to understand even complex disclosures, they also have a strong incentive to pay attention to them. If they are the first to uncover and trade based upon some valuable, yet so far overlooked, piece of information, they can earn substantial profits.<sup>33</sup>

Proponents of this theory argue that this self-interested behavior benefits ordinary investors. According to EMH, as sophisticated investors trade based on their thorough analyses, market prices quickly adjust and come to reflect the information in SEC disclosures, as well as whatever other information is publicly available.<sup>34</sup> Because of these market dynamics, the stock prices that ordinary

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<sup>30</sup> See *supra* note 24 and accompanying text.

<sup>31</sup> Donald C. Langevoort, *Taming the Animal Spirits of the Stock Markets: A Behavioral Approach to Securities Regulation*, 97 NW. U. L. REV. 135, 173 (2002).

<sup>32</sup> See Herbert A. Simon, *Rational Decision Making in Business Organizations*, 69 AM. ECON. REV. 493, 502-03 (1979).

<sup>33</sup> See FRANK H. EASTERBROOK & DANIEL R. FISCHER, *THE ECONOMIC STRUCTURE OF CORPORATE LAW* 18-19 (1991).

<sup>34</sup> See *id.*, at 18-19, 297; LOSS ET AL., *supra* note 1, at 265 n.11; Paredes, *supra* note 22, at 453.

investors see are accurate—not in some absolute metaphysical sense, but they are accurate at least in that they represent society’s best guess based on available information, a subset of which comes from regulatory filings.<sup>35</sup> This theory of market pricing forms the basis of a revised theory of investor protection. According to this new theory, it is these accurate stock prices that protect investors, and disclosures are justified because—as a result of the actions of sophisticated investors—they are part of what make stock prices accurate.<sup>36</sup>

This more nuanced notion of investor protection has supplanted the naïve idea that SEC-mandated disclosure directly impacts investor decision making. It is widely claimed that investors are protected by the integrity of stock market prices,<sup>37</sup> the SEC relies on market efficiency and the actions of sophisticated traders in much of its rulemaking,<sup>38</sup> would-be reformers search for ways to tweak the regulatory structure in order to render the market more efficient and stock prices more accurate,<sup>39</sup> and even commentators who note

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<sup>35</sup> See EASTERBROOK & FISCHER, *supra* note 33; LOSS ET AL., *supra* note 1, at 265 n.11; Jonathan R. Macey, *Efficient Capital Markets, Corporate Disclosure, and Enron*, 89 CORNELL L. REV. 394, 417–18 (2004); Paredes, *supra* note 22, at 453. The logic behind EMH is explored *infra* Part II.B.1.a.

<sup>36</sup> See sources cited *supra* note 35.

<sup>37</sup> See sources cited *supra* note 35; see also Howard M. Friedman, *On Being Rich, Accredited, and Undiversified: The Lacunae in Contemporary Securities Regulation*, 47 OKLA. L. REV. 291, 296 (1994) (describing the SEC’s embrace of this viewpoint); Langevoort, *supra* note 31, at 136 (describing legal academics’ embrace); Troy A. Paredes, *On the Decision to Regulate Hedge Funds: The SEC’S Regulatory Philosophy, Style, and Mission*, 2006 U. ILL. L. REV. 975, 1001 (2006) (arguing that “the reasonable expectations investors have that they can rely on securities prices as approximating fundamental value is a cornerstone of securities market integrity”).

<sup>38</sup> Much of the dense information the SEC requires can not be reasonably understood to be targeting ordinary investors. In the 1969 Wheat Report, the SEC acknowledged as much. As the report explains,

the detailed financial information required by the schedules to the Form 10-K report could be intended only for the skillful analyst. Indeed, it was recognized from the beginning that a fully effective disclosure policy would require the reporting of complicated business facts that would have little meaning for the average investor. Such disclosures reach average investors through a process of filtration in which intermediaries (brokers, bankers, investment advisers, publishers of investment advisory literature, and occasionally lawyers) play a vital role.

SEC, DISCLOSURE TO INVESTORS: A REAPPRAISAL OF FEDERAL ADMINISTRATIVE POLICIES UNDER THE '33 AND '34 ACTS (The Wheat Report) 52 (1969). Moreover, EMH has underpinned important regulatory efforts. See LOSS ET AL., *supra* note 1, at 274 n.41.

<sup>39</sup> See, e.g., Ronald J. Gilson & Reinier Kraakman, *The Mechanisms of Market Efficiency Twenty Years Later: The Hindsight Bias*, 28 J. CORP. L. 715, 738 (2003); Paredes, *supra* note 22, at 484.

problems with the theory still accept it as the best premise on which to base regulatory analysis.<sup>40</sup>

That we have settled on and continue to build on this justification for securities regulation is not surprising, for the remaining modern rationales are either incomplete or more positive in nature than normative. One partial rationale for disclosure is that it encourages good corporate conduct.<sup>41</sup> The theory being that the shame of having to disclose certain activities may lead companies to avoid them.<sup>42</sup> This can help justify certain disclosures, like the details of CEO compensation,<sup>43</sup> but it only goes so far. The bulk of the information that regulations require be disclosed relates to corporate business and finances—information more closely connected to valuing companies than influencing behavior.<sup>44</sup>

Others have argued that, contrary to the account of market behavior that I presented above, the stock market is merely informationally efficient rather than fundamentally efficient (meaning that it incorporates information rapidly but not necessarily accurately).<sup>45</sup> Though this depiction may be easier to defend as an empirical matter, it leaves no role for disclosure and, therefore, fails as a theory of investor protection. Why bother adding to the informational content of the market if there is no expectation that the additional information will induce greater accuracy?<sup>46</sup>

We could then turn to softer justifications, which also have little to do with investor protection. For instance, we can argue for disclosure based on deontological grounds. Perhaps there is something intrinsically good about transparency. Or perhaps the rules are really a reflection of social mores. Along these lines, Professor Langevoort contends that the motivation for disclosures has become increasingly “disconnected from shareholder or investor welfare per se, and instead relates to the desire to impose norms that we associate with

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<sup>40</sup> See, e.g., James D. Cox, *Coping in a Global Marketplace: Survival Strategies for a 75-Year-Old SEC*, 95 VA. L. REV. 941, 953–54 (2009); Paredes, *supra* note 22, at 484.

<sup>41</sup> See Paredes, *supra* note 22, at 463–65.

<sup>42</sup> See *id.* at 463.

<sup>43</sup> This requirement is found in Item 402 of Regulation S-K. 17 C.F.R. § 229.402 (2006).

<sup>44</sup> See Regulation S-K, 17 C.F.R. § 229 (2006) (specifying many of the disclosures to be included in corporate filings).

<sup>45</sup> See Langevoort, *supra* note 31, at 140 n.18.

<sup>46</sup> See Jonathan R. Macey & Geoffrey P. Miller, *The Fraud-on-the-Market Theory Revisited*, 77 VA. L. REV. 1001, 1013–15 (1991).

public governmental responsibility—accountability, transparency, openness and deliberation—on nongovernmental institutions that have comparable power and impact on society.<sup>47</sup> Similarly, Professor (now SEC Commissioner) Paredes has argued that disclosure may serve an expressive function, setting a moral tone for business dealings.<sup>48</sup>

Finally, it could be argued that transparency contributes to investor confidence, and without that, the market could evaporate.<sup>49</sup> This rationale fails to explain, however, why investor confidence, without an underlying reason for that confidence, actually serves investors—let alone protects them. In fact, none of these alternatives offer any substantive account of how disclosure protects investors. This lack of satisfying alternatives may explain the resilience of share-price accuracy as a theory of investor protection, despite the substantial shortcomings that I describe in the sections that follow.

### *B. The Potential Importance of Accurate Stock Prices*

The law-and-economics account hinges on the intuitive notion that accurate share prices protect investors. But intuition can lead us astray and is, therefore, an insufficient basis for a theory of regulation.<sup>50</sup> Instead, the benefits of share-price accuracy should be grounded in some broader theory of social ethics. It turns out, however, that fleshing out our intuition about share-price accuracy in a more rigorous way is surprisingly difficult.

Perhaps the intuition is grounded in utilitarianism. From this perspective, we care about maximizing aggregate social utility.<sup>51</sup> Pursuant to this goal, we would seek to protect individuals from making bad decisions. If people purchase the wrong thing or pay the wrong price, it undermines their own utility;<sup>52</sup> it could also derail market competition, which has further deleterious effects on societal

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<sup>47</sup> Donald C. Langevoort, *The SEC, Retail Investors, and the Institutionalization of the Securities Markets*, 95 VA. L. REV. 1025, 1066 (2009).

<sup>48</sup> See Paredes, *supra* note 22, at 466.

<sup>49</sup> See *id.* at 469.

<sup>50</sup> See John C. Harsanyi, *Morality and the Theory of Rational Behaviour*, in *UTILITARIANISM AND BEYOND* 39, 40 (Amartya Sen & Bernard Williams eds., 1982) (discussing how intuition is influenced by personal biases).

<sup>51</sup> See Louis Kaplow & Steven Shavell, *Fairness Versus Welfare*, 114 HARV. L. REV. 961, 969 n.8 (2001); Amartya Sen & Bernard Williams, *Introduction*, in *UTILITARIANISM AND BEYOND*, *supra* note 50, at 1, 3–4.

<sup>52</sup> See Kaplow & Shavell, *supra* note 51, at 1330–34.

well-being.<sup>53</sup> If consumers make poor choices, good companies may be driven out of business, bad ones may profit, and, should this happen, society as a whole would be worse off.<sup>54</sup> Accurate stock prices, therefore, would make sense from a utilitarian perspective if they improve investor decision making or, in law-and-economics parlance, lead to a more efficient allocation of resources.<sup>55</sup>

The contributions that accurate share prices make to this endeavor, however, are attenuated at best. One problem is that, once we move from the traditional conception of disclosure as targeting ordinary investors to a focus on accurate prices, we give up on the idea of helping investors choose the product that best fits their needs. A purchasing decision can be broken down into two components: buyers decide whether an asset is right for them and whether its price is a fair one. In investing, this often means selecting the stock or the asset class that is both correctly priced and offers the preferred risk profile. If investors were actually reading disclosures, then the regulations would be contributing to both aspects of the investment decision; mandated disclosures would assist investors both in choosing appropriate investments and in assessing whether the market price for those investments is reasonable.

Now let us assume that individual investors are not reading the disclosures; in this case, their only protection is that they are paying a fair price. Price, however, is only one aspect of an informed decision. Under this conception of investor protection, while consumers are shielded from overpaying, they are not shielded from buying the wrong thing. Even if stock prices are accurate, investors could still make inappropriate stock selections and poor decisions as to asset class—mistakes that can be quite costly.<sup>56</sup> Therefore, by giving up on the notion of broad investor engagement with disclosures, we are ignoring an important aspect of utility-maximizing decision making.

But at least investors would be able to rest assured that prices are accurate. In this context, however, the importance of correct pricing

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<sup>53</sup> See George A. Akerlof, *The Market for "Lemons": Quality Uncertainty and the Market Mechanism*, 84 Q. J. ECON. 488 *passim* (1970).

<sup>54</sup> See *id.*

<sup>55</sup> "A market will be allocatively efficient if it is producing the right goods for the right people at the right price." GLOBAL ENCYCLOPAEDIA OF WELFARE ECONOMICS (Sunhil Chaudary ed.) 4–5 (2009).

<sup>56</sup> See Henry T. C. Hu, *The New Portfolio Society, SEC Mutual Fund Disclosure, and the Public Corporation Model*, 60 BUS. LAW. 1303, 1317–19 (2005) (discussing the importance of asset class in determining investor returns).

is dubious. People seek to maximize the utility of their purchases.<sup>57</sup> In a normal market, whether the price is fair is an important criterion.<sup>58</sup> Not so in investing. Investors only care about whether their stocks go up in value, not whether the prices at which they bought or sold were accurate.<sup>59</sup>

The impact of accurate share prices is similarly muted when looked at from a broader societal perspective. Normally, inaccurate prices stifle innovation and progress because the best companies are not being rewarded. Incorrect pricing could lead to adverse selection and even cause the market itself to collapse.<sup>60</sup> A similar dynamic is possible in the stock market. Money that companies raise through equity issuances is put toward their businesses. When a particular company's stock price is too high, it means that society is over-allocating resources to that company's business. By the same token, when a company's stock price is too low, there is an under-allocation. In both cases, capital is not flowing to its most efficient use. Therefore, the market for goods and services, and societal utility in general, is degraded.<sup>61</sup>

But it is easy to overstate this concern. Equity makes up a small portion of a corporation's capital structure. Rather than rely on equity, corporations largely finance their endeavors through debt or internally generated funds.<sup>62</sup> Therefore, even if the market allocates capital inefficiently, the impact is rather muted. Moreover, issuers only receive stock market dollars from initial or subsequent public offerings. These transactions, however, make up only a small portion of market activity. The vast majority of stock trades are between investors, not between issuers and investors.<sup>63</sup> Because the issuer is

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<sup>57</sup> See 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, 632–33 (1979).

<sup>58</sup> See *id.*

<sup>59</sup> See Lynn A. Stout, *The Unimportance of Being Efficient: An Economic Analysis of Stock Market Pricing and Securities Regulation*, 87 MICH. L. REV. 613, 700 (1988).

<sup>60</sup> See Akerlof, *supra* note 53, at 490.

<sup>61</sup> See John F. Barry III, *The Economics of Outside Information and Rule 10b-5*, 129 U. PA. L. REV. 1307, 1316–17 (1981); Marcel Kahan, *Securities Laws and the Social Costs of "Inaccurate" Stock Prices*, 41 DUKE L.J. 977, 1010 (1992).

<sup>62</sup> See Stout, *supra* note 59, at 645–47; Lawrence E. Mitchell, *Who Needs the Stock Market? Part I: The Empirical Evidence *passim** (Oct. 30, 2008) (unpublished manuscript), available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1292403](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1292403) (presenting an empirical study showing the minimal importance of the stock market to corporate finance).

<sup>63</sup> See HOMER KRIPKE, *THE SEC AND CORPORATE DISCLOSURE: REGULATION IN SEARCH OF A PURPOSE* 137–39 (1979); Stout, *supra* note 59, at 643–44.

not involved, even if these daily trades are made at inaccurate prices, there would be no adverse impact on allocative efficiency.<sup>64</sup>

Moreover, from a societal perspective, we should not care that buyers and sellers may receive too much or too little for their shares in any particular transaction. These trades are just transfers of wealth between parties. Stock trading is zero-sum.<sup>65</sup> If one stockholder overpays, another underpays, so it washes out. In the aggregate, arbitrarily high or low stock prices should impact all shareholders equally, and the accuracy of prices should therefore have no net effect on societal wealth.

Given these concerns, it is worth considering whether it is fairness rather than utilitarian goals that are served by accurate share prices. If a stock's price incorporates all available information, then the most sophisticated investor and the least trade on fair terms. By placing everyone on a level playing field, accurate share prices would protect individuals from being taken advantage of.<sup>66</sup> While this is true, the stock market would also be fair, even if prices are irrational, so long as the irrationality cannot be exploited.<sup>67</sup> To see this, consider a sophisticated trader who, after conducting extensive research, concludes that a stock is priced too high. As long as the stock could go higher or lower the next day, this additional knowledge does not matter. Despite superior knowledge, the sophisticate is on the same level as the average trader. If stock prices are unpredictable, then they are fair, even if they are not necessarily correct.

Thus, neither utilitarian nor fairness grounds offer compelling support for the notion that accurate share prices provide meaningful protection. This lack of an intellectual core not only threatens to delegitimize share-price accuracy as a regulatory theory, but it also calls into question the legitimacy of securities regulation itself. When the leading theory of investor protection is unsatisfying, we have reached an intellectual cul-de-sac.

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<sup>64</sup> See KRIPKE, *supra* note 63; Stout, *supra* note 59. It could be argued that the trading price between shareholders is important in that it impacts the original issue market. This is likely true, at least for seasoned issuers, but given the limited relevance of the stock market to allocative efficiency, it is a thin reed on which to justify share-price accuracy as a mechanism of investor protection. See Stout, *supra* note 59, at 651–56.

<sup>65</sup> KRIPKE, *supra* note 63, at 108; Coffee, *supra* note 27, at 733–34; Stout, *supra* note 59, at 644 & n.173.

<sup>66</sup> See Merritt B. Fox, *Shelf Registration, Integrated Disclosure, and Underwriter Due Diligence: An Economic Analysis*, 70 VA. L. REV. 1005, 1011 (1984).

<sup>67</sup> See Coffee, *supra* note 27, at 734.

## II

## ADOPTING AN INTEGRATIVE PERSPECTIVE

We can move forward in our understanding of securities regulation if we view it as part of a societal risk-management structure. The remainder of this piece is devoted to fleshing out this idea and its implications. In this Part, I first provide support for the notion that protecting investors from risk is a worthwhile goal for society; then, I describe the institutional structure that currently protects individuals from market risk. My description ties together areas that are usually seen as only tangentially related: regulation of the stock market and regulation of the institutional framework in which it is embedded. When looking at regulation of the market itself, I focus on whether we can appropriately characterize the contribution that securities regulation makes to risk management by simply recasting the current law-and-economics narrative in such terms or whether we should abandon it. When analyzing market-related institutions, my focus is on accurately capturing the extent to which the institutional structure surrounding the stock market protects investors from the risk that securities regulation leaves behind.

*A. Theoretical Underpinnings*

The idea that society should help individuals manage risk is central to both a Rawlsian perspective on justice and John Harsanyi's utilitarian framework. Rawls's work is in the social contractarian tradition, built largely on the thinking of Hobbes, Locke, Rousseau, and Kant.<sup>68</sup> Rawls sought to improve upon the state of nature in which the social contract was traditionally conceived by replacing it with the "original position."<sup>69</sup> Rawls posits that from this state, individuals are properly oriented to set up a fair and just system of laws and social institutions.<sup>70</sup>

In the original position, individuals conceptualize a just society from behind a "veil of ignorance."<sup>71</sup> This is a position of uncertainty where these individuals do not know whether those whom they represent in drafting the social contract will be among the least

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<sup>68</sup> See Samuel Freeman, *Introduction: John Rawls—An Overview*, in *THE CAMBRIDGE COMPANION TO RAWLS* 1, 10 (Samuel Freeman ed., 2003).

<sup>69</sup> See *id.* at 10–11.

<sup>70</sup> See JOHN RAWLS, *JUSTICE AS FAIRNESS: A RESTATEMENT* 14–15 (Erin Kelly ed. 2001).

<sup>71</sup> *Id.* at 15.



privileged in society or the most privileged.<sup>72</sup> When negotiating behind this veil, Rawls posits that these individuals would reason according to notions of reciprocity and equality.<sup>73</sup> This thinking would lead them to “regard the distribution of native endowments as a common asset” and to agree “to share in the benefits of this distribution whatever it turns out to be.”<sup>74</sup> In other words, they would design society so that those who benefit from morally arbitrary good fortune (the so-called “native endowments”), such as being born with high intelligence or to a wealthy family, share with those who are less lucky.<sup>75</sup>

This logic underpins Rawls’s famous “difference principle,” a notion of social and economic egalitarianism that is frequently viewed as providing a moral justification for a societal commitment to help the poor.<sup>76</sup> More broadly, however, Rawls’s reasoning presents a moral justification for societal risk management. According to his theory, when individuals are ignorant of the role that chance will play, they recognize that it is in everyone’s best interest to set up a society where the gains and losses it bestows are shared. The notion that the risk of morally arbitrary good or bad fortune should be shared bears on a range of social policy questions, and, in particular, it suggests a role for government in helping investors manage the risk posed by the stock market—its volatility.

Stock prices vary from hour to hour, day to day, and year to year. Such volatility causes a morally arbitrary dispersion in returns among investors. Though this is true for everyone, the phenomenon is easiest to see when we consider passive investors, those who simply place their money in the market each month and hope for the best when they retire. Although many investors follow this ritual, no two take part in it at the same time. Investors are of different generations, and even investors in the same generation may have funds available to invest at different points in their lives. These timing differences can have a dramatic impact on returns. Timing will dictate each investor’s exposure to market swings, which means that, despite equal

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<sup>72</sup> *See id.*

<sup>73</sup> *See id.* at 76–77, 122–23.

<sup>74</sup> *Id.* at 75.

<sup>75</sup> *See id.* at 74–75.

<sup>76</sup> *See* SERGE-CHRISTOPHE KOLM, *MODERN THEORIES OF JUSTICE* 169 (1996).

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contributions, investors who transact at different times may take out of the market vastly different sums.<sup>77</sup>

The apportionment of stock market riches among these investors, therefore, looks like a chance occurrence that is strikingly similar to the apportionment of native endowments. Just like native endowments, market returns are assigned randomly among them. Rather than being assigned by a birth lottery as Rawls envisions, they are assigned by market fluctuations that similarly lie beyond their control. Because these fluctuations are a matter of chance, just as with native endowments, none of these individuals has a moral claim to the returns they afford. The distribution of market returns across these investors, therefore, can be viewed as a common asset that should be shared by all of them. Government intervention that allows investors to manage and share the risk of both good and ill fortune and that seeks to quell volatility—the source of disparate market returns—is therefore justified in that such measures would effectuate a more equitable distribution of chance returns.

The Rawlsian analysis is even more compelling when we focus on the fact that, despite the glamorous role it plays in the public imagination, the stock market is largely a retirement vehicle.<sup>78</sup> The market houses trillions of dollars belonging to U.S. households hoping for long-term stock returns to fund retirement.<sup>79</sup> Rawls's view that we should constrain the disparities in life that arise from luck is particularly appealing here: an intuitive conception of what is just tells us that the amount of one's contributions rather than arbitrary market swings should determine the balance of one's retirement account. The potential for some people to have much more robust savings based on chance alone, rather than based on what they contribute over time, seems to contravene basic notions of fairness.

Looking at stock market returns as akin to native endowments, therefore, seems to both fit with Rawls's theory and comport with intuition about what is equitable. Nevertheless, several potential challenges to applying Rawlsian analysis to the stock market come to mind. The first is that the native endowments Rawls considers are assigned at birth; they are not chance outcomes, like stock market returns, that arise in the course of one's life. This strikes me as a distinction without a difference, however. The risk-sharing principle

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<sup>77</sup> See *infra* notes 287–89 and accompanying text.

<sup>78</sup> See *supra* note 11 and accompanying text.

<sup>79</sup> See *supra* note 11 and accompanying text.

seemingly should apply no matter when the risk arises. This position is consistent with the political philosophy literature, which has applied the difference principle to risks other than the assignment of native endowments,<sup>80</sup> and was anticipated by Rawls himself, who wrote that the “deeper idea of reciprocity implicit” in the difference principle applies not only to native endowments but to “good or bad luck over the course of life . . . .”<sup>81</sup>

Another potential challenge to the application of Rawls’s ideas in this context revolves around voluntariness. People choose to participate in the stock market and, thus, control whether they are exposed to the chance that comes with it. Whether individuals are born with native endowments, on the other hand, is completely outside individual choice. Again, however, this distinction does not appear to weaken the application of Rawls’s logic in this context. Participation in the stock market, while technically voluntary, is extraordinarily widespread.<sup>82</sup> Moreover, because the stock market is the mechanism through which individuals are expected to save for retirement, they are herded in that direction through social forces and government nudges.<sup>83</sup> Because the stock market is currently a central part of retirement savings, participation is voluntary only in a weak sense of the word. Aside from this, whether a chance is undertaken voluntarily does not change the analysis. Consider airplane safety. Whether someone chooses to fly is voluntary. Whether they are in a plane that crashes is a matter of chance. If individuals were to consider airplane safety in the original position, they would not know whether those whom they represent would choose to fly. Nor would they know whether they represent the flyers who would arrive safely or those who would be less fortunate. In this situation, concern for potentially unlucky victims would compel them to design airplanes, or airplane regulations, that would make air travel safer, even if doing so means that planes would be slower or use more fuel. This is analogous to sharing the benefits that stem from native endowments.

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<sup>80</sup> See, e.g., Serge-Christophe Kolm, *Chance and Justice: Social Policies and the Harsanyi-Vickrey-Rawls Problem*, 42 EURO. ECON. REV. 1393, 1393–94 (1998).

<sup>81</sup> RAWLS, *supra* note 70, at 124.

<sup>82</sup> See *supra* note 11 and accompanying text; see also INV. CO. INST., 2009 INVESTMENT COMPANY FACT BOOK 72, 73 fig.6.2 (49th ed. 2009) [hereinafter ICI FACT BOOK] (estimating that ninety-two million individuals own mutual funds and that of this group eighty percent own equity funds), available at [http://www.icifactbook.org/pdf/2009\\_factbook.pdf](http://www.icifactbook.org/pdf/2009_factbook.pdf).

<sup>83</sup> See *infra* note 271 and accompanying text.

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In each circumstance, individuals give up the opportunity for the best possible state of affairs (in this case, arriving quickly in a fuel-efficient plane) in exchange for protection from the worst outcomes (in this case, involvement in a plane crash). The fact that people do not have to travel on airplanes is largely irrelevant to the analysis.

Finally, let me address the role of active investing and, in doing so, clarify what portion of investor returns I see fit for Rawlsian analysis. In my example above, I posited passive investors, who bore no responsibility for whether their portfolios surged or plummeted. But not all investors behave this way. Many actively invest by choosing stocks they deem particularly worthy or by handing their money over to actively managed mutual funds, where professional money managers attempt to pick the good stocks on their behalf. Intuitively, it seems that, to the extent these investors earn their returns as a result of time-consuming investment analysis (or by paying others to engage in this pursuit) rather than by chance, they should be able to keep them.

While this may be a valid point that finds grounding in desert-based principles of distributive justice,<sup>84</sup> it is not a concern that is implicated by the analysis I have in mind. I am arguing only that the market return, often referred to in finance parlance as “beta,” rather than the return from legitimately skillful investing, referred to as “alpha,” is appropriate for Rawlsian analysis. Thus, I would view gains from the market’s daily fluctuations—those that we see reported on the news each evening—as a common asset to be shared. But I would leave any particular investor’s hard-earned market-beating returns alone.

This limitation, however, is not significant. Much of anyone’s return, even those who actively invest, is determined by the market’s chance movements. For example, an actively managed equity fund will do well when the market is on an upswing, irrespective of the talent of the fund’s manager. Moreover, even those managers who earn market-beating returns in any particular year in all likelihood owe their excess returns to chance.<sup>85</sup> It is probably not the case that the stocks they chose were particularly stellar. More likely, their selections just happened to go up in value as part of the market’s

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<sup>84</sup> See WOJCIECH SADURSKI, *GIVING DESERT ITS DUE* 135 (1985).

<sup>85</sup> See Eugene F. Fama & Kenneth R. French, *Luck Versus Skill in the Cross Section of Mutual Fund Returns*, 65 J. FIN. (forthcoming Oct. 2010) (manuscript at *passim*), available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1356021](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1356021).

unpredictable daily vituperations. Financial economists are divided on many things, but just about all agree that market volatility approximates a random and, therefore, highly unpredictable walk.<sup>86</sup> Perhaps Warren Buffett and a few others can thank skill and hard work for a portion of their investing returns, but they are the rare exception.<sup>87</sup>

Seeking to precisely untangle alpha from beta in any particular individual's portfolio, while theoretically alluring, is quite difficult in practice.<sup>88</sup> But this is largely an academic concern. Our current risk-management scheme comes from the opposite direction. It helps investors contain the market's overall volatility—and this would also be the case if the structure were altered by any of my recommendations. Approaching the issue from this angle allows us to narrow the dispersion of returns produced by the market's swings without preventing skilled individuals from profiting from their ability to time them.

Rawls's conception of political philosophy was conceived as an alternative to utilitarianism, which he found morally wanting.<sup>89</sup> It is somewhat ironic, therefore, that his notion of societal risk sharing is, at a broad level, similar to the utilitarian philosophy developed by John Harsanyi. Professor Harsanyi made major contributions to the study of game theory, for which he won a Nobel Prize in economics. Additionally, and more importantly for our purposes, he staked out a novel and influential position in the field of utilitarian ethics.<sup>90</sup>

Harsanyi begins his argument by asking us to picture individuals setting up societal institutions from a standpoint akin to the original position.<sup>91</sup> These individuals are tasked with designing a structure for

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<sup>86</sup> Both behavioral-finance theorists, like Robert Shiller and Andrei Shleifer, and efficient-markets theorists, like Eugene Fama, agree on this phenomenon. See ANDREI SHLEIFER, *INEFFICIENT MARKETS: AN INTRODUCTION TO BEHAVIORAL FINANCE* 7, 13 (2000); Eugene F. Fama, *The Behavior of Stock-Market Prices*, 38 J. BUS. 34 *passim* (1965); Robert J. Shiller, *Stock Price and Social Dynamics*, 1984 BROOKINGS PAPERS ON ECON. ACTIVITY 457, 458–59, 497–98 (1984).

<sup>87</sup> See Fama & French, *supra* note 85.

<sup>88</sup> See, e.g., *id.*

<sup>89</sup> See KOLM, *supra* note 76.

<sup>90</sup> Many of John Harsanyi's most prominent works are collected in JOHN C. HARSANYI, *ESSAYS ON ETHICS, SOCIAL BEHAVIOR, AND SCIENTIFIC EXPLANATION* (1976).

<sup>91</sup> See John C. Harsanyi, *Can the Maximin Principle Serve as a Basis for Morality? A Critique of John Rawls's Theory*, 69 AM. POL. SCI. REV. 594, 598 (1975). Harsanyi actually presented his notion of the original position before Rawls, though he did not use this phrase, nor did he flesh out the idea to the same extent. See *id.* at 595 & n.5.

society, but they do not know whether they will be the beneficiaries of chance or the victims of it.<sup>92</sup> So far, the reasoning is similar to that of Rawls. Where the two part ways, however, is that Harsanyi argues that participants in this situation of uncertainty would seek to create a society that maximizes expected utility.<sup>93</sup> Gone are the notions of reciprocity and equality that are central to Rawls's thought experiment.<sup>94</sup>

Despite Harsanyi's utilitarian stance, however, the implications of his analysis do not deviate significantly from Rawls's own conclusions. This is because, in calculating utility without knowledge of the future, the individuals in Harsanyi's thought experiment must take into account the risk that they could land anywhere in the social strata.<sup>95</sup> Risk aversion, therefore, would compel them to set up societal institutions that protect them from the risk that they will be the unfortunate ones.<sup>96</sup> Interestingly, despite a long-running academic debate between them, both Rawls and Harsanyi have acknowledged how close their positions are. According to Harsanyi, "in practice in most cases my own [utilitarian analysis] will lead to similar policy decisions as Rawls's,"<sup>97</sup> while according to Rawls, "the utilitarian weighting may be, for practical purposes, so close to the difference principle as to make the simplicity of the latter decisive in its favor."<sup>98</sup>

Putting Rawls's jab to one side, it is important to note that, even under a utilitarian framework, society has a role in setting up institutions that narrow the dispersion of chance rewards. Like Rawls's fairness analysis, Harsanyi's utilitarian analysis can be applied to stock market risk. Utility-maximizing investors, the vast majority of whom are using the market as a retirement vehicle, may very well prefer some insulation from arbitrary, wealth-destroying swings.

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<sup>92</sup> See *id.* at 598.

<sup>93</sup> See *id.*

<sup>94</sup> See RAWLS, *supra* note 70, at 76–77, 122–23.

<sup>95</sup> See Harsanyi, *supra* note 91, at 598, 600.

<sup>96</sup> This follows from Harsanyi's acceptance of a concave individual utility function. See John C. Harsanyi, *Nonlinear Social Welfare Functions: Do Welfare Economists Have a Special Exemption from Bayesian Rationality*, 6 *THEORY & DECISION* 311, 318–24 (1975); see also Daniel M. Hausman & Michael S. McPherson, *Taking Ethics Seriously: Economics and Contemporary Moral Philosophy*, 31 *J. ECON. LITERATURE* 671, 710 (1993).

<sup>97</sup> Harsanyi, *supra* note 96, at 319.

<sup>98</sup> JOHN RAWLS, *A THEORY OF JUSTICE* 144 (revised ed. 1999).

These two theories provide support for the notion that society has a role in shielding investors from market risk. Doing so has the potential to maximize utility and make saving more fair. The government can provide this protection in essentially two ways: it can endeavor to make the stock market itself less volatile, which would directly narrow the arbitrary dispersion in investor returns, and it can design or support institutions that help investors manage the risk stemming from the volatility that remains. The following sections trace the way in which our current institutional framework already reflects these two approaches to societal risk management.

### *B. Managing Market Volatility from Within*

Securities regulation can be seen as part of a broader societal risk-management framework because it dampens the volatility of the market itself. Volatility is inversely correlated with accuracy: the more accurate a stock's price, the less volatile, and vice versa.<sup>99</sup> Because, as discussed below, regulation makes stock prices more accurate, it also makes them less volatile.

To see the relationship between accuracy, volatility, and regulation, let us first look at what would happen if stocks were priced correctly. Volatility in the market stems from two sources—information and investor sentiment (that is, market decisions unexplainable by information and, therefore, attributable to fads, emotions, and the like). These sources of volatility would have a more muted impact on accurately priced stocks. If stocks were correctly priced, then investor sentiment would be irrelevant. Prices would not be too high or too low based on irrationally gleeful or dark market projections. By definition, such irrationality would have no impact. Thus, this source of volatility would be eliminated.

Moreover, accurately priced stocks would swing less when confronted with new information. To see this, we need to look first at what the price of a share represents. From a finance perspective, the price of a company's stock is the present value of its future income streams.<sup>100</sup> Thus, a company's stock price is really a prediction about the future, specifically about that company's future earnings. The

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<sup>99</sup> See George J. Stigler, *The Economics of Information*, 59 J. POL. ECON. 213, 214 (1961) ("Price dispersion is a manifestation—and, indeed, it is the measure—of ignorance in the market.").

<sup>100</sup> See WILLIAM J. CARNEY, *CORPORATE FINANCE: PRINCIPLES AND PRACTICE* 90–91 (2005).

income streams that materialize will be a function of how future events impact this company. Nobody knows for sure what the future holds, but an accurate stock price would represent society's best guess.<sup>101</sup> An accurate stock price then, by definition, is a better prediction about the future than an inaccurate one. Because it is a better prediction, it would move less when the future reveals itself. Thus, while accurate stock prices would not completely insulate investors from the volatility associated with new information, they would, at least, dampen it.

Accuracy and volatility are so intertwined because the same things that cause inaccuracy also cause volatility: investor sentiment distorts prices and causes them to swing, and a lack of prescience about the future does the same. It follows, therefore, that if we reduce the impact of investor sentiment and improve our ability to predict future earnings, we would render stock prices both more accurate and less volatile. That is the impact that disclosure offers to society.

As discussed in Part I, mandated disclosures add to the depth and lucidity of information in the market.<sup>102</sup> For one, this added information should lead to better predictions about future events and, therefore, future cash flows.<sup>103</sup> To illustrate, say that a company is enduring increasing financial difficulties that eventually necessitate significant corporate downsizing and the abandonment of potentially profitable business ventures. In the interim, if traders do not have an inkling of this balance-sheet weakness, then the stock price would inaccurately reflect a rosy projection for the future. As a result, the price would swing significantly when the cutbacks finally take place and the less ambitious agenda can no longer be hidden. Now let us say that, thanks to mandated disclosures, the market is kept abreast of the company's financial woes. If this were the case, then the stock price would anticipate some type of remedial action. This more informed stock price would be more accurate because it would price this future event. It would also be less volatile because, having already taken into account the company's fragile finances, the stock price would move much less when the problem is finally dealt with. The logic of this illustration can be extended to all relevant

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<sup>101</sup> See Robert J. Shiller, *From Efficient Markets Theory to Behavioral Finance*, 17 J. ECON. PERSP. 83, 84–85 (2003).

<sup>102</sup> See *supra* notes 26–29 and accompanying text.

<sup>103</sup> See Merritt B. Fox, *Retaining Mandatory Securities Disclosure: Why Issuer Choice is Not Investor Empowerment*, 85 VA. L. REV. 1335, 1369–70 (1999).



information. The more relevant information that is available about companies, the more accurate and steady their stock prices.<sup>104</sup>

Further, better informed markets should be less susceptible to investor sentiment. Rumor, innuendo, and the like should have much more trouble gaining a foothold if there is more robust information. Thus, stock-price inaccuracy and market swings that result from these sentiments should be reduced. The example above can also be used to illustrate this phenomenon. If traders do not have good information about the company's finances, they are left to rely on gossip. With real information, however, this ersatz information is crowded out.

The notion that disclosure improves accuracy and reduces volatility is not merely theoretical. Numerous studies have shown that the introduction of the disclosure regime reduced volatility<sup>105</sup>—oftentimes the finding was that the impact was substantial.<sup>106</sup> For instance, an early study by George Stigler found that volatility was reduced by nearly fifty percent.<sup>107</sup> Some commentators, including Professor Stigler, have suggested that the reduced volatility came from forcing the riskiest firms out of the public market.<sup>108</sup> There is paltry support for this claim, however.<sup>109</sup> The more straightforward interpretation, as argued by Professor Loss, Professor Fox, and others, is that the reduced volatility was associated with more accurate stock

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<sup>104</sup> Over time, disclosure smoothes price changes, but does not eliminate them. In the example above, the stock's price should be the same when the truth is known irrespective of whether there had been earlier disclosure. Without disclosure, however, the price would have plummeted rather than gradually declined as the company's financial condition worsened. By smoothing price changes, disclosure lessens volatility. This is easiest to see if you focus on returns. The returns volatility per year for a stock that goes up two percent per year for five years is zero. The returns volatility of a stock yielding zero percent return for four years, which then jumps ten percent in the final year, is much greater.

<sup>105</sup> See Coffee, *supra* note 27, at 735 (noting that “[e]very scholar who has investigated the impact of the federal securities laws . . . appears to agree that price dispersion declined after the passage of the Securities Act of 1933”); see also George J. Benston, *Required Disclosure and the Stock Market: An Evaluation of the Securities Exchange Act of 1934*, 63 AM. ECON. REV. 132 *passim* (1973); Gregg A. Jarrell, *The Economic Effects of Federal Regulation of the Market for New Securities Issues*, 24 J. L. & ECON. 613, 627–50 (1981); Carol J. Simon, *The Effect of the 1933 Securities Act on Investor Information and the Performance of New Issues*, 79 AM. ECON. REV. 295, 309–10 & tbl.7 (1989); George J. Stigler, *Public Regulation of the Securities Markets*, 37 J. BUS. 117, 122 (1964).

<sup>106</sup> See Allen Ferrell, *Mandatory Disclosure and Stock Returns: Evidence from the Over-the-Counter Market*, 36 J. LEGAL STUD. 213, 216–17 (2007).

<sup>107</sup> See Fox, *supra* note 103, at 1370; Stigler, *supra* note 105, at 121 tbl.1.

<sup>108</sup> See LOSS ET AL., *supra* note 1, at 320; Jarrell, *supra* note 105, at 668; Stigler, *supra* note 105.

<sup>109</sup> See Fox, *supra* note 103, at 1371–72 n.83.

prices.<sup>110</sup> A recent study of the over-the-counter derivatives market supports the latter interpretation.<sup>111</sup> The market showed reduced volatility after the introduction of disclosure, and there was no significant change in the types of firms listing on the exchange.<sup>112</sup> Therefore, though the evidence is not perfect, nor absolutely free from controversy, there is fairly compelling empirical support for the theoretical case that disclosure leads to stock prices that are more accurate and less volatile.<sup>113</sup>

Taking note of the relationship between accuracy and volatility provides an escape from the dead end we reached earlier.<sup>114</sup> Previously, I argued that we had no good theory of how disclosure protects investors. Now we have two possibilities. For one, the law-and-economics theory that shareholders are protected by accurate stock prices, and that disclosure contributes to this optimal pricing, has been resurrected. I argued that neither utilitarian nor fairness analyses provided a theory for why these accurate prices would matter. But this void has now been filled. Accurate stock prices matter because they are less volatile, and protection from volatility is something investors care about. Thus, we can view accurate stock prices as the endogenous protection from market risk that society provides.

Recast in this way, the law-and-economics account becomes a statement about how the market and regulatory intervention in the form of disclosure combine to provide investors with robust protection from volatility. The claim that investors are protected by accurate stock prices implies that they are completely shielded from movement associated with investor sentiment and that they have stout protection from fluctuations stemming from new events. This is a rather bold assertion about the nature of investor protection. But it is not our only option.

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<sup>110</sup> LOSS ET AL., *supra* note 1, at 320; Fox, *supra* note 103, at 1370–71.

<sup>111</sup> Ferrell, *supra* note 106, at 214.

<sup>112</sup> *See id.* at 226–28.

<sup>113</sup> Viewing reduced volatility as a benefit of securities regulation challenges earlier empirical work, which had concluded that securities regulation does not benefit investors because it fails to improve returns. *See, e.g.,* Stigler, *supra* note 105, at 120–21. Taking reduced volatility into account also opens the door to further empirical work, which could weigh the direct and indirect costs of regulation against its volatility-reducing benefits.

<sup>114</sup> Professors Stout and Coffee flirt with the notion that volatility is important, but do not flesh out the idea. *See* Coffee, *supra* note 27, at 735 n.48; Stout, *supra* note 59, at 701.

The above account sees disclosures feeding into a powerful market process that vacuums up information, muffles volatility, and produces accurate prices. If the market does not function as well as hypothesized, then we can fall back on a more modest version of how market forces and securities regulation come together to provide protection from risk. We can abandon the notion that the market perfects share prices and, instead, make the weaker claim that disclosures are released into a market that, although imperfect, still works well enough to translate improved information into prices that are *relatively* more accurate and less volatile. The choice between the two different characterizations of investor protection hinges on whether market forces ensure that share prices are, in fact, accurate—the subject I turn to next.

### *1. Assessing Whether Share Prices Are Accurate*

As discussed previously, the idea that stock prices are correct emanates from EMH.<sup>115</sup> This elegant finance theory held sway over the legal and economics academies for much of the last forty years.<sup>116</sup> Recent work, primarily in the field of behavioral finance, however, has called the theory into doubt. In this section, I first lay out the arguments for EMH and then discuss the theoretical and empirical problems with the idea. I also discuss the epistemology of finance and the influence of “fat-tail” events, both of which further call into question whether we can say that stock prices are truly accurate. In the end, I conclude that behavioral finance and related concerns so enfeeble the notion that share prices are correct that we should no longer make the claim as part of our theory of securities regulation.

#### *a. The Efficient Markets Hypothesis*

EMH is based on the following layered reasoning. First, let us assume that investors are rational. This means that they have unlimited willingness and ability to consider all relevant information and choices and have unlimited mental capacity upon which to draw in order to weigh their alternatives and reach a decision.<sup>117</sup> If

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<sup>115</sup> See Nicholas Barberis & Richard Thaler, *A Survey of Behavioral Finance*, in 2 ADVANCES IN BEHAVIORAL FINANCE 1, 3 (Richard H. Thaler ed., 2005); *supra* notes 4–5 and notes 34–36 and accompanying text.

<sup>116</sup> See SHLEIFER, *supra* note 86, at 1–2 (describing embrace in economics literature); Langevoort, *supra* note 31, at 136 (describing embrace in legal literature).

<sup>117</sup> See Paredes, *supra* note 22, at 434.

investors are rational, they will value securities at their true or so-called fundamental value.<sup>118</sup> Second, even if not all investors live up to this standard, we can assume that any errors made by irrational investors are random noise and, therefore, cancel out.<sup>119</sup> The result would be that securities prices are accurate despite this irrationality.<sup>120</sup>

Finally, let us assume that investors err in systematic ways. This would cause security prices to begin to deviate from fundamental value. Any deviation, however, would be cleaned up nearly instantaneously by rational arbitrageurs, who can make a profit by exploiting this irrational divergence from correct pricing.<sup>121</sup>

EMH is an interesting theory in the abstract. It becomes especially powerful and controversial when the claim is made that the theory applies to the U.S. stock market. For a while, however, empirical research seemed to show that this was indeed the case. In fact, the prominent economist Michael Jensen famously claimed in 1978 that “there is no other proposition in economics which has more solid empirical evidence supporting it than the Efficient Markets Hypothesis.”<sup>122</sup>

The empirical support for EMH comes primarily from studies that show the rapidity with which stock prices incorporate information and the difficulty that market professionals have in beating the stock market. Rapid adjustment to information is shown through so-called event studies, which look at news events that should influence stock prices, such as an earnings announcement or changes in management, and then study their actual impacts.<sup>123</sup> For example, one study looked at the behavior of the stock price of takeover targets surrounding the time when a bid was announced. The study showed that the stock price shot up on the day of the announcement. After that day, however, the stock’s price showed no lingering movements, indicating that the information had been immediately incorporated into price.<sup>124</sup>

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<sup>118</sup> SHLEIFER, *supra* note 86, at 2–3.

<sup>119</sup> *Id.* at 3.

<sup>120</sup> *Id.*

<sup>121</sup> *See id.* at 3–4.

<sup>122</sup> Michael C. Jensen ed., *Some Anomalous Evidence Regarding Market Efficiency*, 6 J. FIN. ECON. 95, 95 (1978).

<sup>123</sup> *See* SHLEIFER, *supra* note 86, at 7–8.

<sup>124</sup> *See id.*; Arthur J. Keown & John M. Pinkerton, *Merger Announcements and Insider Trading: An Empirical Investigation*, 36 J. FIN. 855, 866 (1981).

It could be argued that, while these event studies show that stock prices react quickly, they do not necessarily demonstrate that prices react correctly. This loophole can be closed, however, by resorting back to economic theory. Theory tells us that the reaction must be accurate. If the price reaction were not, it would create an arbitrage opportunity that would be swallowed up by sophisticated traders. Their trades, in turn, would bring prices to where they should be. According to this logic, because the price jumps and then remains stable, it must be correct.<sup>125</sup>

Event-study findings are supported by research that shows the difficulty investment professionals have in beating the stock market.<sup>126</sup> Each year billions of dollars are spent on actively managed mutual funds.<sup>127</sup> These funds search for and seek to exploit arbitrage opportunities in an attempt to earn returns for their shareholders in excess of the stock market as a whole, or some other benchmark index of securities, without incurring excess risk. By and large, however, these funds fail in their pursuit. According to efficiency theorists, this shows that stocks are quickly, if not nearly instantaneously, priced correctly. If professionals cannot take advantage of mispricings, it means they must not be there.

Put all of this together and you have an academic juggernaut: elegant theory backed with a mountain of confirming empiricism. For a long while, therefore, a faith in share-price accuracy seemed to rest on sound footing. This faith, however, has increasingly been shaken in the face of both theoretical and empirical challenges.

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<sup>125</sup> See Langevoort, *supra* note 31, at 140 n.18.

<sup>126</sup> See Barberis & Thaler, *supra* note 115, at 4; see, e.g., Fama, *supra* note 86, at *passim*; Burton G. Malkiel, *Reflections on the Efficient Market Hypothesis: 30 Years Later*, 40 FIN. REV. 1 *passim* (2005).

<sup>127</sup> See Kent Daniel et al., *Investor Psychology in Capital Markets: Evidence and Policy Implications*, 49 J. MONETARY ECON. 139, 174 (2002) (estimating ten billion dollars spent each year on actively managed mutual funds); Mark Hulbert, *Can You Beat the Market? It's a \$100 Billion Question*, N.Y. TIMES, Mar. 9, 2008, at BU6; Kenneth R. French, *The Cost of Active Investing 20–21* (Apr. 9, 2008) (unpublished manuscript), available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1105775](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1105775) (estimating yearly total costs of active investing, including, but not limited to, fees paid to managers of actively managed mutual funds, to be approximately 0.67% of the value of U.S. equity); cf. Jeff Schwartz, *Mutual Fund Conflicts of Interest in the Wake of the Short-Term Trading Scandals: Encouraging Structural Change Through Shareholder Choice*, 2 N.Y.U. J.L. & BUS. 91, 114–15 (2005) (arguing that mutual fund fees are excessive).

*b. The Irrationality of Stock Prices*

As mentioned above, EMH rests on the following syllogism: investors are rational and will therefore value securities rationally; even if some do not, their errors will cancel out; and finally, even if the errors do not cancel out, rational arbitrageurs will step in to correct any mispricings.<sup>128</sup> In this section, I analyze each of these assumptions, with a focus on the last, which is the most sophisticated and realistic.

The first path, in which we assume that investors are rational and therefore value securities rationally, is essentially a tautology.<sup>129</sup> It also has limited practical application. Though some may still argue that individuals are rational,<sup>130</sup> there have been numerous studies that cast serious doubt on this assumption, and, in the investing context in particular, there is reason for pause. Individuals are notoriously unsophisticated about finance and investing.<sup>131</sup> On top of that, their decision-making processes are far from perfect.

A complete review of the human biases that are thought to impact decision making in the investment context is beyond the scope of this Article, but I will describe some of the most notable.<sup>132</sup> One robust finding is that people do not weigh losses and gains equally.<sup>133</sup> More specifically, in the words of Adam Smith, “we suffer more . . . when we fall from a better to a worse situation, than we ever enjoy when we

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<sup>128</sup> See Erik F. Gerding, *Laws Against Bubbles: An Experimental-Asset-Market Approach to Analyzing Financial Regulation*, 2007 WIS. L. REV. 977, 994–95 (2007); *supra* notes 117–121 and accompanying text.

<sup>129</sup> Cf. Donald C. Langevoort, *Theories, Assumptions, and Securities Regulation: Market Efficiency Revisited*, 140 U. PA. L. REV. 851, 857 (1992) (mentioning the tautologous nature of EMH); Stephen F. LeRoy, *Efficient Capital Markets and Martingales*, 27 J. ECON. LIT. 1583, 1593, 1613 (1989) (discussing tautologies in the mathematical structure of EMH).

<sup>130</sup> Richard Epstein comes close to defending this model of decision making. See Richard A. Epstein, *The Neoclassical Economics of Consumer Contracts*, 92 MINN. L. REV. 803, 810–11, 823–31 (2008) (arguing that what appear to be mistakes of bounded rationality are truly instances of strategic behavior).

<sup>131</sup> See OFFICE OF INVESTOR EDUC. & ASSISTANCE, SEC, THE FACTS ON SAVING AND INVESTING 14–19 (1999) [hereinafter FACTS ON SAVING AND INVESTING] (compiling research showing the public’s lack of comfort with basic financial concepts and ignorance of investing basics).

<sup>132</sup> For a more comprehensive survey, see Barberis & Thaler, *supra* note 115, at 12–22.

<sup>133</sup> This phenomenon is frequently referred to as loss aversion. See Amos Tversky & Daniel Kahneman, *Loss Aversion in Riskless Choice: A Reference-Dependent Model*, 106 Q. J. ECON. 1039, 1054–58 (1991) (reviewing empirical work and its implications).

rise from a worse to a better.”<sup>134</sup> Building on Smith’s insight, studies have shown that people weigh losses about twice as much as gains.<sup>135</sup> Among other things, this disparity is thought to impact investing as one psychological force behind the well-documented disposition effect—the finding that people tend to hold onto poorly performing stocks for too long and sell winners too quickly. The thinking is that investors are anxious to sell winners because they are eager for gains, but they hold onto the losers because they do not want to face losses.<sup>136</sup>

People also evidence traits related to overconfidence.<sup>137</sup> They tend to overestimate the probability of positive things happening to them and underestimate the probability of negative events.<sup>138</sup> Moreover, when good or bad things do happen, they take credit for the successes and blame the failures on bad luck.<sup>139</sup> People also assign too much precision to their own estimates. For instance, experiments show that, when individuals say they are ninety-eight percent sure in their predictions, they are only right fifty to eighty percent of the time.<sup>140</sup> And even though people are often wrong about things, they do not like to let go of their beliefs: they tend to search out evidence that supports rather than contradicts their thinking, and people have been known to interpret evidence contrary to their viewpoint as actually supportive.<sup>141</sup> This rigidity is buttressed by the so-called hindsight bias, which causes events that were unpredictable *ex ante* to appear

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<sup>134</sup> ADAM SMITH, *THE THEORY OF MORAL SENTIMENTS* 213 (D. D. Raphael & A. L. Macfie eds., Oxford Univ. Press 1976) (1759).

<sup>135</sup> See Shlomo Benartzi & Richard H. Thaler, *Myopic Loss Aversion and the Equity Premium Puzzle*, 110 Q. J. ECON. 73, 74 (1995).

<sup>136</sup> Incongruous weighing of gains and losses is an implication of Kahneman and Tversky’s prospect theory, which posits that investors have a utility function that is concave over gains and convex over losses. For a discussion of prospect theory and the disposition effect, see Stephen P. Ferris et al., *Predicting Contemporary Volume with Historic Volume at Differential Price Levels: Evidence Supporting the Disposition Effect*, 43 J. FIN. 677, 678–79 (1988); Hersh Shefrin & Meir Statman, *The Disposition to Sell Winners Too Early and Ride Losers Too Long: Theory and Evidence*, 40 J. FIN. 777, 778–79 (1985).

<sup>137</sup> See Langevoort, *supra* note 31, at 146.

<sup>138</sup> See Shelley E. Taylor & Jonathon D. Brown, *Illusion and Well-Being: A Social Psychological Perspective on Mental Health*, 103 PSYCHOL. BULL. 193, 196–97 (1988).

<sup>139</sup> This is referred to as the self-attribution bias. See Barberis & Thaler, *supra* note 115, at 12 n.10; Langevoort, *supra* note 31, at 147.

<sup>140</sup> See Paul Slovic et al., *Facts Versus Fears: Understanding Perceived Risk, in JUDGMENT UNDER UNCERTAINTY: HEURISTICS AND BIASES* 463, 475 (Daniel Kahneman et al. eds., 1982).

<sup>141</sup> See Barberis & Thaler, *supra* note 115, at 15.

predictable ex post.<sup>142</sup> Because of this bias, rather than change their behavior or beliefs about what they can predict, people feel confident with the status quo.<sup>143</sup> What all of this research suggests is that people do not approach investing with an open mind and an eagerness to learn. Instead, they come at it with a sclerotic and under-informed worldview.

To make matters worse, people are bad at probabilities. They draw broad conclusions based on small samples (the so-called representativeness heuristic);<sup>144</sup> their decisions are overly impacted by hearing about poignant, though statistically insignificant, events;<sup>145</sup> and instead of concentrating on aggregate data, they look to their own experiences or the experiences of friends and family as a guide.<sup>146</sup> These traits likely explain why investors pick stocks based on recent trends,<sup>147</sup> fads,<sup>148</sup> gut instincts,<sup>149</sup> and tips from friends,<sup>150</sup> rather than on the probabilistic computational form of analysis that the rational actor would employ. In the end, the wide array of decision-making flaws that psychologists have documented paints a

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<sup>142</sup> See Baruch Fischhoff, *For Those Condemned to Study the Past: Heuristics and Biases in Hindsight*, in JUDGMENT UNDER UNCERTAINTY: HEURISTICS AND BIASES, *supra* note 140, at 335, 341.

<sup>143</sup> See *id.* at 343; cf. Bruno Biass & Martin Weber, *Hindsight Bias, Risk Perception, and Investment Performance*, 55 MGMT. SCI. 1018 *passim* (2009) (analyzing the detrimental effect the hindsight bias has on investing).

<sup>144</sup> See Barberis & Thaler, *supra* note 115, at 13–14; Robert J. Shiller, *Bubbles, Human Judgment, and Expert Opinion*, 58 FIN. ANALYSTS J., May–Jun. 2002, at 18, 19–20.

<sup>145</sup> See Amos Tversky & Daniel Kahneman, *Judgment Under Uncertainty: Heuristics and Biases*, SCIENCE, Sept. 27, 1974, at 1124.

<sup>146</sup> See Matthew Rabin, *Psychology and Economics*, 36 J. ECON. LITERATURE 11, 30 (1998); Lauren E. Willis, *Against Financial-Literacy Education*, 94 IOWA L. REV. 197, 241–42 (2008).

<sup>147</sup> See SHLEIFER, *supra* note 86, at 154–55 (discussing positive feedback investing, the phenomenon where traders chase stocks trending higher and sell those trending lower); Shiller, *supra* note 101, at 93.

<sup>148</sup> See ROBERT J. SHILLER, MARKET VOLATILITY 49–64 (1989) (discussing the role of fads in investing); Michael J. Cooper et al., *A Rose.com by Any Other Name*, 56 J. FIN. 2371, 2373 (2001) (finding that adding “dot.com” to a company’s name was associated with a substantial increase in share price).

<sup>149</sup> See Shiller, *supra* note 144, at 20 (arguing that intuitive thinking and overconfidence in intuition are behind both market bubbles and collapses).

<sup>150</sup> See Gordon J. Alexander et al., *Mutual Fund Shareholders: Characteristics, Investor Knowledge, and Sources of Information* 9–10 (Office of the Comptroller of the Currency, Economics Working Paper No. WP97-13, 1997), available at <http://www.occ.treas.gov/ftp/workpaper/wp97-13.pdf> (survey showing that 37.6% of mutual fund shareholders relied heavily on family and friends for investing information).



picture of the average investor that casts serious doubt on the notion that they are valuing stocks perfectly rationally.

A more nuanced way to reason that stock prices should be accurate is to posit that even if certain investors are, in fact, irrational, their trades are random and, therefore, cancel out. Though at first compelling, this notion also fails in practice. One reason the research mentioned above is notable is that it suggests that we all suffer from the same flaws and are thus likely to err in the same ways. That being the case, we should not expect people's mistakes to simply cancel out. For example, if we know that investors overemphasize recent events, then a positive or negative news event could be expected to cause a similar overreaction among many investors. If a particular event inspires investors to irrationally buy or sell en masse, there is no canceling out.

More generally, large groups of investors appear to fall prey to fads and norms.<sup>151</sup> Popular sentiment can build in support of new pseudoscientific theories about why certain stocks, certain sectors, or the market as a whole make a particularly good (or bad) investment.<sup>152</sup> Once these stories take hold they can create feedback loops that further amplify their effect and lend them an air of truth.<sup>153</sup> Let us say there is a particular stock that is supposedly about to rise in value. If a group of people believes this story and buys the stock, they will cause its price to rise regardless of the accuracy of the prediction.<sup>154</sup> The rising stock price becomes a self-fulfilling prophecy. If the story is reported by the national media, the stock could potentially soar. This tendency for herd-like behavior, accompanied by feedback loops, further undermines the idea that investor irrationality simply cancels out.<sup>155</sup>

If we accept that the irrationality of ordinary investors can distort stock prices, EMH nevertheless stands as long as we believe that rational arbitrageurs (i.e., sophisticated investors) will attack and

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<sup>151</sup> See SHILLER, *supra* note 148, at 49–64; Shiller, *supra* note 86, at 457 (arguing that stock-price movements are a social phenomenon).

<sup>152</sup> See Shiller, *supra* note 144, at 21.

<sup>153</sup> See Shiller, *supra* note 101, at 91–96.

<sup>154</sup> See Shiller, *supra* note 144, at 19, 23.

<sup>155</sup> Cf. Andrew Jackson, The Aggregate Behaviour of Individual Investors (July 29, 2003) (unpublished manuscript), available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=536942](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=536942) (empirical analysis showing strong systematic patterns among individual investors).

eliminate price discrepancies that arise.<sup>156</sup> This assertion is the most compelling, and, as a result, it has been the focal point of behavioral finance. These scholars tend to accept the notion that rational arbitrageurs exist, but they challenge the idea that they can fix price discrepancies.<sup>157</sup> In the next section, I will lay out some of the compelling arguments that behavioral finance theorists set out as to the limits of arbitrage.

(i) *Limited Arbitrage*

The story of rational arbitrage—that informed investors ferret out mispricings and, in doing so, eliminate them—is intuitively appealing. This theory, however, rests on certain tenuous assumptions. For it to work, mispriced securities must create the opportunity for sophisticated traders to earn risk-free and cost-free profits.<sup>158</sup> If mispricings are not quite so easy to exploit, sophisticated traders may allow them to fester or even engage in transactions that make them worse. As discussed below, behavioral finance scholars have shown that the risks and costs involved with arbitrage are substantial in the real world and have modeled the stock-price distortion this creates.

First, let us consider the role of risk in arbitrage trading. Technically, a pure arbitrage transaction involves no risk.<sup>159</sup> An example would be to simultaneously sell an asset for a high price, say one hundred dollars, and buy an identical one for a low price, say eighty dollars.<sup>160</sup> That transaction would bring in a risk-free profit of twenty dollars. If such discrepancies appeared in any market, they would be gobbled up immediately and disappear.

EMH contends that this dynamic is what leads to accurate prices in the stock market. From a finance perspective, a stock is the right to receive a series of cash flows over time.<sup>161</sup> Thus, all stocks are comparable according to this metric. Moreover, in a deep market like

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<sup>156</sup> See Shiller, *supra* note 101, at 96.

<sup>157</sup> As Andrei Shleifer put it, “[t]he central argument of behavioral finance states that, in contrast to the efficient markets theory, real-world arbitrage is risky and therefore limited.” SHLEIFER, *supra* note 86. Behavioral finance, however, also carries a broader connotation. See *id.* at 23 (“At the most general level, behavioral finance is the study of human fallibility in competitive markets.”).

<sup>158</sup> *Id.* at 28; Barberis & Thaler, *supra* note 115, at 3–4.

<sup>159</sup> See *supra* note 158 and accompanying text.

<sup>160</sup> See SHLEIFER, *supra* note 86, at 3–4.

<sup>161</sup> See *id.* at 2 (discussing valuation of securities based on future cash flows).

the New York Stock Exchange, all shares should have counterparts with very similar or identical projected future cash flows.<sup>162</sup> According to EMH, because traders can substitute one security for another, prices should be kept in tow. If the price of a stock were to rise for no good reason, it would create an arbitrage opportunity, which a trader could, and would, exploit by selling the security and purchasing one offering analogous cash flows at the correct price. The selling activity should realign prices accordingly.<sup>163</sup>

Behavioral finance theorists point out that much of the time, however, there is no such thing as exact, or even close, substitutes. The lack of substitutes imbues stock trading with risk. Assume a sophisticated investor owns AT&T stock and now believes it to be overpriced. That investor can sell AT&T and purchase Verizon (which, let us assume, is currently correctly priced). Though it is superficially similar to the ideal arbitrage transaction, this exchange is far from risk-free.

For one, it involves so-called “fundamental risk.”<sup>164</sup> This risk reflects the reality that AT&T and Verizon, though they are both vast telecommunications firms, are simply not identical. Thus, information idiosyncratic to one company or the other could create arbitrage losses. For instance, assume that after the transaction, AT&T releases a particularly strong earnings report. This news may cause its stock price to justifiably rise further in value, and the arbitrageur will wish never to have made the trade. Notice that if the two shares were truly identical, then new information would not impact the two assets differently; the arbitrageur would have avoided this risk.

Such a transaction also involves so-called “noise-trader risk.”<sup>165</sup> This is the risk that the pricing disparity, although fundamentally incorrect, will continue or become even more misguided over time as a result of the purchasing activities of unsophisticated investors. In the example above, even though the arbitrageur may be correct in

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<sup>162</sup> This is closely related to the idea of complete markets. See MELISSA HARDY & LAWRENCE HAZELRIGG, PENSION PUZZLES: SOCIAL SECURITY AND THE GREAT DEBATE 118 (2007) (“To the extent that rational expectations and the efficient-market hypothesis are actualized in complete markets, asset prices would always tend toward . . . fundamental values . . . and all information relevant to the market would already be reflected in prices.”); SHLEIFER, *supra* note 86, at 8–9.

<sup>163</sup> SHLEIFER, *supra* note 86, at 3–4, 8–9, 13–14.

<sup>164</sup> See *id.* at 14; Barberis & Thaler, *supra* note 115, at 4–5.

<sup>165</sup> See SHLEIFER, *supra* note 86, at 14–15; Barberis & Thaler, *supra* note 115, at 5–6.

thinking AT&T is overpriced, the stock could continue to rise thanks to some market rumor. Even the most fundamentally sound bet made by sophisticated investors can be frustrated by investor sentiment. The presence of both fundamental and noise-trader risk alters the incentives of arbitrageurs. When facing these risks, they may not be so quick to assault potential mispricings.

What is perhaps even more problematic is that these risks are amplified when we adopt a broader perspective. Perhaps the most important asset class, the stock market as a whole, has no close substitute. One cannot sell short<sup>166</sup> shares in the Wilshire 5000 index, for instance, and buy shares in a close substitute. There is only one U.S. stock market. Look at the risks that this creates. An investor that suspects that the market is overvalued could choose to sell short the index or sit the market out by, for example, investing in cash or debt instruments.

There is fundamental risk in both of these approaches, however. In either case, the trader misses out on any good news that may subsequently justify the market's prices. In fact, for short sellers good news is doubly bad in that, not only would they miss out on any gains, but they would eventually have to cover their positions, which means incurring losses to the extent that the market has risen in value. Just as importantly, the arbitrageur would also incur noise-trader risk. The market could continue to rise despite its deviation from fundamental value. Alan Greenspan lamented the stock market's irrational exuberance in 1996.<sup>167</sup> Even though the bubble eventually popped five years later, anyone who sold short based on his correct prognostication and had to cover before the overdue collapse would have endured severe losses.

As the example illustrates, it is quite risky to bet against significant market moves. That being the case, many sophisticated investors may turn the other cheek, which, in turn, allows the market to further inflate.<sup>168</sup> Even more troubling, the risks associated with betting

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<sup>166</sup> In a short sale, an investor borrows a security and sells it on the open market. It is the borrower's responsibility to then repay the lender the actual security (no matter its price) at some future date. This mechanism allows the short seller to profit from price dips. See DON M. CHANCE & ROBERT BROOKS, *INTRODUCTION TO DERIVATIVES AND RISK MANAGEMENT* 6 (8th ed. 2010).

<sup>167</sup> Sharon Reier, *5 Years Later, Greenspan's 'Irrational Exuberance' Alert Rings True*, N.Y. TIMES, Dec. 1, 2001, [http://www.nytimes.com/2001/12/01/your-money/01iht-mexub\\_ed3\\_.html](http://www.nytimes.com/2001/12/01/your-money/01iht-mexub_ed3_.html).

<sup>168</sup> Shiller, *supra* note 101, at 97.

against stock market bubbles may lead these investors to the conclusion that it is better to ride a bubble than attempt to pop it. A rational strategy may be to attempt to fuel unsophisticated investor speculation, participate in the rallying market, and trust your ability to jump out before the crash.<sup>169</sup> In the end, because sophisticated investors are no doubt sensitive to the substantial risks associated with contrarian bets, it is too much to assume that they will always, or even often, make the trades necessary to quell irrational market behavior. Thus, this check on mispricings appears much weaker than EMH assumes.

EMH also assumes away the transaction costs associated with arbitrage. But these may be substantial.<sup>170</sup> Most importantly, uncovering mispricings takes a great deal of skill and time.<sup>171</sup> In addition, an arbitrageur needs to have the money to finance transactions. That means they must court and pay returns to investors and creditors.<sup>172</sup> Moreover, trading stock involves paying brokerage commissions and taxes.<sup>173</sup> These costs mean that not all mispricings are profitable to attack. Arbitrageurs will focus only on those that have high enough expected returns relative to costs. As a result, many mispricings may go unchallenged.

Related to transaction costs are the limits to arbitrage that are built into the market's structure or that stem from legal or even cultural factors. The best example here relates to short selling.<sup>174</sup> Because this practice involves the sale of borrowed shares, short sales can theoretically place significant downward pressure on inflated prices and thereby serve as a check on stock-price bubbles. But because short sales are bets against stock prices, they are often seen as unsavory. Likely in part for this reason, this practice is regulated and sometimes even banned, as was the case in the fall of 2008 when the

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<sup>169</sup> See SHLEIFER, *supra* note 86, at 154–74 (describing model of rational arbitrage, where arbitrageurs destabilize markets rather than correct them); Markus K. Brunnermeier & Stefan Nagel, *Hedge Funds and the Technology Bubble*, 59 J. FIN. 2013 *passim* (2004) (empirical study showing hedge funds riding rather than popping the Internet bubble); Shiller, *supra* note 101, at 96–97.

<sup>170</sup> See Barberis & Thaler, *supra* note 115, at 6–7 & n.5 (describing implementation costs, including “horizon risk”—the risk that a mispricing will take so long to correct that returns will have been eaten away by transaction costs).

<sup>171</sup> See *id.* at 6.

<sup>172</sup> As discussed *infra* notes 186–87 and accompanying text, sophisticated traders traditionally manage other people's money.

<sup>173</sup> See Barberis & Thaler, *supra* note 115, at 6.

<sup>174</sup> See *supra* note 166.

SEC outlawed short sales of certain financial stocks.<sup>175</sup> Moreover, mutual funds, supposedly a prime institutional check on market irrationality, face legal, cultural, and contractual constraints on their short selling activities.<sup>176</sup>

In addition, practically speaking, shares sometimes are simply unavailable to short. Consider the following classic example. In March 2000, 3Com Corporation conducted an Initial Public Offering (IPO) for shares in its subsidiary, Palm, Inc.<sup>177</sup> During the IPO, the price of Palm shares shot up beyond the price of 3Com shares.<sup>178</sup> This reaction, however, was irrational because, as a result of 3Com's continued holdings in Palm, each shareholder of 3Com indirectly owned 1.5 shares of Palm.<sup>179</sup> Therefore, given that 3Com was at the very least a solvent company, each share of 3Com had to be worth at least 1.5 times that of Palm. This investor irrationality should represent a perfect arbitrage opportunity. An arbitrageur could sell short Palm and buy 3Com. More specifically, for every one share of 3Com bought, a trader could short 1.5 shares of Palm. This should represent risk-free profit. In buying 3Com, the trader is implicitly purchasing shares of Palm at a low price, and, in shorting Palm, the trader is simultaneously reselling Palm shares at a high price. Sophisticated traders, therefore, should have jumped on the opportunity, and the price disparity should have disappeared instantly. Despite the purity of the arbitrage opportunity, however, this mispricing lasted for weeks.<sup>180</sup> In a recent article, the authors blame market dynamics associated with short selling. They argue that there were not enough short sellers to meet demand. This meant that some arbitrageurs could not obtain shares to short, and those that could were charged exorbitant prices, dampening the appeal of the Palm

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<sup>175</sup> See Emergency Order Pursuant to Section 12(k)(2) of the Securities Exchange Act of 1934 Taking Temporary Action to Respond to Market Developments, Exchange Act Release No. 58166, 73 Fed. Reg. 42379 (July 15, 2008) [hereinafter Emergency Order].

<sup>176</sup> See Andres Almazan et al., *Why Constrain Your Mutual Fund Manager?*, 73 J. FIN. ECON. 289, 295 (2004) (reporting that as of 2000, 66.1% of mutual fund management contracts contained restrictions on short sales); Gilson & Kraakman, *supra* note 39 (referring to "the lingering taint that makes institutional investors such as mutual funds reluctant to pursue short-selling strategies"); Henry Ordower, *Demystifying Hedge Funds: A Design Primer*, 7 U.C. DAVIS BUS. L.J. 323, 332 (2007) (discussing legal framework for short sales by mutual funds).

<sup>177</sup> See Barberis & Thaler, *supra* note 115, at 11; Shiller, *supra* note 101, at 97–98.

<sup>178</sup> See Barberis & Thaler, *supra* note 115, at 11.

<sup>179</sup> See *id.*

<sup>180</sup> *Id.*

price discrepancy.<sup>181</sup> The above is an unusually poignant example of how practical limits can allow mispricings to continue even in a situation that seems ideally suited for arbitrage.

In sum, EMH says that the equilibrium price that results from market pressures is an accurate one. Behavioralists posit a pricing equilibrium that is more subtle and complex. They see prices as resulting from a market process that involves two groups: irrational investors, who execute trades that pull prices away from fundamental value, and rational arbitrageurs, who sometimes join the irrational investors and sometimes trade against them, depending on the risks and costs of the trading strategies available. In this more intricate version of the market, prices can drift far away from their fundamental values.

(ii) *Limits to Arbitrageurs*

As noted above, it is commonplace in behavioral finance scholarship to pose a dichotomy between ordinary investors and rational arbitrageurs. Behavioral finance scholars assume that sophisticated traders are rational, so they can create models of market behavior that diverge from EMH—and that is difficult to do unless you hold onto the assumption that at least some actors are rational.<sup>182</sup> This technique has proved quite fruitful as many noted market inefficiencies have been explained by modeling market behavior as a dynamic between irrational and rational investors. For example, models have been built to explain why shares of closed-end mutual funds trade below fair market value (the so-called “closed-end fund puzzle”)<sup>183</sup> and why shares with fundamentally related future cash flows can sometimes trade for values completely at odds with this relationship (the so-called “twin-shares puzzle”).<sup>184</sup> Behavioral theorists also have created models of how bubbles can form. In these models, rational arbitrageurs, when facing constraints on their ability to bring prices to fundamental value, find it rational to foment bubbles rather than pop them.<sup>185</sup>

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<sup>181</sup> See *id.*; Owen A. Lamont & Richard H. Thaler, *Can the Market Add and Subtract? Mispricing in Tech Stock Carve-outs*, 111 J. POL. ECON. 227 *passim* (2003) (discussing Palm case as well as other similar instances of mispricing); cf. SHLEIFER, *supra* note 86, at 47 (discussing difficulties with short selling); Shiller, *supra* note 101, at 97–100 (same).

<sup>182</sup> See SHILLER, *supra* note 148, at 435; SHLEIFER, *supra* note 86, at 25.

<sup>183</sup> See generally SHLEIFER, *supra* note 86, at 53–88.

<sup>184</sup> See, e.g., *id.* at 28–52.

<sup>185</sup> See, e.g., *id.* at 156–74; see Shiller, *supra* note 101, at 96–97.

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Though useful for modeling, the assumption that sophisticated traders are rational, utility-maximizing agents hides a great deal of nuance. Relaxing this assumption reveals reasons to doubt stock-price accuracy that have been less fully developed in the behavioral finance literature. In this section, I note how the institutional structure of the typical arbitrageur and the bounded rationality of sophisticated traders further constrain the arbitrage process.

(1) *Institutional Structure*

The typical arbitrageur trades on behalf of others.<sup>186</sup> They are managers of hedge funds, mutual funds, or institutional accounts.<sup>187</sup> In each case, there is a separation of ownership from control, and this interferes with both the ability of the traders to seek out arbitrage opportunities and their incentive to find them.

First, let us look at how the agency relationship hampers the search for arbitrage opportunities. Assume the stock market is rising, but certain fund managers correctly believe that the increase in prices fails to be justified by fundamentals. They may be right to sit out this bull market, but, if the market's run continues for too long, their investors may have all left for funds with managers who, although less prescient, are generating better returns.<sup>188</sup> Stories are legion about fund managers labeled as dullards and put out of business because they pulled out of, or bet against, stock-price bubbles a bit too early.<sup>189</sup> This threat of investor withdrawals may cause fund managers to think twice before taking bold contrarian positions.

In the hedge fund context, the managers have some protection in that they often subject their investors to lock-up periods that last from several months to several years.<sup>190</sup> But while this may partially ameliorate their concerns about investor flight, it is not hedge funds who are the primary movers in the stock market. Hedge funds only own 2.2% of U.S. equities, making them a relatively minor player.<sup>191</sup>

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<sup>186</sup> See SHLEIFER, *supra* note 86, at 29.

<sup>187</sup> See *id.* at 89.

<sup>188</sup> See *id.*

<sup>189</sup> Cf. RICHARD BOOKSTABER, A DEAMON OF OUR OWN DESIGN: MARKETS, HEDGE FUNDS, AND FINANCIAL INNOVATION 179 (2007) (telling the story of how three famously successful investors—Warren Buffett, George Soros, and Julian Robertson—were criticized or suffered losses because they were skeptical of Internet stocks before the tech-bubble collapsed).

<sup>190</sup> See *Hedge Funds: All Locked Up*, ECONOMIST, Aug. 4, 2007, at 40.

<sup>191</sup> French, *supra* note 127, at 7.



Mutual funds, on the other hand, play an enormous role, owning about thirty-two percent of these securities.<sup>192</sup>

In contrast to hedge funds, mutual funds need to be extremely liquid. By law, they must honor redemption requests nearly immediately.<sup>193</sup> Mutual fund managers, therefore, have far less leeway than their hedge fund counterparts when it comes to waiting for price corrections. This need to immediately respond to investors weakens their ability to serve as a check on stock prices. It is vastly difficult to make bets contrary to prevailing wisdom when, if such investments fail to produce payouts immediately, shareholders could dart to a competitor.

This tenuous dynamic also makes it harder for mutual fund managers to halt investor panics. If the stock market is dropping and investors want out, they have the right to redeem their mutual fund shares.<sup>194</sup> If managers face a high volume of redemption requests, they must sell the securities in their fund's portfolio in order to generate cash to meet these requests—even if their projections tell them to wait it out.<sup>195</sup> This forced selling could contribute to a feedback loop, in which price declines cause investors to redeem fund shares, which causes mutual funds to sell, which leads to further price declines and further redemptions. Because of the institutional structure of mutual funds, these sophisticated traders become participants in, rather than hedges against, price collapse. Investors liquidated huge sums from mutual funds in the fall of 2008, perhaps accelerating the market's decline.<sup>196</sup> But fund managers could do nothing to stymie the dash for the exits. Thus, even though stock market investing has to a great extent been delegated to financial professionals, particularly mutual funds, the overriding responsibility that these professionals owe to their investors curbs their ability to invest in ways that fully reflects their financial acumen.<sup>197</sup>

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<sup>192</sup> See *id.* at 2.

<sup>193</sup> See 15 U.S.C. § 80a-22(e) (2006) (requiring that mutual fund shares be redeemed and paid for by the fund within seven days of an investor's request).

<sup>194</sup> See *id.*

<sup>195</sup> See SHLEIFER, *supra* note 86, at 107.

<sup>196</sup> See Geoffrey Rogow & Kejal Vyas, *Redemption Songs: Some Get New Leases on Life in Portfolios*, WALL ST. J., Dec. 12, 2008, at C5.

<sup>197</sup> Cf. SHLEIFER, *supra* note 86, at 89–107 (modeling how the agency relationship inherent in professional money management can undermine effective arbitrage, particularly in extreme market conditions).

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The principal-agent relationship not only handcuffs fund managers in their pursuit of arbitrage opportunities. It also may alter their agendas. Shareholder reliance on imperfect management-oversight mechanisms likely explains why we see mutual fund managers follow stock-picking strategies that seem aimed at creating a certain appearance for their shareholders rather than exploiting arbitrage opportunities.

One common finding is that mutual fund managers tend to herd together; that is, they tend to move as a group from one trendy stock or segment of the market to another.<sup>198</sup> While it is possible that the managers are simultaneously discovering the same arbitrage opportunities, it seems more likely that something other than independent financial analysis is behind this phenomenon. One possibility is that the fund managers are being driven by job security concerns. Because they are compared against their peers, there is occupational safety in numbers. It is much better to be wrong when everyone else is wrong, than to be wrong when everyone else is right.<sup>199</sup> Given how difficult it is to beat the market, and the ease with which mutual fund shareholders can switch their allegiance, sticking close to others in the field may be a wise path to secure employment.

Along the same lines, mutual fund managers have been known to stick close to the benchmarks against which they are measured.<sup>200</sup> In addition to being assessed against their peers, managers are commonly measured against benchmark market indexes like the S&P 500.<sup>201</sup> The theory is that good fund managers should beat their index. Researchers have found, however, that not only do fund managers frequently fail to do this, but also that returns tend to hover close to the benchmark.<sup>202</sup> Again, one plausible explanation for this would be that staying close to the index minimizes one's chances of looking bad when it is time to judge results.<sup>203</sup>

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<sup>198</sup> See Langevoort, *supra* note 31, at 149 & n.58.

<sup>199</sup> Or as John Keynes put it: "Worldly wisdom teaches that it is better for reputation to fail conventionally than to succeed unconventionally." JOHN MAYNARD KEYNES, *THE GENERAL THEORY OF EMPLOYMENT, INTEREST AND MONEY* 158 (1936).

<sup>200</sup> SHLEIFER, *supra* note 86, at 12–13.

<sup>201</sup> See *id.* at 12.

<sup>202</sup> See Louis K.C. Chan et al., *On Mutual Fund Investment Styles*, 15 *REV. FIN. STUD.* 1407, 1409–10 (2002).

<sup>203</sup> See SHLEIFER, *supra* note 86, at 12–13.

“Window-dressing,” a practice where mutual fund managers belatedly load up on stocks that have performed well in the recent past, can be explained along similar lines.<sup>204</sup> Unsophisticated shareholders considering their fund portfolios may look more favorably on managers holding an array of stocks that have been doing well. In reviewing their fund’s holdings, however, there is usually no way for these investors to know that the shares were purchased too late for the funds to have benefited from their run-up in price.<sup>205</sup>

These practices are not only misleading; they also show that fund managers are pursuing goals distinct from and contrary to the sophisticated stock analysis that is central to the arbitrage process. In choosing a stock, fund managers likely weigh their evaluations of the optimal arbitrage strategy against agency-related concerns, like the fear of straying too far away from their peers. This constrained pursuit of arbitrage opportunities provides another reason why share mispricings, or even severe market bubbles, may go unchallenged.

## (2) *Bounded Rationality of Arbitrageurs*

The assumption that sophisticated investors are rational hides still more. The section above showed that, when we look at arbitrageurs as institutions with shareholder constituents, other reasons to doubt the arbitrage process emerge. When we acknowledge that the decision makers at these institutions are human beings rather than the *homo economicus* of economic models, we confront a new set of potential barriers to EMH. If sophisticated investors think like the rest of us, then there is nobody left to ensure a rational and orderly market.

In fact, there is a relatively new, but growing, body of evidence that suggests that the decision making of financial experts is far from perfect. In finance, we condemn average investors because, as discussed above, it has been shown that their thinking is marred by various biases.<sup>206</sup> Research shows, however, that these same biases impact the decision making of financial professionals, sometimes even to a greater extent. Below are a few examples.

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<sup>204</sup> See *id.* at 13; see generally Iwan Meier & Ernst Schaumburg, Do Funds Window Dress? Evidence for U.S. Domestic Equity Mutual Funds (May 1, 2006) (unpublished manuscript), available at <http://neumann.hec.ca/pages/iwan.meier/window050106.pdf> (empirical study showing mutual fund window dressing).

<sup>205</sup> See Meier & Schaumburg, *supra* note 204, at 2.

<sup>206</sup> See *supra* Part II.B.1.b.

One of the most troubling aspects of naïve investor decision making is that they place too much emphasis on recent performance history. They project future returns based on immediate past returns, which are not indicative. Evidence exists, however, that suggests experts do the same thing.<sup>207</sup> One study looked at how analysts reacted to a lower-than-expected earnings statement from Intel.<sup>208</sup> The statement caused a nearly thirty percent drop in the company's share price,<sup>209</sup> and numerous analysts shifted their recommendations from buy to sell.<sup>210</sup> Neither of these aftereffects was justified by a fundamental analysis of the stock, taking into account the earnings announcement.<sup>211</sup> The study's author concludes that the analysts behaved as they did because they were making buy or sell recommendations based on recent price movements rather than on fundamental analysis—as Intel went up, they said “buy,” once it started dropping, they said “sell.”<sup>212</sup> Stock recommendations based on such logic add noise to the market rather than eliminate it.<sup>213</sup>

Another concern about ordinary investors is the disposition effect. Biased weighing of gains and losses causes these investors to shy away from selling shares that have dropped in value, while they part with good investments too early.<sup>214</sup> This practice cuts into returns and creates noise in the marketplace—noise that would persist if professionals suffered from the same bias. And it appears that they do. Multiple studies have shown the disposition effect across a broad range of investment professionals. In one study, the authors summarize that “[t]he disposition effect affects individual investors, home buyers, futures traders, professional account managers, experimental laboratory subjects, proprietary stock traders, and financial institutions.”<sup>215</sup>

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<sup>207</sup> See John C. Easterwood & Stacey R. Nutt, *Inefficiency in Analysts' Earnings Forecasts: Systematic Misreaction or Systematic Optimism?*, 54 J. FIN. 1777, 1797 (1999) (listing studies showing this phenomenon).

<sup>208</sup> See Bradford Cornell, *Is the Response of Analysts to Information Consistent with Fundamental Valuation? The Case of Intel*, 30 FIN. MGMT. 113 *passim* (2001).

<sup>209</sup> See *id.* at 113.

<sup>210</sup> See *id.* at 132.

<sup>211</sup> See *id.* at 121–32.

<sup>212</sup> See *id.* at 132–33.

<sup>213</sup> See *id.* at 133 (noting how the procyclical nature of such recommendations can exacerbate price swings).

<sup>214</sup> See *supra* notes 133–136 and accompanying text.

<sup>215</sup> Lei Feng & Mark S. Seasholes, *Do Investor Sophistication and Trading Experience Eliminate Behavioral Biases in Financial Markets?*, 9 REV. FIN. 305, 305 (2005); see also

Finally, average investors have been shown to be overconfident. They think that their estimates are more accurate than they really are, they are overoptimistic, and they have inflated opinions of themselves.<sup>216</sup> Unfortunately, it has been shown repeatedly that investment savvy does not immunize people from overconfidence.<sup>217</sup> One recent study compared overconfidence among traders and investment bankers at large banks with that of students. The professionals were consistently *more* overconfident—the difference was usually significant.<sup>218</sup> Decision making impacted by this bias potentially results in limited searches, under-diversification, insufficient hedging, and a failure to learn from past mistakes—all of which are detrimental to stock picking.

Along the same lines, Robert Shiller conducted a study that demonstrated both overconfidence in sophisticated investors and, more generally, that they process information intuitively rather than systematically.<sup>219</sup> After the October 19, 1987, stock market crash, he sent out questionnaires to wealthy individual investors and institutional investors asking about their thinking on the day of the crash.<sup>220</sup> About thirty percent felt “they had a pretty good idea when a rebound was to occur.”<sup>221</sup> When asked about their supporting rationale for these bold statements in a time of such uncertainty, Shiller describes their responses as “merely intuitive.”<sup>222</sup> He writes that “[t]hey spoke of gut feelings, of vague comparisons with past events, or of a sense that market psychology had changed.”<sup>223</sup> This is consistent with accounts from within the industry and psychological research more generally, which suggests that decisions are the result

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*id.* at 305 n.1, 340–41 app.A. Apart from listing empirical evidence for the disposition effect, this study itself is interesting in that it shows that sophisticated investors are more willing to recognize losses, but are still anxious to sell stocks appreciating in value. *See id.* at 306–07.

<sup>216</sup> *See supra* notes 138–143 and accompanying text.

<sup>217</sup> *See* Barberis & Thaler, *supra* note 115, at 15–16; *see, e.g.*, J. Edward Russo & Paul J.H. Schoemaker, *Managing Overconfidence*, 33 SLOAN MGMT. REV. 7 (1992) (finding overconfidence in money managers as well as other industries).

<sup>218</sup> *See* Markus Glaser et al., *Overconfidence of Professionals and Lay Men: Individual Differences Within and Between Tasks?* 5–6 (Apr. 26, 2005) (unpublished manuscript), available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=712583](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=712583).

<sup>219</sup> *See* SHILLER, *supra* note 148, at 379–402.

<sup>220</sup> *See id.* at 390.

<sup>221</sup> Shiller, *supra* note 144, at 20 (internal quotation marks omitted).

<sup>222</sup> *Id.*

<sup>223</sup> *Id.*

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of gut feelings and intuitive weighing rather than probabilistic, computer-like analysis.<sup>224</sup>

There are also grounds to suspect that sophisticated investors, like ordinary investors, are susceptible to fads and rumors. As the economist Benjamin Friedman points out,

[t]here is simply no reason to believe that institutional investors are less subject to . . . social influences on opinion than other investors, and there are substantial grounds for thinking that they may be even more so . . . . [A]part from a few lonely Warren Buffetts, institutional investors exist in a community that is exceptionally closely knit by constant communication and mutual exposure.<sup>225</sup>

This sentiment has been echoed by Shiller, who argues that “[t]he complex judgments that institutional investors and portfolio managers must make . . . [are] inevitably influenced by the judgments of others.”<sup>226</sup> He contends that investment “[p]rofessionals ultimately end up assuming that what their colleagues believe is true.”<sup>227</sup> These descriptions of the industry cast further doubt on the decision making of financial experts. Like ordinary investors, they too may be moved to action by social contagions rather than rigorous analysis.

All of this suggests that there is good reason to suspect that sophisticates, like ordinary investors, make biased, fad-based, intuitive decisions. It would be an overstatement, however, to dismiss their role completely. Despite their bounded rationality, it still stands to reason that sophisticated investors make better decisions than average ones. After all, the notion of the sophisticated investor encompasses more than purely rational thinking: it captures the idea that these investors have the training, intelligence, experience, aptitude in the field, and access to information that equips them to make more sound decisions, even if their choices are not perfectly rational. What the research shows, however, is that it is also an overstatement to suggest that sophisticates and ordinary investors stand at polar ends of a spectrum. Additionally, and most importantly for our purposes, evidence of these decision-making flaws poses yet another reason to doubt that sophisticate arbitrage ensures correct market prices.

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<sup>224</sup> See *id.* at 25.

<sup>225</sup> Shiller, *supra* note 86, at 507–08.

<sup>226</sup> Shiller, *supra* note 144, at 21.

<sup>227</sup> *Id.*

The above analysis provides a multitude of theoretical reasons to doubt the notion that stock prices are accurate. Standing in the way are the risks and costs of arbitrage, legal, practical, and institutional constraints and concerns, as well as the bounded rationality of both ordinary and sophisticated investors. In the face of these concerns, it would be too much to say with confidence that the equilibrium price that we see in the market is an accurate one. A better description is that stock prices are inaccurate, with the extent of the inaccuracy being a function of how these constraints are interacting with and influencing the arbitrage process at any given time.

*c. Empirical Findings*

Milton Freedman argued that a theory should not be judged by whether the assumptions on which it is based appear true, but by whether it works in practice.<sup>228</sup> According to this line of thought, the theoretical challenges to the premises of EMH so far discussed are incomplete without empirical backup. We can list infinite reasons why EMH should not hold true, but if it works, it works. Unless we can cast doubt on its empirical underpinnings, theoretical questions are interesting but insufficient. With this in mind, much work has been devoted to looking at EMH empiricism with fresh eyes.

As mentioned initially, the primary pieces of evidence in favor of EMH have been event studies and findings that mutual funds have failed to outperform the market.<sup>229</sup> More recently, scholars have begun to reevaluate this research. Event studies had shown that stock prices react quickly to news events. This quick reaction is argued to be accurate based on the assumption that an over- or underreaction would create an arbitrage opportunity that rational traders would quickly exploit. Behavioralists challenge the notion that this price equilibrium is necessarily rational.<sup>230</sup> This new equilibrium may be irrational but remain in place because, for instance, it is too costly or risky for sophisticated traders to bet against it. These scholars also question the stability of the post-event equilibrium. They note that typically there is some lingering adjustment after news events (prices

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<sup>228</sup> See MILTON FRIEDMAN, *ESSAYS IN POSITIVE ECONOMICS* 8–9, 23 (1953).

<sup>229</sup> See *supra* notes 123–127 and accompanying text.

<sup>230</sup> See Lawrence H. Summers, *Does the Stock Market Rationally Reflect Fundamental Values?*, 41 J. FIN. 591, 596–97 (1986).

tend to underreact in the short run and then overreact in the long run).<sup>231</sup>

Similarly, behavioralists have challenged the implications of findings that show the failure of mutual funds to deliver excess returns.<sup>232</sup> It may not necessarily be the case that efficiency is what makes market-beating mutual funds so difficult to find; there are multiple possibilities unrelated to efficiency that could explain this result. One is that managers are unable to beat the market because noise traders defeat their elegant trading strategies. Another is that they fail to see mispricings because their judgment is clouded by bounded rationality and peer pressure. In sum, it could be the forces of inefficiency, rather than the forces of efficiency, that make active investing so difficult.<sup>233</sup>

It is one thing to question empirical evidence of efficiency; it is another to show that the stock market is inefficient. But this stronger empirical case has also been made. The evidence comes in two forms. First, scholars have noted many specific pricing anomalies. I already mentioned the 3Com puzzle, the twin-shares puzzle, and the closed-end fund puzzle.<sup>234</sup> But there is also evidence of broader anomalies. For example, value stocks have historically performed better than growth stocks, and, until the 1990s, stocks as a whole mysteriously went up each January.<sup>235</sup>

The relevance of these findings is debatable, however. On the one hand, EMH proponents contend that these isolated findings say little about whether the market as a whole is efficient.<sup>236</sup> In fact, one could argue that, if these anomalies are all behavioralists can find, the market must be pretty remarkable. The counterargument is that if the market is not efficient even in these examples, then when is it efficient? Consider the twin-shares puzzle. In this instance, shares with fundamentally related cash flows trade on different exchanges for prices that are totally out of sync with each other. This phenomenon is pretty stunning because the situation presents as close

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<sup>231</sup> See SHLEIFER, *supra* note 86, at 112–14.

<sup>232</sup> See Barberis & Thaler, *supra* note 115, at 3–4. Some research also suggests that some mutual fund managers may have some stock-picking ability. See, e.g., Russ Wermers, *Mutual Fund Performance: An Empirical Decomposition into Stock-Picking Talent, Style, Transactions Costs, and Expenses*, 55 J. FIN. 1655 (2000).

<sup>233</sup> See Barberis & Thaler, *supra* note 115, at 3–4.

<sup>234</sup> See *supra* notes 177–81 and 183–84 and accompanying text.

<sup>235</sup> See SHLEIFER, *supra* note 86, at 18–19.

<sup>236</sup> See Barberis & Thaler, *supra* note 115, at 11 & n.8.



to a pure arbitrage opportunity as could likely exist in the real world, yet even here prices appear irrational.<sup>237</sup>

Because fair points can be made on each side, without further evidence, the empirical claim that markets are actually inefficient would appear thin. There are studies that revolve around market volatility, however, that are much more difficult to dispute. If the stock market is efficient, this means that stock prices are accurate. As I stressed earlier, however, if stock prices are accurate, then they would move only in response to newly revealed, relevant information.<sup>238</sup> Nothing else would come into play. Numerous studies show, however, that stock-price volatility stems from much more than information alone.

For instance, EMH tells us that a stock's price should not move when it is added to the S&P 500 index.<sup>239</sup> This is because joining the index reveals no additional information.<sup>240</sup> But this is not the case. Stocks go up in value when they are first included.<sup>241</sup> This may not seem like much, but it indicates that more than just information is incorporated into a stock's price. The notion that something else is impacting prices has been confirmed by Shiller, who showed that, if information alone drove prices, the market would be five to thirteen times less volatile.<sup>242</sup> In this same vein, a 1989 study found that many of the biggest one-day market moves took place on days without major news announcements.<sup>243</sup> The October 19, 1987, crash, for instance, which, even after the extreme volatility in the fall of 2008, continues to stake claim as the biggest percentage drop in the history of the Dow Jones Industrial Average, was accompanied by no news.<sup>244</sup>

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<sup>237</sup> See Lamont & Thaler, *supra* note 181, at 265–66.

<sup>238</sup> See *supra* Part II.B.

<sup>239</sup> See SHLEIFER, *supra* note 86, at 21–22.

<sup>240</sup> See *id.*

<sup>241</sup> See *id.* at 21–23. America Online even rose eighteen percent. *Id.* at 22.

<sup>242</sup> See Robert J. Shiller, *Do Stock Prices Move Too Much to Be Justified by Subsequent Changes in Dividends*, 71 AM. ECON. REV. 421, 433–34 (1981) [hereinafter Shiller, *Stock Prices*]. This study has been subject to a fair amount of debate. See generally Robert J. Shiller, *The Volatility Debate*, 70 AM. J. AGRICULTURAL ECON. 1057 (1988).

<sup>243</sup> See David M. Cutler et al., *What Moves Stock Prices?*, 15 J. PORTFOLIO MGMT. 4 *passim* (1989).

<sup>244</sup> SHLEIFER, *supra* note 86, at 20. The 2008 turmoil pales in percentage terms. See Peter A. McKay, *Crisis Reverberates in Credit, Stock Markets*, WALL ST. J., Oct. 16, 2008, at C1.

Similar findings have come from studies that look directly at the impact of information on price. These studies have found that information actually explains a rather small percentage of price moves. Richard Roll, for instance, found that micro- and macroeconomic information explained only twenty percent of daily movement.<sup>245</sup> Such unexplained volatility lends substantial credence to the notion that the stock market is inefficient.

The empirical debate over EMH is a tricky one. Because we cannot say with certainty what the correct value of a stock should be, we cannot test directly whether stock prices are truly accurate.<sup>246</sup> This leaves both sides to rely on indirect evidence and inference to support their positions. Given these limitations, however, the behavioralists seem to have gained the upper hand. Evidence of pricing anomalies and excess volatility may not lead to a grand predictive theory of market behavior, but they are certainly difficult to square with EMH.

In light of the above discussion, it no longer appears warranted for legal academics to point to accurate share prices as a mechanism of investor protection. In fact, even though this section has presented both theoretical and empirical research that raises severe questions, it understates the case against this notion. In the section below, I look at how the abstract and intangible nature of financial valuation calls into further question the veracity of the claim that stock prices are accurate.

*d. The Epistemology of Finance and the Impact of Fat-Tail Events*

When EMH scholars and behavioralists debate accuracy, they are concerned with whether stock prices are society's best guess of future earnings.<sup>247</sup> This works as a common understanding on which to base debate, but it is a rather weak conception of accuracy. Under this definition, stock prices can be accurate even if the predictions turn out to be remarkably far off. If the risk and impact of faulty projections were low, this would be of little concern. But research into epistemology and the influence of fat-tail events tells us that

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<sup>245</sup> See Richard Roll, *R<sup>2</sup>*, 43 J. FIN. 541, 566 (1988).

<sup>246</sup> This is the so-called "joint hypothesis problem." See Lamont & Thaler, *supra* note 181, at 228. To judge whether a stock price is correct, one needs an accurate projection of future income streams and a model for how to discount those income streams to present value. The Capital Asset Pricing Model traditionally fills the latter role, though it is contested. See CARNEY, *supra* note 100, at 116–17.

<sup>247</sup> See Shiller, *supra* note 101, at 84–85.

significant failures to predict should be the norm rather than the exception. Combine this with the healthy skepticism of stock prices that behavioral finance research engenders, and the proposition that prices are accurate in any meaningful sense of the word becomes truly enfeebled.

According to EMH, the price of a security is ultimately determined by rational actors (either because everyone is rational or because sophisticated traders make up for the less savvy).<sup>248</sup> When pricing a security, each of these rational actors constructs a probability distribution of the potential future incomes (based on potential future events) associated with the stock, discounts those figures back to present value, and then takes a weighted average to arrive at the rational price.<sup>249</sup> Behavioralists contend that stock prices do not reflect this idealized conception. But they do not traditionally note that this process can only possibly take into account what investors can foresee. If some future event is unforeseeable, then it will not figure into a security's price. Another way to say this is that a stock's price takes into account known unknowns but not unknown unknowns.<sup>250</sup>

This is problematic because the things that have the biggest impact on stock prices are often unpredictable. So-called "fat-tail events," happenings that are extraordinarily important, yet unforeseeable a priori, transform individual companies and shape macroeconomics.<sup>251</sup> As a result, when they materialize, they profoundly affect corporate cash flows. Because they are unpredictable, however, they do not figure into a trader's ex ante probability distribution. This dynamic has two related implications. The first is that it stretches the meaning of accuracy to say that stock prices are "accurate" when they do not price these events. The second is that, because stock prices fail to anticipate such events, they are a source of dramatic volatility.

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<sup>248</sup> See *supra* Part II.B.1.a.

<sup>249</sup> See Ronald J. Gilson & Reinier H. Kraakman, *The Mechanisms of Market Efficiency*, 70 VA. L. REV. 549, 561–62 (1984).

<sup>250</sup> This phraseology has been used by Richard Epstein in the employment context. See Richard A. Epstein, *In Defense of the Contract at Will*, 51 U. CHI. L. REV. 947, 969 (1984).

<sup>251</sup> See generally NASSIM NICHOLAS TALEB, *THE BLACK SWAN: THE IMPACT OF THE HIGHLY IMPROBABLE* (2007). Taleb describes fat-tail events as Black Swans. See ESPEN GAARDER HAUG, *DERIVATIVES: MODELS ON MODELS 8* (2007). According to Taleb, the *Black Swan* "is mostly about the dynamics of history being dominated by . . . large scale events about which we know nothing." *Id.*

Because traders are caught off guard, prices surge or collapse when these events occur.<sup>252</sup>

A look at the last hundred years shows that the most transformative events were not foreseen. For instance, pundits failed to predict the Great Depression,<sup>253</sup> World War II,<sup>254</sup> the rise of the Internet,<sup>255</sup> or the most recent economic collapse.<sup>256</sup> While it is tempting to blame this on the shortsightedness of experts, that conclusion misses what is likely the central causal phenomenon. Experts and laymen likely fail to foresee fat-tail events such as these because epistemic constraints shield them from sight.

The primary issue is that prediction is based on precedent. But fat-tail events like those just mentioned are unique and, therefore, cannot be predicted by looking to the past. This is an example of the problem of induction—that history can never be a fail-safe guide to the future and can easily lead us astray. The philosopher Karl Popper perhaps puts it best when he argues that “the observation of one unique process [cannot] help us to foresee its future development. The most careful observation of *one* developing caterpillar will not help us to predict its transformation into a butterfly.”<sup>257</sup> More specifically, though less vividly, the historian H.A.L. Fisher has similarly opined that although “[m]en . . . have discerned in history a plot, a rhythm, a predetermined pattern . . . I can see only one emergency followed upon another . . . , only one great fact with

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<sup>252</sup> See Cutler et al., *supra* note 243, at 8 & tbl.3 (analyzing the relationship between historical events and price moves from 1941–1987). More recently, the 9/11 terrorist attacks caused a 7.5% stock market drop. See BENOIT B. MANDELBROT & RICHARD L. HUDSON, *THE (MIS)BEHAVIOR OF MARKETS: A FRACTAL VIEW OF RISK, RUIN, AND REWARD* 91, 234 (2004). Also, the 2008 financial collapse saw record volatility as the market grappled with unprecedented events. In the fall, the market recorded the largest one-day point increase, the largest one-day point decrease, and the largest one-day point fluctuation (over 1000 points). See IBBOTSON ASSOCS., *STOCKS, BONDS, BILLS, AND INFLATION 2009 CLASSIC YEARBOOK* 15 (2009).

<sup>253</sup> Just before the stock market crash that accompanied the Great Depression, the eminent economist, Irving Fisher, argued “stock prices have reached what looks like a permanently high plateau.” JOHN KENNETH GALBRAITH, *THE GREAT CRASH 1929 75* (1954).

<sup>254</sup> See TALEB, *supra* note 251, at 14.

<sup>255</sup> See *id.* at xviii, 135.

<sup>256</sup> See John C. Bogle, *Six Lessons for Investors*, WALL ST. J., Jan. 8, 2009, at A15 (noting how market professionals predicted a rising stock market in 2008).

<sup>257</sup> KARL R. POPPER, *THE POVERTY OF HISTORICISM* 109 (1957).

respect to which, since it is unique, there can be no generalizations.”<sup>258</sup>

Although securities analysts may be able to look at a business plan, a product line, and a management team and thereby reach some estimate of a company’s future profits, they have no basis on which to predict the occurrence or impact of tectonic political or economic shifts that will swamp their micro-level findings. This limitation on our ability to predict poses a further challenge to the notion that share prices are accurate. Stock prices are supposedly based on predictions about future events. But if the most important future events are unpredictable, then even a stock price that is “accurate,” in the sense that it is society’s best guess of the future, is only accurate in the weakest sense of the word. Indeed, one begins to wonder whether the notion of accurate stock prices is a chimera. How can we ever really say a stock price is accurate when, at any time, it could dramatically surge or falter as the next unforeseen fat-tail event materializes?

## *2. Implications for Investor Protection*

In first arguing that securities regulation could be understood as a mechanism for protecting investors from volatility, I noted that there are two possible ways to characterize how the regulatory structure contributes to this endeavor. On the one hand, we could claim that accurate stock prices, which come about thanks in part to mandated disclosures, are what protect investors from volatility. On the other hand, we could make the more modest claim that disclosure renders stock prices more accurate and, therefore, less volatile, while making no declaration that stock prices are indeed accurate.

We are now in the position to conclude that the latter is the more appropriate characterization. The statement that stock prices are correct does not appear to be true. Nor does it even appear to be a useful approximation. Modern theoretical and empirical work suggests that market prices result from the interaction of a complex set of factors and that, because of this dynamic, the prices that materialize may greatly diverge from fundamentals. On top of that, the equilibrium price that emerges is inherently unstable. It is capable of swinging wildly as unpredicted events unfold. Indeed, our inability to predict suggests that, even if the stock market were perfectly

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<sup>258</sup> H.A.L. FISHER, 1 HISTORY OF EUROPE vii (1935), *quoted in* POPPER, *supra* note 257, at 109 (emphasis removed) (alteration in original).

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efficient, share prices could only be accurate in a troublingly superficial sense of the word.

The weaker claim that disclosure offers some protection from volatility, however, remains intact. I argued that disclosure theoretically improves stock-price accuracy and reduces volatility by crowding out noise and allowing for better guesses about future events. Nothing I have discussed thus far should cause us to abandon this notion. The above analysis suggests that it is an oversimplification to think that all the information produced through SEC disclosures is immediately and rationally incorporated into price. But we should not jump to the conclusion that the information simply disappears into the ether. From a behavioral finance perspective, information remains an accuracy-inducing force. But because market processes are imperfect, prices remain inaccurate, even in an informationally rich environment. Thus, it makes sense to think of disclosure as improving relative stock-price accuracy, even though the EMH ideal remains beyond reach. Indeed, this is the view that has the strongest empirical support. On the one hand, there is much evidence that stock prices remain inaccurate.<sup>259</sup> On the other, we have evidence that the advent of disclosure has rendered stock prices more accurate than they were prior to regulation.<sup>260</sup> Cumulatively, this evidence suggests that disclosure has a positive impact on accuracy, but perfection remains elusive. Phrased in terms of volatility, what all of this means is that securities regulation tempers price swings, even though significant turbulence, stemming from both new information and investor sentiment, remains.

### *C. Managing the Risk That Remains*

I began this Article with the claim that securities regulation is best thought of as part of a broader risk-management framework. The section above was devoted to properly characterizing the contribution that securities regulation makes to this endeavor. The section below is devoted to developing a broader picture of societal risk management. This involves describing the market risk that remains and analyzing how exogenous mechanisms help investors control it.

We know that, despite the presence of securities regulation, the market remains highly volatile. Describing this volatility, however, is surprisingly difficult. One traditional measure is the standard

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<sup>259</sup> See *supra* Part II.B.1.c.

<sup>260</sup> See *supra* notes 105–13 and accompanying text.

deviation of annual returns, which is 19.5%.<sup>261</sup> What this figure means is that, in two out of three years, we should expect returns to be within 19.5% of the market's average return.<sup>262</sup> Market moves of more than one standard deviation should be rare, moves of more than two should be rarer still, and so on.

This is a wide range, particularly when compared to other traditional asset classes, but it actually understates market risk.<sup>263</sup> What is outstanding about the stock market—and what this statistic glosses over—is the significant amount of daily volatility. Although many trading days are uneventful, extraordinary rises and vertiginous falls arise with relative frequency. One way to see the market's tendency toward the extreme is to compare the spread of daily returns to a so-called normal distribution (that is, a bell curve). When we do so, we see that stock market returns are much wilder.<sup>264</sup> For instance, if returns were normally distributed, a price change of more than five standard deviations on one day would be expected to happen only once every *seven thousand* years. In reality, however, they happen once every three or four years.<sup>265</sup> If the stock market behaved like a normal distribution, the October 1987 collapse, a twenty-five-standard-deviation event, would have never occurred.<sup>266</sup> Because the

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<sup>261</sup> ALICIA H. MUNNELL ET AL., CTR. FOR RET. RESEARCH, WHAT DOES IT COST TO GUARANTEE RETURNS, ISSUE IN BRIEF 3 (Feb. 2009).

<sup>262</sup> See DAVID S. MOORE, THE BASIC PRACTICE OF STATISTICS 61 (1995) (describing the statistical rule that sixty-eight percent of observations fall within one standard deviation of the mean in a normal distribution).

<sup>263</sup> See IBBOTSON ASSOCS., *supra* note 252, at 32 tbl.2-1 (showing returns and volatility for various asset classes).

<sup>264</sup> See MANDELBROT & HUDSON, *supra* note 252, at 12–13, 20, 92, 96; TALEB, *supra* note 251, at 275.

<sup>265</sup> See MANDELBROT & HUDSON, *supra* note 252, at 96 (discussing findings of Eugene Fama's dissertation); *cf. id.* at 12–13 (discussing other cases where the stock market's behavior does not conform to the predictions of the normal distribution).

<sup>266</sup> See DAVID F. SWENSEN, UNCONVENTIONAL SUCCESS: A FUNDAMENTAL APPROACH TO PERSONAL INVESTING 186 (2005). After the crash of 1987, the New York Stock Exchange (NYSE) introduced market-wide "circuit breakers" (temporary trading halts in periods of severe market declines). The original idea was that these pauses would stem panics by giving traders time to reflect. More recently, however, both the SEC and the NYSE cooled on the concept of market-wide circuit breakers. The problem is that the likely effect of circuit breakers is to exacerbate volatility in time periods when the market is open as investors rush to trade ahead of a potential closure. Though the NYSE rules still contain a market-wide circuit breaker provision, it is so generous that it has never been triggered. See Trading Halts Due to Extraordinary Market Volatility, Exchange Act Release No. 34-39846, 63 Fed. Reg. 18477 (Apr. 15, 1998); NYSE, Inc., Rules and Constitution, Rule 80B (1998) ("Trading Halts Due to Extraordinary Market Volatility"); Ian Ayres, *Back to Basics: Regulating How Corporations Speak to the Market*, 77 VA. L.

market is marked by these large one-day moves, its returns distribution is said to have fat-tails.<sup>267</sup> Though we do not have a well-accepted measure to intuitively represent how these fat-tails impact investors, we know that the abrupt swings wreak havoc with their returns.<sup>268</sup> While disclosure may take away some volatility, we can see that much remains—even more than usually stated.

To get a complete portrait of the extent to which investors are exposed to such market swings, we need to look at the exogenous mechanisms available to them to manage it. Currently, we do not have government institutions designed to shield investors from market risk. Instead, we have embraced a largely market-based response. The mutual fund is one of the most successful financial innovations of the century. Today, thousands of these funds compete for the trillions of dollars that average Americans squirrel away for retirement.<sup>269</sup> Part of their popularity no doubt owes to the usefulness of the mutual fund concept. But in an important sense, this robust marketplace is a government creation. The Investment Company Act of 1940 and the regulations thereunder govern nearly every detail of mutual fund operations.<sup>270</sup> The extensive regulation makes mutual funds a relatively benign and, therefore, popular way for ordinary investors to hold financial assets. Tax policy also contributes to their success.

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REV. 945, 981–83 (1991). It should be noted, however, that in response to the “flash crash” on May 6, 2010, the SEC adopted a pilot program that subjects individual stocks to five-minute trading halts that are triggered by dramatic price declines in such stocks. See SEC, SEC Approves Rules Expanding Stock-by-Stock Circuit Breakers and Clarifying Process for Breaking Erroneous Trades (Sept. 10, 2010) (*available at* <http://www.sec.gov/news/press/2010/2010-167.htm>).

<sup>267</sup> See Shiller, *Stock Prices*, *supra* note 242, at 428. The curve of a particular distribution of data is referred to as its kurtosis; the greater its kurtosis, the fatter its tails. A normal distribution has a kurtosis of three. The S&P 500’s kurtosis from 1970–2001 was 43.36. See WIM SCHOUTENS, *LÉVY PROCESSES IN FINANCE: PRICING FINANCIAL DERIVATIVES* 34–35 & tbl.4.1 (2003).

<sup>268</sup> New measures of risk, however, are the subject of much discussion. See, e.g., Charles P. Jones et al., *Analyzing Stock Market Volatility Using Extreme-Day Measures*, 27 J. FIN. RES. 585 (2004); Javier Estrada, *The Gain-Loss Spread: A New and Intuitive Measure of Risk* (Nov. 2008) (unpublished manuscript), *available at* [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1308103](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1308103).

<sup>269</sup> See ICI FACT BOOK, *supra* note at 82, at 15 fig.1.9; MUNNELL & MULDOON, *supra* note 11, at 2 tbl.1.

<sup>270</sup> See Schwartz, *supra* note 27, at *passim*.



Current rules give individuals a substantial tax break for putting money into mutual funds via their 401(k) plans.<sup>271</sup>

Though it has not been traditionally conceptualized as such, this government-supported mutual fund marketplace can be seen as the second leg of today's risk-management structure. By taking advantage of the offerings in this market, individuals can manage risk themselves through time and portfolio diversification. In the following sections, I flesh out these two asset-management techniques and analyze how much insulation from risk they provide.

### 1. *The Uncertainty of Time Diversification*

Time diversification is the notion that short-term stock market volatility is irrelevant for the long-term investor.<sup>272</sup> According to this theory, the volatility washes out over an investing life span, and, therefore, investors should expect the market return—a healthy 7.6% per year.<sup>273</sup> If one accepts this account, time diversification represents a robust mechanism for managing stock market risk—over time, the risk essentially vanishes. Investors can take advantage of this principle by putting their money in equity mutual funds and then leaving it there for many years.

Much of financial planning advice is based on time diversification,<sup>274</sup> and the SEC has given its implicit endorsement. On the SEC's Web site, for instance, the agency provides the following "Investor Tip":

Historically, the investment that has provided the highest average rate of return over the long term has been stocks. But there are no guarantees of profits when you buy stock. Markets go up and markets go down in the short-term. That's why it is best to think long-term when considering stock market investments.<sup>275</sup>

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<sup>271</sup> For a succinct description of the 401(k) tax treatment, see TERESA GHILARDUCCI, *WHEN I'M SIXTY-FOUR: THE PLOT AGAINST PENSIONS AND THE PLAN TO SAVE THEM* 331 (2008).

<sup>272</sup> See Donald G. Bennyhoff, *Time Diversification and Horizon-Based Asset Allocations*, 18 J. INVESTING 45, 45 (2009).

<sup>273</sup> This figure is the stock market's return after inflation from 1883–2008. See MUNNELL ET AL., *supra* note 261, at 3.

<sup>274</sup> See Zvi Bodie, *An Analysis of Investment Advice to Retirement Plan Participants*, in *THE PENSION CHALLENGE: RISK TRANSFERS AND RETIREMENT INCOME SECURITY* 19, 19–21 (Olivia S. Mitchell & Kent Smetters eds., 2003).

<sup>275</sup> SEC, *Investor Tips: Taking Stock*, <http://www.sec.gov/investor/pubs/takingstock.htm> (last modified Dec. 2, 2009).

Much like EMH, however, though the notion of time diversification is intuitively appealing, it is deeply flawed. Time diversification is ostensibly based on the law of large numbers, which tells us that, the more times one observes a random event (for example, rolls of a die), the closer the mean (in this example, the average number shown on the die) will come to the expected value (in this case, 3.5).<sup>276</sup> As applied to the stock market, this would mean that, if investors put money in the market over the course of many years, their returns, though they may be positive or negative in any given year, should approach the market return over time. Indeed, it has been shown that market returns over longer time periods, for example thirty years, tend to hover relatively close to the market's historical mean.<sup>277</sup>

All of this should give investors little comfort, however. As a threshold matter, the 7.6% figure for market returns is misleading. Although this may represent the market average, it is an invalid reference point because it does not reflect what investors actually earn. Because investors must pay investment-management fees and other expenses and because they serially mistime the market by buying high and selling low, the actual average investor return is substantially less.<sup>278</sup> Over the last twenty years, for instance, returns for the S&P 500 index were safely in excess of inflation, but returns for investors in S&P 500 index funds lagged behind this key metric.<sup>279</sup>

Moreover, it does not follow that risk is actually reduced just because the spread of returns around the long-term market average decreases over time. Despite this statistical phenomenon, risk does

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<sup>276</sup> See SERGIO M. FOCARDI & FRANK J. FABOZZI, *THE MATHEMATICS OF FINANCIAL MODELING AND INVESTMENT MANAGEMENT* 380 (2004); JEFFREY S. ROSENTHAL, *STRUCK BY LIGHTNING: THE CURIOUS WORLD OF PROBABILITIES* 34 (2006).

<sup>277</sup> See JEREMY J. SIEGEL, *STOCKS FOR THE LONG RUN: THE DEFINITIVE GUIDE TO FINANCIAL MARKET RETURNS AND LONG-TERM INVESTMENT STRATEGIES* 26–27 & fig.2-1 (3rd ed. 2002).

<sup>278</sup> See GARY BURTLESS, THE BROOKINGS INSTITUTION, *STOCK MARKET FLUCTUATIONS AND RETIREE INCOMES: AN UPDATE* 8 (2008), available at [http://www.brookings.edu/~media/Files/rc/papers/2008/1031\\_market\\_burtless/1031\\_market\\_burtless.pdf](http://www.brookings.edu/~media/Files/rc/papers/2008/1031_market_burtless/1031_market_burtless.pdf); Andrea Frazzini & Owen A. Lamont, *Dumb Money: Mutual Fund Flows and the Cross-Section of Stock Returns*, 88 J. FIN. ECON. 299 *passim* (2008); DALBAR, INC., RESEARCH & COMMC'NS DIV., 2010 QAIB: QUANTITATIVE ANALYSIS OF INVESTOR BEHAVIOR, Mar. 2009, at *passim* [hereinafter QAIB STUDY], available at <http://www.qaib.com/public/downloadfile.aspx?filePath=freelook&fileName=advisoreditionfreelook.pdf>; French, *supra* note 127, at *passim*.

<sup>279</sup> See QAIB STUDY, *supra* note 278, at 5.

not go away; in fact, it may very well increase in the long term. One source of risk is the uncertainty of future returns. When we roll a die, we know the expected value is 3.5. We do not know the expected value of the stock market. Though the market has returned 7.6% in the past, there is no guarantee that this will be its average fifty or one hundred years from now. In fact, U.S. equities have had a uniquely successful run as compared to other countries.<sup>280</sup> A recent article looks at how the uncertainty of the future impacts stock market risk. It shows that, because the future is so uncertain, the longer one holds stocks the riskier they become.<sup>281</sup>

Perhaps the biggest flaw in the time-diversification argument, however, is that it only focuses on the probability of losing money over time rather than the severity of potential losses.<sup>282</sup> In the long term, although it becomes rarer to have returns that depart significantly from the market average, the chance of this occurring still exists, and, should a bad string of years materialize, unfortunate investors would have severe losses. For example, let us say that the stock market drops ten percent each year for ten years. This should be rather rare, but if it happens, investors lose sixty-five percent of their original investment. What this shows is that, in exchange for the decreased chance of losses, investors are subject to increased severity of losses should they occur. In other words, risk does not go anywhere; it merely changes shape. The Nobel Prize-winning economist Paul Samuelson shows that, to utility-maximizing investors with constant relative risk aversion, the decreased likelihood of loss is offset by the increased severity, and therefore, time should have no effect on financial planning.<sup>283</sup> Zvi Bodie has gone one step further. He argues that a measure that captures both the likelihood and severity of potential losses is the price of insuring against lackluster

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<sup>280</sup> See Henry T. C. Hu, *Faith in Magic*, 78 TEX. L. REV. 777, 825–30 (2000).

<sup>281</sup> Lubos Pastor & Robert F. Stambaugh, *Are Stocks Really Less Volatile in the Long Run?* (May 22, 2009) (unpublished manuscript), available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1136847](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1136847).

<sup>282</sup> See Paul A. Samuelson, *Risk and Uncertainty: A Fallacy of Large Numbers*, SCIENTIA (Apr.–May 1963), reprinted in 1 THE COLLECTED SCIENTIFIC PAPERS OF PAUL A. SAMUELSON 153, 157 (Joseph E. Stiglitz ed., 1966).

<sup>283</sup> See *id.* at 155; Paul A. Samuelson, *Lifetime Portfolio Selection by Dynamic Stochastic Programming*, 51 REV. ECON. & STATISTICS 239, 240 (1969); Paul A. Samuelson, *The Long-Term Case for Equities*, 21 J. PORTFOLIO MGMT. 15, 16 (1994) [hereinafter Samuelson, *Equities*]. Others have argued for a more dynamic notion of utility in this context. See, e.g., Christian Gollier, *Time Diversification, Liquidity Constraints, and Decreasing Aversion to Risk on Wealth*, 49 J. MONETARY ECON. 1439 *passim* (2002).

stock performance.<sup>284</sup> Bodie shows that the price of insurance actually goes up over time, indicating that risk actually increases over longer time horizons.<sup>285</sup>

Looking merely at the convergence of returns to the mean also ignores the dramatic impact of the timing of price swings. A market collapse when one is young and has contributed little into a retirement account has little monetary impact. But a collapse after a lifetime of investing, as experienced by would-be retirees in the fall of 2008, is disastrous.<sup>286</sup> A bull market followed by an ill-timed drop could play a particularly cruel joke on long-time investors. Anticipating future healthy returns, they may have cut their retirement contributions, only to see their savings severely diminished and the opportunity to have contributed more long gone. Long-term investing does nothing to reduce the risk or consequences of such ill-timed market moves.

Finally, studies have shown that time diversification leaves investors exposed to a great degree of risk. A study by the Brookings Institution, which assumed steady contributions to a pure equity portfolio over a forty-year term, found that different investors had vastly different savings as a result purely of the market's performance during their investing lifetimes.<sup>287</sup> The luckiest investors had seven times more savings—due to chance alone—than the unluckiest investors.<sup>288</sup> The study also showed the dramatic impact of recent events: the age demographic set to retire at the end of 2008 saw their savings drop dramatically.<sup>289</sup> In light of the numerous theoretical and empirical problems with the notion that risk decreases over time, our reliance on time diversification as a mechanism for managing risk appears misplaced.

## 2. *The Limits of Portfolio Diversification*

Portfolio diversification rests on sounder footing. If investment portfolios include not only equities but also other types of investments, then a stock market decline would have a more muted impact on total returns. Theoretically, therefore, investors can choose

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<sup>284</sup> See Zvi Bodie, *On the Risks of Stocks in the Long Run*, 51 FIN. ANALYSTS J. May–June 1995, at 18; Bodie, *supra* note 274, at 21–23.

<sup>285</sup> See *supra* note 284 and accompanying text.

<sup>286</sup> See BURTLESS, *supra* note 278, at 3.

<sup>287</sup> See *id.* at 3–5.

<sup>288</sup> See *id.* at 5.

<sup>289</sup> See *id.* at 3, 4 & chart 1.

the amount of market risk they wish to bear. This is a very neat solution, but as I point out below, in practice, relying on portfolio diversification ends up leaving many investors very exposed.

As mentioned above, we currently encourage people to invest in mutual funds through tax-favored retirement plans.<sup>290</sup> In these retirement accounts, investors have the option to spread their money among stock, bond, and cash mutual funds and, in so doing, control their exposure to the market's swings. The truth, however, is that many investors do not understand the opportunity being presented to them. A poll of mutual fund investors found that "less than half" knew that "the purpose of diversification is to balance both risk and return."<sup>291</sup> Another forty-five percent erroneously believed that diversification guarantees equity investments against stock market declines.<sup>292</sup>

Given the lack of understanding, it is no surprise that evidence of actual diversification is equally underwhelming. One study found that "diversification across asset categories was the exception rather than the rule."<sup>293</sup> Particularly disturbing is that this study found that approximately thirty percent of those between the ages of fifty-five and sixty-four and approximately twenty percent of those over sixty-five had the entirety of their portfolio invested in equities.<sup>294</sup> Another study produced results in the same vein. It showed that one-half of 401(k) participants have either all (or nearly all) of their money in equities or none of it.<sup>295</sup> Finally, still other studies have shown that, when investors do diversify, they do so naively, spreading their investments evenly over all of the funds offered to them by their employer<sup>296</sup> or across three or four funds.<sup>297</sup>

Perhaps the realization that ordinary investors are not properly diversified should not come as a surprise. Building a properly

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<sup>290</sup> See *supra* note 271 and accompanying text.

<sup>291</sup> FACTS ON SAVING AND INVESTING, *supra* note 131, at 18.

<sup>292</sup> *Id.*

<sup>293</sup> Doug Waggle & Basil Englis, *Asset Allocation Decisions in Retirement Accounts: An All-or-Nothing Proposition*, 9 FIN. SERVICES REV. 79, 90 (2000).

<sup>294</sup> See *id.* at 85 tbl.3.

<sup>295</sup> See ALICIA H. MUNNELL ET AL., CTR. FOR RET. RESEARCH, INVESTMENT RETURNS: DEFINED BENEFIT VS. 401(K) PLANS, 5 (2006).

<sup>296</sup> Shlomo Benartzi & Richard H. Thaler, *Naive Diversification Strategies in Defined Contribution Saving Plans*, 91 AM. ECON. REV. 79 *passim* (2001).

<sup>297</sup> Gur Huberman & Wei Jiang, *Offering Versus Choice in 401(k) Plans: Equity Exposure and Number of Funds*, 61 J. FIN. 763 *passim* (2006).

diversified portfolio is the stuff of sophisticated financial theory.<sup>298</sup> It is likely a bit much to expect investors to bring this to bear as they periodically sit down to look at their 401(k) statements. Investors, however, need not attempt to diversify on their own. Within the last decade, mutual funds have come out with so-called “life cycle funds” that both diversify investor money across asset classes and rebalance investor portfolios as they age, moving them from riskier to more conservative allocations.

The problem here is that even these funds provide little protection from the market’s swings. Building on the Brookings Institution’s study, Boston College’s Center for Retirement Research ran an experiment to see how effectively the diversification provided by these funds protects investors from market volatility.<sup>299</sup> The experiment calculated the accumulated earnings for different retirement dates assuming that investors put six percent of their salary in these funds consistently for forty years.<sup>300</sup> What the researchers found was uninspiring. For instance, retirees in the 1980s would have accumulated less than one-half as much as those who retired in the 1960s; 2008 retirees, two-thirds as much.<sup>301</sup> Thus, even those savvy enough to put their money in life cycle funds leave much to chance.

In theory, portfolio diversification could serve as a means of protecting investors from market risk. But the setup we have today, where investors are supposed to either choose a diversified portfolio themselves or take part in life cycle funds, leaves many largely at the market’s mercy.

### III

#### ASSESSING SOCIETAL RISK MANAGEMENT

We now have a well-developed picture of how society manages market risk. Securities regulation tames a portion of the market’s

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<sup>298</sup> Modern portfolio theory incorporates the idea of an “efficient frontier” that guides rational asset allocation decisions. See SIEGEL, *supra* note 277, at 36–37. For a more critical view of this idea, see MANDELBROT & HUDSON, *supra* note 252, at 65–66. More practically, Robert Shiller describes the asset-allocation decision as involving “a bewildering complex of relevant factors, some represented by quantitative data, others only suggested by cases or events, still others suggested by intangible intellectual currents in society.” Shiller, *supra* note 144, at 21.

<sup>299</sup> See ALICIA MUNNELL ET AL., *CTR. FOR RET. RESEARCH, HOW MUCH RISK IS ACCEPTABLE*, 4–5 (2008).

<sup>300</sup> See *id.* at 4.

<sup>301</sup> See *id.*

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volatility, but it leaves much unaccounted for. If investors are uncomfortable with what remains, they can diversify their portfolios. Time diversification is of dubious value, but diversification among asset classes is a way for ordinary investors to contain market volatility. At this point, we can ask whether this framework is satisfactory, and, if not, what types of reforms are the most promising.

We are unlikely to achieve consensus as to the ideal risk-management framework. We can, however, look back at the work of Rawls and Harsanyi to help guide analysis of the issue. Previously, I relied on their insights as theoretical support for the notion that it is in society's interest to help investors manage risk. But their works also explore what the ideal risk-management framework should look like.

What is most difficult is determining how much protection from risk the government should endeavor to provide. As is frequently the case in confronting difficult policy questions, one valid goal potentially conflicts with another. In this case, the trade-off is between risk and return. Oftentimes, measures that reduce volatility also reduce returns, and, while it is important to manage risk, it is also important not to undermine investor profits. After all, no one would argue for a policy that led to a zero percent return, even if it left us with zero volatility. Although protecting investors from volatility is a valid goal, the right societal outcome is ultimately the one where risk and return are in proper balance.

Both Rawls and Harsanyi address the issue of how to strike this balance, albeit in a rather abstract manner. Embedded in both of their theories of government are notions about the trade-off between inequality and utility, which is analogous to the trade-off in finance between risk and return. Under Harsanyi's framework, inequality is acceptable in an ideal society. The correct amount is that which maximizes society's utility given its aversion to risk.<sup>302</sup> Rawls takes a different tack. In general, his goal is to maximize the position of the least well off, but he recognizes that the sole pursuit of this objective could excessively crimp the overall welfare of society.<sup>303</sup> Rawls solves this dilemma by positing that inequality is acceptable so long as it advances the welfare of the least advantaged.<sup>304</sup> Under Rawls's

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<sup>302</sup> See *supra* notes 95–96 and accompanying text.

<sup>303</sup> See RAWLS, *supra* note 70, at 122–23.

<sup>304</sup> See *id.*

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conception, therefore, we would seek to eliminate inequality that does not also raise the standard of living for the less fortunate in society.<sup>305</sup>

Thus, the only difference between the two is somewhat technical. Harsanyi sees utility as the end goal and, therefore, would not sacrifice societal utility to improve the well-being of the least advantaged, whereas Rawls would put egalitarianism above utility and would, therefore, sacrifice overall societal utility to set a higher floor for the least fortunate. In applying this to finance, Harsanyi's work suggests that he would accept the amount of volatility that would maximize societal welfare. It appears that Rawls, on the other hand, would accept only so much volatility as is necessary to set a reasonable rate of return for the unluckiest investor.

Neither of these abstractions tells us the exact rate of return and volatility that is acceptable for society. But they do provide us with a framework for analysis. Let us first look at today's risk-management structure from a utilitarian perspective and ask whether it would appear to maximize societal well-being by setting the appropriate balance between risk and return. Our current approach leaves much of this task to individual investors. We can look at securities regulation as setting a default risk-return balance—that of the market, which has been rendered less volatile through disclosure. If individuals do not like this balance, they can change it. Most importantly, they can reduce their exposure to risk by diversifying their portfolios among various asset classes.

The first question is whether the current risk-return trade-off offered by the market is a good baseline—that is, whether it is the balance many investors would choose. We cannot know for sure, so any answer must be tentative. Nevertheless, a fairly strong argument can be made that the market exposes individuals to too much risk. Market investments represent people's retirement savings. This is an endeavor where predictability counts for a lot. The better people can forecast what they will have in the future, the better they can plan today. Also, stock swings late in life can be devastating, emptying retirement accounts when the time for accumulation has largely passed. In addition to these reasons why investors might prefer less volatility, we have some direct evidence as to people's attitudes toward market risk. In a recent study by the Financial Industry Regulatory Authority (FINRA), respondents evidenced strong risk aversion; twenty-six percent said they were unwilling to take *any*

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<sup>305</sup> See *id.* at 124.



risk.<sup>306</sup> Similarly, a 1990s study concluded that “[m]uch of the public is intimidated by the stock market and frightened of its volatility.”<sup>307</sup>

The beauty—at least theoretically—of today’s approach, however, is that, if people think the market exposes them to too much risk, they can diversify. They can maximize their utility by adjusting the riskiness of their portfolios. If investors are risk averse, they can invest in mutual funds featuring solely Treasury Bills. If they are risk loving, then they can leave their money in equities. This setup is attractive because of its flexibility. If we are trying to maximize aggregate utility, it seems to make sense to let investors maximize their own, rather than mandating a one-size-fits-all structure. In this market-based approach, government stands to one side as individuals choose whatever investments they favor.

This approach only works, however, if both the supply and demand side of the market are functioning effectively. Today, however, neither appears to be in good order. On the supply side, we want the market to provide investment products that allow investors to design portfolios that effectively represent their preferences. But today it is difficult for investors to do so. The stock market is prone to wide and frequent swings, and investors have limited devices for dealing with them. Time diversification is a deeply suspect concept, and diversification among asset classes only goes so far.

The Brookings Institution’s study, mentioned earlier, vividly demonstrates how difficult it is for investors to dampen return volatility and the consequences they pay for doing so.<sup>308</sup> The study shows that, over a forty-year period, if investors split their portfolio between stocks and bonds, they eliminate some volatility in exchange for giving up some potential returns, but much is still left to chance. For instance, retirees following this strategy, retiring in 1999, would have forty percent more than those retiring in 1993 and twice as much as those retiring in 2008.<sup>309</sup> Investors who eschew the market entirely and invest solely in bonds would exchange the stock market’s volatility for the more tame fluctuations in the bond market. Their returns, however, would be “considerably lower” and still subject to

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<sup>306</sup> FINRA INVESTOR EDUCATION FOUNDATION, FINANCIAL CAPABILITY IN THE UNITED STATES: NATIONAL SURVEY—EXECUTIVE SUMMARY 16 (2009), available at <http://www.finrafoundation.org/web/groups/foundation/@foundation/documents/foundation/p120535.pdf> [hereinafter FINRA STUDY].

<sup>307</sup> See FACTS ON SAVING AND INVESTING, *supra* note 131, at 13.

<sup>308</sup> See BURTLESS, *supra* note 278 and accompanying text.

<sup>309</sup> See *id.* at 6 tbl.

chance. Those retiring in 2008, for example, would have twice as much as those retiring in 1968.<sup>310</sup> If such risk is unacceptable, investors can choose to leave their money in cash instruments, and, in that case, they would earn returns that barely keep pace with, or fall behind, inflation over time.

What the market fails to provide is a way for investors to harness market returns while being shielded from its volatility. The market has not, and perhaps cannot, provide this option, but the government likely can. I will return to what government intervention along these lines might look like, but for now, it is enough to point out that the supply side of the market does not seem to offer investors overly satisfying alternatives relative to what could potentially be made available.

The demand side of this market is also problematic. Under our current approach, investors are supposed to divine their own perfect portfolios. For this to work, we are coming perilously close to, if not outright assuming, that investors are rational actors. We know, however, that this is not the case. As discussed above, investors suffer from an array of decision-making flaws, and, by and large, they are financially unsophisticated.<sup>311</sup> In this context, it has been shown that investors do not understand diversification and that they fail to take advantage of it.<sup>312</sup> Because investors are not making asset-allocation decisions that reflect fully informed rational preferences, they are failing to maximize their own utility and, by extension, that of society. Rather than rely so extensively on the market, a risk-management system that seeks to maximize utility would take asset-allocation decisions out of the hands of ordinary investors or figure out a way to help them make better choices.

Our current market-based approach fares even worse under a Rawlsian analysis. It certainly does not set a high floor under the most unlucky. Unfortunately timed investment decisions could lead to financial ruin. More generally, an argument can be made that the current system, by making retirement savings dependent on individual investment savvy, broadens preexisting inequalities rather than responds to them. People of higher intelligence and higher educational attainment already occupy elite and highly compensated ranks in our society. Leaving it up to individual investors to properly

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<sup>310</sup> See *id.* at 6 & tbl., 7.

<sup>311</sup> See *supra* Part II.B.1.b.

<sup>312</sup> See *supra* notes 291–97 and accompanying text.

manage risk has the potential to further exacerbate this divide. Individuals who have less already are likely the ones who will construct the least efficient portfolios.<sup>313</sup> Amplifying the inequity further is the tax subsidy for 401(k) plans, seventy percent of which goes to the top twenty percent of earners.<sup>314</sup> All of this might be acceptable, even to Rawls, if allowing this divergence advanced the position of the least well off. Without some type of floor under investing returns, however, it is hard to see how this is the case.

In light of these misgivings, it is worth considering reforms to our current risk-management structure. The essential problems appear to be that, despite mandated disclosures, the stock market likely harbors more volatility than the average investor prefers; the options available to investors for dealing with this volatility are limited; and investors are not doing a good job of taking advantage of their options, imperfect though they may be. By addressing these concerns, we could design a risk-management system that is both fairer and more efficient.

#### A. *Endogenous Mechanisms to Better Protect Investors*

One avenue of reform is to take aim at stock market volatility directly. Perhaps better securities laws could improve share-price accuracy and, in doing so, reduce volatility. Tackling volatility in this way would be especially nice because it would reduce risk for all investors—not just the savviest. We might even be able to do so without overly dampening returns. Prominent studies have shown that the introduction of the disclosure regime reduced volatility without impacting returns.<sup>315</sup>

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<sup>313</sup> See FINRA STUDY, *supra* note 306, at 10, 19 (finding retirement planning to be nonexistent among lower-income individuals and that “women, those with low education, African-Americans and Hispanics” performed particularly poorly on a financial literacy quiz).

<sup>314</sup> Penelope Wang, *Rescue America’s Retirement*, MONEY, Mar. 2009, at 74.

<sup>315</sup> See Romano, *supra* note 26, at 2373 & n.37, 2376 & n.47 (discussing findings with respect to returns); *supra* notes 105–112 and accompanying text (discussing findings with respect to volatility); cf. Chang-Jin Kim et al., *Is There a Positive Relationship Between Stock Market Volatility and the Equity Premium?*, 36 J. MONEY, CREDIT & BANKING 339, 339 & n.1, 340 (2004) (discussing the theoretical and empirical debate regarding the relationship between volatility and returns).

If we are looking to improve stock-price accuracy, then traditional avenues of reform—namely, improved disclosure,<sup>316</sup> investor education,<sup>317</sup> and deregulation of certain investing limitations<sup>318</sup>—remain relevant, for they are all well suited to this purpose. In fact, they now have a solid intellectual foundation. Previously, these were not grounded in any satisfactory theory about how securities regulations and, by extension, reforms to securities regulations, protect investors. Now reforms along these lines can be justified as mechanisms to improve societal risk management. The problem, however, is that, when we take another look at the reasons why stocks prices are off, we see that these reforms are unlikely to have much impact. As discussed below, obstructions to share-price accuracy stem from largely ineradicable features of the market and biases that are likely ingrained in human decision making, rendering further endogenous regulatory responses largely ineffective.

### 1. *Improved Disclosure*

If disclosure already improves stock-price accuracy, perhaps more disclosure would further advance this goal. Like disclosures already in place, the additional information could make prices more accurate and less volatile by supplanting noise and allowing for better projections with respect to the topics covered. The SEC continually adds more disclosure—perhaps we can defend this much-maligned practice along these lines.

In the abstract, the above logic is sound. But it is open to two practical challenges. First, there is good reason to believe that sophisticates are already overloaded with information.<sup>319</sup> Along these lines, we know that analysts already ignore much of the information available.<sup>320</sup> Thus, it is unclear whether the additional information would actually be absorbed into the market.<sup>321</sup> Second, even if the information were absorbed, its impact would likely be negligible.

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<sup>316</sup> See, e.g., Paredes, *supra* note 22, at 474–80; SEC, REPORT OF THE TASK FORCE ON DISCLOSURE SIMPLIFICATION (1996), available at <http://www.sec.gov/news/studies/smpl.htm> [hereinafter REPORT ON DISCLOSURE SIMPLIFICATION].

<sup>317</sup> See, e.g., FACTS ON SAVING AND INVESTING, *supra* note 131, at 20–22; REPORT ON DISCLOSURE SIMPLIFICATION, *supra* note 316, at 47–80.

<sup>318</sup> See, e.g., Gilson & Kraakman, *supra* note 39.

<sup>319</sup> See Paredes, *supra* note 22, at 453–56.

<sup>320</sup> See *id.* at 458–59.

<sup>321</sup> Paredes, in fact, argues that we should conduct further study into whether actually trimming back securities disclosures is appropriate. See *id.* at 473–74.

Tides of investor sentiment are unlikely to recede because, for instance, a nuanced piece of information has been added to a lengthy disclosure form. Likewise, more company-specific minutia is unlikely to help investors predict the next fat-tail event.

Another popular reform recommendation is disclosure simplification.<sup>322</sup> One could argue that more user-friendly disclosures would lead to better informed investors and, therefore, less noise in the marketplace. To the extent this notion has in mind ordinary investors, however, it is unconvincing. We have already recognized that it is wishful thinking to assume that average investors are reading SEC disclosures.<sup>323</sup> It seems equally unrealistic to think that clearer sentences and fewer details will bring them back into the fold while at the same time equipping them with the information to competently assess stock values. Pursuing this idealistic vision also potentially sacrifices informational richness, which in turn could make share prices less accurate. The SEC can make sure that investors are given clear and accurate information by enforcing rules pertaining to the look and presentation of securities solicitation and sales documents. But attempting to make SEC disclosures amenable to the average investor appears misguided.

This does not mean, however, that SEC disclosures need to be legalistic, jargon-filled tomes. Reforms that make it easier for sophisticated investors to process information are defensible.<sup>324</sup> If information is easier for them to use, perhaps they will be able to bring more of it to bear on their decisions, which could potentially improve accuracy. Again, however, the impact would at best be marginal. It is difficult to see more streamlined and accessible presentation of the information currently required impacting irrational price swings or bringing unknown unknowns within their purview.

The upshot is that we are already scraping up against the ceiling of what disclosure can accomplish. Empirical evidence shows that disclosure has tamed a portion of the market's volatility.<sup>325</sup> Much of the volatility that remains, however, stems from sources that disclosure can do nothing to combat. It is ineffective against

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<sup>322</sup> See REPORT ON DISCLOSURE SIMPLIFICATION, *supra* note 316, at *passim*.

<sup>323</sup> See *supra* notes 31–32 and accompanying text.

<sup>324</sup> Along these lines, the SEC is currently seeking to upgrade its Electronic Data Gathering, Analysis, and Retrieval (EDGAR) system to make it more user-friendly. See Judith Burns, *SEC Unveils a Filing System Intended to Replace Edgar*, WALL ST. J., Aug. 20, 2008, at C4.

<sup>325</sup> See *supra* notes 105–12 and accompanying text.

widespread investing fads and high impact, unpredictable events. Although we can make incremental improvements to our disclosure regime, stock prices would likely remain volatile and inaccurate even if we were to absolutely optimize our disclosure practices.<sup>326</sup> To make a real dent in market volatility, we must look elsewhere.

## 2. *Improved Investor Education and Efforts at De-Biasing*

The lack of investing knowledge and bounded rationality are key barriers to stock-price accuracy. Prices would be more accurate if ordinary investors were more financially savvy and rational. Similarly, although we can assume that sophisticated investors are educated in their business, if we could improve the rationality of their decision making, we could improve share-price accuracy. Given all of the above, investor education efforts aimed at ordinary investors and de-biasing efforts targeted more broadly seem to make sense. Like improving disclosure, however, there is probably not much upside from these reforms.

Let us first consider investor education. Prospects are dim. Understanding SEC disclosures and valuing securities are inherently complex tasks, and, for many, they are unwelcome. Given this backdrop, it seems dubious that government-sponsored or government-supported efforts to impart the necessary know-how to the public would prove successful. Moreover, average investors do not revisit their portfolios daily. Because they focus on finance only from time to time, the chances are high that any knowledge gained through education would evaporate over a couple of years.<sup>327</sup> While efforts to encourage increased saving or that teach the value of index funds may be helpful, anything beyond those would likely prove fruitless.<sup>328</sup>

The prognosis for de-biasing is equally underwhelming. The idea is that if we teach individuals about their biases, then they will not be captive to them.<sup>329</sup> In the investing context, if people did not apply faulty decision-making heuristics to complex issues, perhaps they

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<sup>326</sup> Cf. Gerding, *supra* note 128, at 1019–20 (discussing experiments in which asset-price bubbles formed even where subjects were given “all the information necessary to compute fundamental value”).

<sup>327</sup> See Willis, *supra* note 146, at 216 (contrasting the “episodic” nature of financial decisions to other types of life choices).

<sup>328</sup> Even in Willis’s critique of financial literacy education, *see id. at passim*, she acknowledges that education may work if it is “simple, universal, and clear.” *Id.* at 226.

<sup>329</sup> For a broader discussion of de-biasing, *see id.* at 249–53.

would better understand SEC disclosures and be more rational in valuing stocks. The reasoning here is enticing, but to think we can improve investor rationality is probably overly optimistic. The main problem is that biases are likely hardwired. Neurobiology research, in fact, has begun to show that these biases are part of how the human mind is built.<sup>330</sup> They serve as a way for us to organize and summarize information to deal with our cognitive limitations.<sup>331</sup> It may not be so easy, therefore, to simply tell people to ignore their biases. A thirty-minute Web-based training video is unlikely to erase millions of years of evolution. Moreover, even if immediately after the training, investors recognize the ill of their past ways, by the time they turn to their portfolios months or years later, any lessons will likely have faded away.

One illustration along these lines is the SEC's effort to warn investors that past performance is not a trustworthy predictor of future performance.<sup>332</sup> This can be seen as a de-biasing effort in that the goal is to prevent people from applying the representativeness heuristic, which would lead them to extrapolate continued high returns from a limited data set. Despite warnings, however, investors continually overemphasize past returns in their decision making.<sup>333</sup> Given these theoretical and practical concerns, therefore, it appears highly speculative to argue that de-biasing would have an appreciable impact on investors.

Perhaps the prognosis changes, however, if we focus on sophisticated investors. Like all of us, they are hardwired with biases.

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<sup>330</sup> See Owen D. Jones, *Time-Shifted Rationality and the Law of Law's Leverage: Behavioral Economics Meets Behavioral Biology*, 95 NW. U. L. REV. 1141, 1172-73 (2001); *The Endowment Effect: It's Mine I Tell You*, ECONOMIST, June 21, 2008, at 79; Gary Stix, *The Science of Economic Bubbles & Busts*, SCI. AM., July 2009, at 78; James Montier, *Darwin's Mind: The Evolutionary Foundation of Heuristics and Biases passim* (Dec. 2002) (unpublished manuscript), available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=373321](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=373321).

<sup>331</sup> See Herbert A. Simon, *Invariants of Human Behavior*, 41 ANN. REV. PSYCHOL. 1, 7 (1990). In this piece, Simon famously argues that "[h]uman rational behavior . . . is shaped by a scissors whose two blades are the structure of task environments and the computational capabilities of the actor." *Id.*

<sup>332</sup> See SEC, Form N-1A, OMB No. 3235-0307, at Item 4(b)(2)(i), available at <http://www.sec.gov/about/forms/formn-1a.pdf> (requiring a warning in mutual fund prospectuses); Alan R. Palmiter & Ahmed E. Taha, *Mutual Fund Investors: Divergent Profiles*, 2008 COLUM. BUS. L. REV. 934, 969 & n.128 (2008) (discussing warning required in mutual fund advertisements).

<sup>333</sup> See Erik R. Sirri & Peter Tufano, *Costly Search and Mutual Fund Flows*, 53 J. FIN. 1589 *passim* (1998); Ronald T. Wilcox, *Bargain Hunting or Star Gazing? Investors' Preferences for Stock Mutual Funds*, 76 J. BUS. 645, 650 (2003).

They do, however, have a greater incentive to overcome them. After all, finance is their profession, and eliminating biases may give them an investing edge. Thus, there is reason to think that they may be more receptive to de-biasing efforts. But we should temper our enthusiasm. Most disturbing are studies by Kahneman, Tversky, and others that demonstrate what are referred to as “errors of application.” What these studies show is that sophisticated subjects can demonstrate understanding of a decision-making rule but then fail to apply the rule in practice.<sup>334</sup> This trait may explain why, for instance, even professional traders who should know better seem to be influenced by a stock’s recent past performance.<sup>335</sup> That such errors of application exist suggests that biases may be sticky, even for experts. Moreover, we should recognize that efforts at de-biasing sophisticated investors, even if they turn out to be a startling success, have a severely limited upside. In attempting to fairly value securities, experts would still be unable to predict fat-tail events, and they would still contend with the limits to arbitrage that are the centerpiece of behavioral finance research. These substantial sources of inaccuracy would remain.

### 3. *Unwinding Legal Constraints to Arbitrage*

To make markets more efficient and thereby improve share-price accuracy, we could also consider easing legal restrictions that inhibit arbitrage. Arguably, there should be no caps on leverage, short selling, or even so-called “naked short selling.” With greater leverage and unencumbered short selling, the smart money could make bigger bets to offset irrational price swings.

The problem is, however, that the added flexibility for this group of investors opens the door to other significant societal concerns. One issue is that both leverage and short selling create negative externalities. First, consider leverage. Although a high debt load may be profitable for a sophisticated institutional investor like an investment bank or hedge fund, the concentration of risk in a single entity may pose a threat to the greater financial system (so-called

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<sup>334</sup> See Daniel Kahneman & Amos Tversky, *On the Study of Statistical Intuitions, in JUDGMENT UNDER UNCERTAINTY: HEURISTICS AND BIASES*, *supra* note 140, at 493, 495, 498; Rabin, *supra* note 146, at 31–32.

<sup>335</sup> See *supra* note 207 and accompanying text.



“systemic risk”).<sup>336</sup> Because the sophisticated investor would not fully internalize the risk to the financial system, there is a role for the government to place limits. Indeed, the role of unchecked negative externalities is one of many themes stressed in narratives purporting to explain the financial collapse in 2008.<sup>337</sup>

A similar dynamic is apparent with short selling. Massive short selling can cause a stock’s price to drop precipitously. If the company that is the subject of the attacks is important to the financial system, these short sales, although profitable for the traders, can impose risks to the greater financial system. Again, 2008 proves illustrative. The fear of this type of downward pressure on systemically important institutions was the SEC’s rationale for restricting short sales of financial companies in the latter half of that year.<sup>338</sup>

Another problem is that, as discussed above, sophisticates are not perfectly rational<sup>339</sup>—and leverage, if used carelessly, can pose systemic risk. Nor are they saints. Many have alleged that short selling can be used, and has been used, to manipulate stock prices. In particular, naked short selling is often viewed with concern. Because naked short sales are not attached to actual shares, there is no limit to how many such trades can be made.<sup>340</sup> This freedom creates the potential for a flood of sales on the market, which could depress a stock’s price artificially.<sup>341</sup> Thus, although there is the potential of improving share-price accuracy through these measures, there are significant countervailing factors to consider.

In addition, the upside is limited. Even if we were to allow unlimited leverage and short selling, market prices would still likely

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<sup>336</sup> See Viral V. Acharya et al., *Regulating Systemic Risk*, in RESTORING FINANCIAL STABILITY: HOW TO REPAIR A FAILED SYSTEM 283, 284 (Viral V. Acharya & Matthew Richardson eds., 2009).

<sup>337</sup> See *id.* at 285–88.

<sup>338</sup> See Emergency Order, *supra* note 175, at 42379.

<sup>339</sup> See *supra* Part II.B.1.b.ii.2.

<sup>340</sup> Naked short selling is currently regulated, but whether it is regulated successfully is a matter of debate. See James W. Christian et al., *Naked Short Selling: How Exposed Are Investors?*, 43 HOUS. L. REV. 1033 (2006).

<sup>341</sup> This fear led the SEC, in the fall of 2008, to tighten its restrictions on naked short selling. See Emergency Order Pursuant to Section 12(k)(2) of the Securities Exchange Act of 1934 Taking Temporary Action to Respond to Market Developments, Exchange Act Release No. 34-58572, 73 Fed. Reg. 54875, 54875 (Sept. 17, 2008); GOV’T ACCOUNTABILITY OFFICE, REGULATION SHO: RECENT ACTIONS APPEAR TO HAVE INITIALLY REDUCED FAILURES TO DELIVER, BUT MORE INDUSTRY GUIDANCE IS NEEDED 1–2, 21–23 (2009).

be inaccurate. Sophisticated investors would still face noise-trader risk and fundamental risk, remain irrational, and be no better at predicting fat-tail events. In fact, increased leverage renders fat-tail events even more problematic. Highly leveraged positions can backfire spectacularly—and have systemic consequences—when unforeseen fat-tail events materialize.<sup>342</sup> In light of the potentially significant downsides and the limited upside of reduced legal constraints on these activities, they should only be embraced with caution.

In the end, the potential for endogenous mechanisms to make share prices more accurate and, therefore, less volatile is dubious. Regulatory efforts continuously run up against what appear to be largely intractable barriers. We are left, therefore, with a conservative view of both the role of securities regulation and its potential. The rules improve accuracy and reduce volatility, but much remains, and there appears to be little that reforms can do about it.

### *B. Exogenous Institutional Responses*

If we cannot make the stock market itself much less volatile, perhaps we can at least do more to help investors manage their exposure to it. Today, if investors are unsatisfied with the risk-return trade-off offered by the market, they must diversify their savings. I argued earlier that this setup is suboptimal because diversification options are limited and many investors do not know how to take advantage of the ones that exist. In the following sections, I set forth three ideas for improving upon this state of affairs. The first focuses on better enabling investors to manage risk on their own. The latter two discuss how volatility can be controlled through the creation of institutional arrangements that spread market risk more broadly.

#### *1. Better Individual Risk Management*

One hallmark of today's framework is that each investor bears market risk alone. Investors keep whatever is in their portfolio—for better or worse. This concentration of market risk may not be the optimal solution, and I turn to risk-sharing options in later sections. But were we to keep this individualistic paradigm, we could at least improve upon it by providing investors with better options for managing risk and guiding them toward sound decisions.

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<sup>342</sup> See MANDELROT & HUDSON, *supra* note 252, at 105–07 (discussing the infamous collapse of the hedge fund Long Term Capital Management).

Today's life cycle funds offer a good starting point for this analysis. They seem to operate from a sound premise: because sophisticated investors are in a better position to put together correctly balanced funds, having them set up diversified funds for ordinary investors makes sense. The problem, however, is that these sophisticated investors appear to have based these funds on the notion of time diversification. The funds are heavily weighted toward stocks, especially initially, which leaves investors exposed to extreme volatility.<sup>343</sup> Because the notion of time diversification is questionable at best, the focus should instead be on portfolio diversification.

Along these lines, market risk would be reduced if these funds held less equity and more relatively safe assets, like bonds and cash. Benjamin Graham, for instance, in his classic, *The Intelligent Investor*, recommends a portfolio featuring roughly one-half bonds and one-half equities.<sup>344</sup> We need not stop there, however. It may also be beneficial for investors to have exposure to a wider array of investments, including nontraditional ones. Alternative asset classes, like hedge funds, private equity funds, and venture capital funds, can offer returns uncorrelated with either stocks or bonds and, therefore, can improve the performance of a portfolio without adding to its riskiness.<sup>345</sup> Institutional investors, most famously university endowments, have added these assets to their portfolios with success, not only earning higher returns than the stock market but also better weathering the recent economic tumult.<sup>346</sup>

Though these instruments could similarly benefit average investors, today's securities regulations have put them largely out of reach.<sup>347</sup> Such rules are in place to protect ordinary investors from these more complicated instruments. But there are ways we can permit access without compromising investor protection. For

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<sup>343</sup> See *supra* notes 299–301 and accompanying text.

<sup>344</sup> See BENJAMIN GRAHAM, *THE INTELLIGENT INVESTOR* 90 (rev. ed. 2003). As in today's life cycle funds, the allocation to equities could decrease over time. This is because older investors have less ability to simply work harder and longer in order to make up for stock market losses. See Samuelson, *Equities*, *supra* note 283, at 17–18.

<sup>345</sup> See SWENSEN, *supra* note 266, at 132; Schwartz, *supra* note 27, at 536 n.102.

<sup>346</sup> Yale's endowment, for instance, earned a sixteen percent return in the last ten years, taking into account a twenty-five percent drop during the financial crisis. The S&P 500 earned two percent, enduring a thirty-two percent drop over the same time frame. See Craig Karmin, *Yale's Investor Keeps Playbook*, WALL ST. J., Jan. 13, 2009, at C1.

<sup>347</sup> See Schwartz, *supra* note 27, at 531–32 (briefly summarizing rules that restrict investment in such vehicles).

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example, we could loosen the investment company rules to make it easier for managers to include these types of investments, but set limits on the percent that funds can allocate to these instruments. Additionally, we could force hedge funds and the like that wish to be included to comply with a level of regulatory scrutiny that is higher than what they face today.

It seems that revamped life cycle funds without their equity bias, but with some exposure to alternative assets, would strike a better risk-return balance for investors. It is one thing, however, to outline the contours of a new fund template. It is another to figure out how best to inject this innovation into the market. A full discussion of the various implementation strategies is beyond the scope of this Article, but I will mention a few ideas. The least invasive approach would be to educate investors about the benefits of broadly diversified funds in the hopes of creating demand for these products that would in turn lead to supply. Whether such a hands-off approach would be effective, however, is open to question. Doubts about whether investors are willing and able to absorb this information and about the government's ability to effectively provide it, come to mind. Rather than relying on an information and education campaign to stimulate demand, the government could get involved on the supply side. It could encourage funds to provide these instruments, either through verbal prodding or by providing tax or other subsidies; it could even mandate that such funds be made available. Still more aggressively, the government could directly enter the fray. It could offer a broadly diversified fund in competition with the private-sector funds. This competition could encourage imitation by industry.

Direct government competition raises issues of institutional competence and capture, but these are not insoluble,<sup>348</sup> and, given the less-than-competitive framework in the current mutual fund industry,<sup>349</sup> this alternative should not be dismissed out of hand. Moreover, a construct where investors are allowed broader access to a wider array of investments and may choose a public option is similar to the pension scheme in Sweden, where investors are given the ability to self-direct their retirement savings, and one of the options

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<sup>348</sup> See *infra* notes 386–90 and accompanying text (discussing the setup of Canada's pension scheme, which involves direct government involvement).

<sup>349</sup> See Schwartz, *supra* note 27, at *passim*.

available for them is a government fund that includes alternative asset classes.<sup>350</sup>

Even if the product is available, however, there is no assurance the public will participate. Therefore, a plan to launch such a fund should also include a strategy for encouraging broad consumer acceptance. Again, there are a range of alternatives. Richard Thaler and Cass Sunstein argue that the government can change people's behavior for the better without telling them what to do by pointing people in the right direction without limiting their options.<sup>351</sup> One way to do this is by carefully setting defaults.<sup>352</sup> Because defaults are sticky, the government can nudge people to good decisions by setting the default option as one that is likely a good choice for most people.<sup>353</sup> In this context, this would mean setting improved life cycle funds (or even the government's fund) as the default when employees enroll in their company's 401(k) plan.<sup>354</sup> Sweden's experience suggests that this alone would be quite effective. In Sweden, the government's fund is the default, and the vast majority of employees leave their money in the fund unless actively encouraged to do otherwise.<sup>355</sup> If we wish to further bolster participation, regulators could attempt to educate consumers about the benefits of these types of funds (although, as discussed earlier, there are significant limits to what we can expect people to absorb).

The other option is a government mandate. It is conceivable that these funds would be the only options made available for retirement

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<sup>350</sup> See R. Kent Weaver, *Design and Implementation Issues in Swedish Individual Pension Accounts*, 65 SOC. SEC. BULLETIN 38, 40 (2005), available at <http://www.ssa.gov/policy/docs/ssb/v65n4/v65n4p38.pdf>. The default fund compares favorably to its competitors. See Erik Jacobson & Björn Lundgren, *The Swedish Premium Pension* (Feb. 19, 2009) (unpublished M.A. thesis, Stockholm School of Economics), available at <http://arc.hhs.se/download.aspx?MediumId=670>.

<sup>351</sup> See RICHARD H. THALER & CASS R. SUNSTEIN, NUDGE: IMPROVING DECISIONS ABOUT HEALTH, WEALTH, AND HAPPINESS 4–6 (2008).

<sup>352</sup> See *id.* at 12–13.

<sup>353</sup> See *id.*

<sup>354</sup> Under the Pension Protection Act of 2006, Pub. L. No. 109-280, 120 Stat. 780 (2006), employers are permitted to set life-cycle funds as an employee's default investment. See 29 U.S.C. § 1104(c)(5) (2006); Ilana Polyak, *401(k), New and Improved*, PENSIONS AND INVESTMENTS, Nov. 24, 2008, at S10. Increased regulation of life cycle funds, also called target-date funds, is in the congressional crosshairs, but the focus seems to be on inconsistent results and asset allocations among what should be similar investment instruments. See Mark Bruno, *Target Date Funds Seen as a Question of How Rather than if*, INVESTMENT NEWS, June 29, 2009, at 10.

<sup>355</sup> See THALER & SUNSTEIN, *supra* note 351, at 148–49.

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savings (or, more aggressively, that the government's fund be the only available alternative). One downside of these more restrictive alternatives is that a subset of individuals may have a reasonable reason for leaving their money in other funds. If participation in revamped life cycle funds is easy and highly recommended, we may be able to garner a high level of participation without eliminating these alternatives.

Questions of implementation aside, the main point is that investors would likely be better served if their savings were housed in more thoughtfully designed and thoroughly diversified mutual funds. There are limits, however, to what proper portfolio design can accomplish. Even the most sophisticated asset managers endured big losses in 2008.<sup>356</sup> As discussed below, we may be able to achieve a more optimal risk-return trade-off if we allow investors to share risk rather than forcing them to deal with it all within their own portfolio.

## 2. *The Prospect of Insuring Returns*

Although we often conceptualize investing as far removed from insurance, investors insure their returns all the time, though we seldom call it that. Diversification among asset classes, for instance, is analogous to insurance in that it allows individuals to narrow the range of potential investing outcomes. By moving away from a complete equities portfolio, investors give up the chance of exceedingly high returns in exchange for protection from exceedingly low returns.

Insurance provides the same type of trade-off. Consider fire insurance. If homeowners choose to leave their house uninsured, and their house does *not* burn down, then they have maximized their wealth. But if the house were to burn down, then the owners would suffer severe losses. By insuring, individuals trade the potential for the best outcome (not paying insurance and not having their house burn down) in exchange for protection from the worst (having an uninsured house burn down).

Today, we generally expect investors to insure through portfolio diversification. But investors could theoretically insure their portfolio just like they insure their house. They could pay some type of insurance premium, or agree to forgo returns in excess of a certain percentage, in exchange for some type of returns floor, whether that

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<sup>356</sup> See *supra* note 346 and accompanying text.

be return of capital, or some minimum profit. This could give investors more certainty without overly compromising returns.

Today, the opportunity to directly insure returns is quite limited. Private insurers offer so-called “equity-indexed annuities.” These are complex insurance products that offer investors the opportunity to place a floor under stock market losses, usually at around ten percent.<sup>357</sup> In exchange, the insurance companies charge fees and cap their investors’ upside.<sup>358</sup> These products, although they achieve a risk-management function, come with two significant drawbacks. The first is that they are technically insurance products.<sup>359</sup> This means that the insurer is contractually obligated to the insured to make good on the annuitized payments in retirement, which leaves investors subject to the risk of default stemming from the company’s bankruptcy or otherwise.<sup>360</sup> Because saving for retirement is a long-term endeavor, this is a significant consideration. The second problem is that these products are extremely complex, giving rise to a significant risk that investors do not understand them.<sup>361</sup> A better regulatory scheme, direct government intervention, or both, would offer the potential to improve on this state of affairs.

The least interventionist approach would be to subject these instruments to disclosure requirements that make the material terms clearer to investors.<sup>362</sup> Because the structures of these instruments are inherently complex, however, it seems dubious that rewriting sentences and adding diagrams would do much good. Another option is to regulate the structure of these instruments. The government could conceivably lay out the terms of a savings insurance product that would be nonabusive and challenge the industry to come up with

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<sup>357</sup> For a fuller description of the return guarantee associated with these products, see Indexed Annuities and Certain Other Insurance Products; Final Rule, Securities Act Release No. 33-8996, 74 Fed. Reg. 3137, 3141 (Jan. 16, 2009) [hereinafter Indexed Annuities]; FINRA, Equity-Indexed Annuities—A Complex Choice, (Apr. 22, 2008), <http://www.finra.org/Investors/ProtectYourself/InvestorAlerts/AnnuitiesAndInsurance/P010614> [hereinafter A Complex Choice].

<sup>358</sup> See SEC, Equity-Indexed Annuities, <http://www.sec.gov/investor/pubs/equityidxannuity.htm> (Dec. 19, 2008).

<sup>359</sup> See *id.*

<sup>360</sup> See A Complex Choice, *supra* note 357.

<sup>361</sup> See Indexed Annuities, *supra* note 357, at 3139 & n.13.

<sup>362</sup> Concerns about the complexity and marketing of these products have led the SEC to usher in increased regulation. See *id.* at 3139. Under the revised rules, if the insured bears the investment risk, the product will be treated as a security and will, therefore, be subject to disclosure and other rules. See *id.*

offerings that fit within these confines. This is similar to the setup in Germany and Switzerland. Both countries require that mutual funds guarantee the return of shareholder capital at retirement.<sup>363</sup>

This market-based approach, however, is limited. One problem is that insuring returns is a tough business. Because of the uncertainty surrounding future stock returns, coming up with a meaningful, yet simple, insurance mechanism may be difficult for the private sector.<sup>364</sup> This has been the case in Switzerland, where, because mutual funds are struggling to fund their guarantee obligations, the government has been forced to repeatedly lower the minimum return it requires them to provide.<sup>365</sup>

Another weakness is the risk of default by the insuring entity.<sup>366</sup> Depending on a private institution to meet obligations potentially lying forty years in the future is a bit dubious. Theoretically, the government could solve this problem by reinsuring the insurer. One drawback of this approach, however, is that it would create moral hazard: the insuring companies would be incentivized to take on additional risks knowing that investor money is safe. Our recent financial collapse, which sprang from risky practices by insurance companies, banks, and government-sponsored enterprises (like Fannie Mae and Freddie Mac) with implicit government guarantees, illustrates that this risk is real.<sup>367</sup>

The way to avoid this problem is to have the government insure returns directly through a government-sponsored guaranteed-returns equities fund. A recent Boston College study concluded that, over the last eighty-four years, the government could have guaranteed investor returns of six percent (investors in this case would have forfeited any

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<sup>363</sup> See Manuel Ammann, *Return Guarantees and Portfolio Allocation of Pension Funds*, 17 FIN. MARKETS & PORTFOLIO MANAGEMENT 277, 277 (2003); Raimond Maurer & Christian Schlag, *Money-Back Guarantees in Individual Pension Accounts: Evidence from the German Pension Reform*, in THE PENSION CHALLENGE: RISK TRANSFERS AND RETIREMENT INCOME SECURITY, *supra* note 274, at 187, 187–88; MUNNELL ET AL., *supra* note 261, at 8 n.6. Various forms of account guarantees are used in other countries as well. See John A. Turner & David M. Rajnes, *Retirement Guarantees in Voluntary Defined Contribution Plans*, in THE PENSION CHALLENGE: RISK TRANSFERS AND RETIREMENT INCOME SECURITY, *supra* note 274, at 251, 254–59.

<sup>364</sup> See MUNNELL ET AL., *supra* note 261, at 4; MUNNELL ET AL., *supra* note 299, at 5, 7 n.12.

<sup>365</sup> See Ammann, *supra* note 363, at 277.

<sup>366</sup> See MUNNELL ET AL., *supra* note 261, at 4.

<sup>367</sup> See Dwight Jaffee et al., *What to Do About the Government-Sponsored Enterprises*, in RESTORING FINANCIAL STABILITY: HOW TO REPAIR A FAILED SYSTEM, *supra* note 336, at 121, 121–24.



returns above six percent in exchange for a guarantee of at least that amount).<sup>368</sup> This measures up favorably to life cycle funds, delivering higher returns for many investors without the volatility.<sup>369</sup> Investors retiring in the wake of the 2008 financial collapse, for instance, would have fared far better under such a system.<sup>370</sup>

Looking prospectively, the study concludes that, under certain assumptions, the government could offer a four percent returns guarantee with a six percent cap.<sup>371</sup> The authors argue that because the government has certain advantages, like being able to cheaply borrow money, it could offer such a guarantee, whereas the risk associated with it would be too great for the private sector.<sup>372</sup> In a fund of this type, the government would be acting essentially as a conduit through which risk is shared by generations. Further research needs to be done to test these results with different methodologies and different assumptions. And given the uncertainty of future market returns, any guarantee likely needs to be flexible. Nevertheless, the results are intriguing.

In theory, there are a few potential ways this fund could be presented to the public. It could be presented as an alternative to private-sector funds, as the default fund in which investor money is placed when they enter a 401(k), or it could be the only option available. The first two alternatives are attractive in that they allow for consumer sovereignty, but, because under these scenarios some investors may choose not to participate in the government fund, they raise significant fairness concerns. The government may have to borrow or call on taxpayers to fund the return guarantees in years of stock market declines.<sup>373</sup> This makes ensuring the fund's success a societal obligation. It would be fairer, therefore, if all of society stood

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<sup>368</sup> See MUNNELL ET AL., *supra* note 261, at 4.

<sup>369</sup> See *id.* at 5 & fig.4.

<sup>370</sup> See *id.* at 5 & fig.5.

<sup>371</sup> See *id.* at 6–7. One assumption is that the government is one-half as risk averse as private insurers. *Id.* at 7. The piece, however, acknowledges the uncertainty surrounding this figure. See *id.* at 9 n.16.

<sup>372</sup> See *id.* at 7. Among other things, the study points out that such an endeavor would be no different than other high-risk social programs, such as unemployment insurance. See *id.*

<sup>373</sup> The government could reduce its need to draw on outside resources by investing in—and guaranteeing—a diversified portfolio, rather than a pure equities portfolio. Hedging risk in this way, however, would likely reduce the overall societal return.

to benefit as well.<sup>374</sup> Thus, the last option, although it places the greatest restriction on choice and an abundance of faith in the government's capabilities, may be the best.

More thought is necessary as to the structure, implementation, and feasibility of risk sharing along these lines. At least in principle, however, the government insurance template offers the potential to improve upon our current framework, in which future market gyrations pose an omnipresent risk.

### 3. *Rethinking Defined Benefits*

Another way to shield investors from market volatility is to key returns to lifetime wages rather than market returns. Defined-benefit plans take this approach, guaranteeing employees a certain percentage of their earnings in retirement. Under this construct, because market risk is borne by the employer, retirement savings are assured irrespective of market performance. Because of a range of factors, these plans have atrophied in recent years. The concept remains sound, however, and can serve as the basis for risk-management reform efforts.

Defined-benefit plans used to be the dominant retirement vehicle. But today, seventy-seven percent of private-sector retirement assets are held in 401(k)s and the like, while only twenty-three percent are in defined-benefit plans—and the trend shows no signs of stopping.<sup>375</sup> Much has been written about this shift, but in brief, it likely stems from dissatisfaction with defined-benefit plans on the part of both employers and employees.<sup>376</sup> First, consider the employer's perspective. Many would probably rather not take on the responsibility of guaranteeing their employee's retirement savings. It is not their core business, and companies that take on this burden must always be worried about potentially defaulting on the obligation. In 2000 and 2001, this fear became especially pronounced as many

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<sup>374</sup> While it may be theoretically possible to create a self-funded entity to house a retirement-guarantee fund, history suggests that the fund would be independent in name only. The self-financed Pension Benefit Guarantee Corporation, for instance, is severely underfunded, but many believe that the federal government implicitly stands behind its obligations. See Jeffrey R. Brown, *Guaranteed Trouble: The Economic Effects of the Pension Benefit Guarantee Corporation*, 22 J. ECON. PERSP. 177, 185 (2008).

<sup>375</sup> See MUNNELL ET AL., *supra* note 295, at 2 & tbl.1; Barbara A. Butrica et al., *The Disappearing Defined Benefit Pension and its Potential Impact on the Retirement Income of Boomers 1* (Ctr. for Ret. Research at Boston College, Working Paper No. 2009-2, 2009).

<sup>376</sup> See Butrica et al., *supra* note 375, at 4–5.

portfolios were hit by low interest rates and declining equity returns.<sup>377</sup> Recently adopted accounting rules also make defined-benefit plans unattractive. Companies are forced to explicitly recognize their portfolio obligations in their corporate financial statements.<sup>378</sup> As a result, market volatility that affects the value of a company's pension plan could give the impression of broader corporate instability when there is nothing volatile about the company's underlying business.

Employees, perhaps shortsightedly, have likewise been content to see these plans fade away. Full benefits are tied to long job tenures at the same company; more recently, this has lost its appeal.<sup>379</sup> Moreover, in the bull markets of the 1980s and 1990s, it likely looked to employees as though they could do better if they could simply invest their money on their own (in contrast, the last decade of returns is one of the worst in the market's history).<sup>380</sup> In addition, defined-benefit plans suffer from one structural flaw, which is that the benefits are linked to the solvency of one's employer. Should an employer go bankrupt with an underfunded pension, employees may not receive all that they were promised (although some savings are guaranteed by the government through the Pension Benefit Guarantee Corporation).<sup>381</sup> Likely because defined-benefit plans are laden with such baggage, the 401(k) structure began to take over.

The choice between the two retirement templates need not be so stark, however. A few modifications can cure many of the ills of the defined-benefit structure without transferring risk completely to employees. In the Netherlands, for instance, defined-benefit plans exist not only at the company level but at the occupational and industry level as well.<sup>382</sup> By sharing pension obligations, the risk of underfunding is spread out and, therefore, attenuated. Moreover, providers have developed a flexible mechanism to share underfunding

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<sup>377</sup> See EDUARD H.M. PONDS & BART VAN RIEL, CTR. FOR RET. RESEARCH, SHARING RISK: THE NETHERLANDS' NEW APPROACH TO PENSIONS 2 (2007).

<sup>378</sup> See Butrica et al., *supra* note 375, at 4–5.

<sup>379</sup> See *id.* at 3–4.

<sup>380</sup> See IBBOTSON ASSOCS., *supra* note 252, at 21–22 & tbl.1-1. According to Ibbotson, “the 17 ½ year period starting in mid-1982 and ending in 1999 comprised a rare span of time in which investors quickly accumulated wealth.” *Id.* at 22. In contrast, this past decade was the first in which the S&P 500 experienced a negative total return. Adam Shell, *How Will the Arrow Point in Ten Years?*, USA TODAY, Jan 4, 2010, at 6A.

<sup>381</sup> See ALICIA H. MUNNELL ET AL., CTR. FOR RET. RESEARCH, THE FINANCIAL CRISIS AND PRIVATE DEFINED BENEFIT PLANS 4 (2008).

<sup>382</sup> See PONDS & VAN RIEL, *supra* note 377.

risk with their employees. If a risk of underfunding is presented, the employers have the power to change how payments are indexed to earnings (essentially lowering postretirement payments) or increase their contributions.<sup>383</sup> Traditional defined-benefit plans, on the other hand, provide that accrued benefits cannot be disturbed,<sup>384</sup> making it more difficult for employers to respond to adverse market conditions.<sup>385</sup>

Canada has a defined-benefit system that also improves upon the traditional structure. Canadians contribute to a national defined-benefit plan that is run by a quasi-governmental agency.<sup>386</sup> The plan commits to provide retirees with a pension corresponding to a certain percentage of their preretirement earnings.<sup>387</sup> To meet this obligation, the government invests in a diversified portfolio,<sup>388</sup> and to mitigate underfunding risk, the plan has built in flexibility to call for increased contributions or announce decreased retirement payments.<sup>389</sup> The fund is also structured to be as insulated as possible from the political forces that could compromise its integrity.<sup>390</sup>

The Canadian paradigm seems to trump the employer-centric systems. The government has the power and longevity to better bear the risk involved with promising a defined benefit.<sup>391</sup> In addition, this structure places no arbitrary constraint on freedom of employment. Interestingly, the Canadian plan has a distinctly Rawlsian mission statement. Its goal is “intergenerational equity”—that each generation contributes “much the same share of earnings while working and receive[es] benefits that replace much the same share of earnings in retirement . . . .”<sup>392</sup>

Such a result certainly seems fair. Because this setup has the potential to provide both reasonable returns and reasonable certainty,

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<sup>383</sup> See *id.* at 3.

<sup>384</sup> See *id.*

<sup>385</sup> See *id.* at 3–4.

<sup>386</sup> See ASHBY H.B. MONK & STEVEN A. SASS, *CTR. FOR RET. RESEARCH, RISK POOLING AND THE MARKET CRASH: LESSONS FROM CANADA’S PENSION PLAN 1–2* (2009).

<sup>387</sup> See *id.* at 1–2.

<sup>388</sup> See CPP Investment Board, News Release: CPP Fund Up \$7.2 Billion to \$123.8 Billion (Nov. 12, 2009), [http://www.cppib.ca/News\\_Room/News\\_Releases/nr\\_11120901.html](http://www.cppib.ca/News_Room/News_Releases/nr_11120901.html).

<sup>389</sup> See MONK & SASS, *supra* note 386, at 3.

<sup>390</sup> See *id.* at 7.

<sup>391</sup> See *id.* at 4–5.

<sup>392</sup> *Id.* at 2.

it may very well maximize utility as well. Given all of this, it is worthy of consideration in the United States.<sup>393</sup> As with the government insurance alternative, the nationalized defined-benefit option would likely make the most sense as a mandatory scheme. The breadth of such an undertaking and its implications for future generations seem to militate in favor of broad societal participation.

Any of the exogenous risk-management instruments discussed above likely represent an improvement over the system we have today. Under our current approach, we leave it to investors either to accept the market return or to put together a diversified portfolio that better fits their risk preferences. The problem is that many investors likely lack the skills to do so, and even those with investing savvy have only limited choices. The first reform I proposed, where we make it easier for investors to more broadly diversify their portfolios, would likely help investors better manage risk while keeping an eye on returns. So long as individuals bear risk alone, however, they remain at the mercy of market swings. That is why the latter two proposals are worth considering. It might be fairer, and investors might be better off, if we allow individuals to share risk. Risk sharing through insurance or through defined-benefit-type plans may be the most effective and efficient way to shield investors from volatility without undermining returns.

#### CONCLUSION

This Article presents a new way of looking at securities regulation—that is, as an integrated component of a larger societal risk-management structure. This perspective offers to fill a fundamental lacuna in the theory of securities regulation and provides

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<sup>393</sup> The nationalized retirement system described above is similar to Social Security in that both aim to provide individuals with a defined benefit in retirement in exchange for their contributions. One difference, however, is that Social Security provides a first tier of retirement savings. The defined-benefit scheme I describe, on the other hand, would be on top of Social Security, and is aimed at providing better risk management for the second tier of savings, which currently depends on individual accumulation. Conceivably, an expansion of Social Security would accomplish the same purpose. Social Security, however, is a so-called pay-as-you-go (PAYGO) system, meaning that the contribution of today's generation pays for the retirement benefits of the currently retired, with the expectation that the next generation will return the favor. Whether PAYGO is a better mechanism for providing defined benefits than the self-funded mechanism I describe is a subject of much debate. Because we are already dependent on a PAYGO system for first-tier savings, however, it makes sense from a diversification perspective to have a funded second tier. See Jayasri Dutta et al., *A Portfolio Approach to the Optimal Funding of Pensions*, 69 *ECON. LETTERS* 201 *passim* (2000).

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a foundation for contemporary policy analysis. Since its inception, scholars have debated about how mandated disclosure protects investors, and no truly compelling explanation has been set forth. Viewing the regulatory scheme as a shield from market risk, however, potentially closes this gap. This justification fits in with broader theories of political philosophy and comports with the theoretical and empirical work that inform our modern understanding of the role of disclosure in the stock market.

This perspective also carries policy implications. I argue that under our current system, investors remain ill equipped to handle the stock market's significant volatility and that, therefore, we should consider potential reforms. One possibility is to reform securities regulation. I contend, however, that such efforts would likely bear little fruit. Reforms that are currently on people's minds, like improved disclosure, investor education, and the like, initially look as though they would make a positive contribution. Because the sources of market volatility are so deep-seated and varied, however, these alternatives likely offer paltry rewards. I contend that we could bring about much more substantive change if we focus on risk-management measures that are exogenous to the market. We could endeavor to make portfolio diversification both easier and more effective. A more aggressive alternative, however, would be to abandon the current template, in which each individual manages risk alone, in favor of one in which risk is shared more broadly across society and generations.

These conclusions have direct implications for the debate about the future of financial regulation that is ongoing in the wake of our recent financial collapse. It suggests that we should not devote our efforts to tinkering at the margins of securities regulation, for this will do little to help investors. Rather, we should focus on the often ignored topic of risk management. While there is building support for automatic IRAs and expanded savings tax credits, policy makers have yet to focus on how to better enable individuals to cope with market risk.<sup>394</sup> Reforms currently under discussion are well-meaning, but because they focus merely on expanding savings, they further ingrain cultural and societal acceptance of our current suboptimal risk-management framework. The dramatic losses that individuals suffered as a result of the stock market freefall in 2008 illustrate the fragility of market

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<sup>394</sup> See Automatic IRA Act of 2010, H.R. 6099, 111th Cong. (2010) (describing legislation introduced in Congress); Ron Lieber, *Savings Accounts for All: Simple, but Not Easy*, N.Y. TIMES, Mar. 6, 2009, at B1 (describing President Obama's similar proposal).

holdings and suggest that we need to more broadly reevaluate the ideal structure of the relationship between the inherently volatile stock market and ordinary investors.

