WILL SWING PRICING SAVE SEDENTARY SHAREHOLDERS?

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This Article explains and explores new Securities Exchange Commission rules authorizing optional swing pricing for mutual funds. Swing pricing is an anti-dilution tool intended to protect sedentary investors who enter, and stay, in a fund. Workers setting aside money for retirement are often sedentary investors. Mutual funds are the mainstay vehicle for retirement investors, yet as sedentary shareholders they can experience significant asset dilution over their savings lifetime. Swing pricing—a mutual fund pricing mechanism that allocates transaction costs to the triggering shareholders—could save sedentary shareholders, collectively, billions of dollars.

The mutual fund industry's operational complexities and competing regulatory obligations may prevent funds from immediately utilizing swing pricing once it becomes effective in November 2018. The biggest obstacle is a time conflict reminiscent of the chicken and egg problem. Under current industry operations, mutual funds will not receive the trading information necessary to adjust the daily price of the fund (swing the price) until after funds have to finalize the price adjustment. Blockchain technology—offering secure, automated, and verified ledgers—may present an operational path forward for the industry.

The SEC's swing pricing approach leaves unanswered how funds will overcome these, and other, hurdles. This Article explores the components of swing pricing, as well as the objections to and perceived benefits of swing pricing, and concludes with two unique perspectives on the SEC rules: one academic

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and one professional. This Article maintains that mutual funds should take on the challenge of implementing swing pricing, and that market incentives will pave the way.

I. INTRODUCTION

Most of us envision our sunset years involving less work, more leisure, and maybe even a warmer climate. Retirement requires saving today for tomorrow's time off. The way that most working Americans save for retirement is through mutual funds available through an employer-sponsored plan or an individual retirement account. Retirement savings fueled mutual fund growth with combined assets of $18.9 trillion at year-end 2016.[1] Retirement investors—meaning *any worker of any age* setting aside some of their paycheck for retirement savings—are encouraged to set an automated contribution at the time of employment and pick their funds (i.e., allocate their assets). Once set, many retirement investors do not change their initial asset allocation but instead stay in the same fund, earning them the label "sedentary."[2] Consider that

[1] INV. CO. INST., 2017 INVESTMENT COMPANY FACT BOOK 10–11 (2017), https://www.icifactbook.org/deployedfiles/FactBook/Site%20Properties/pdf/2017/2017_factbook.pdf [perma.cc/8NLB-NJHT] (noting that households make up the largest group of mutual fund investors and that registered investment companies managed twenty-two percent of household financial assets, a significantly increased figure over the last several decades due to the change in retirement saving structures).

[2] Retirement investors often unwittingly violate financial planning rules, but they do tend to adhere to one rule: they are long-term investors. Rebalancing asset allocations within an account, reviewing plan options for low-fee investments, and updating asset allocations to reflect shifting risk tolerance/profiles consistent with an investor's retirement age are just a few of the financial planning best practices violated by the 'set it and forget it' model. For a discussion of common investor mistakes, see FED. RESEARCH

just over 5% of retirement investors changed their investment choices in 2016, meaning that 95% did not.[3]

There may be a hidden cost to setting investments and forgetting about them. Long-term, sedentary shareholders who stay in a fund may be subsidizing the activity of other investors who are entering or exiting the fund. The subsidy paid by sedentary investors, if incurred, is relatively little—a fraction of transaction costs each day. The fractional costs compounded over thirty years and aggregated across the retirement system, however, pose significant costs in absolute terms: estimates range from $10–17 billion annually. The U.S. Securities and Exchange Commission's ("SEC") swing pricing rules target this slow leak of retirement savings, known as asset dilution.

In October 2016, the SEC adopted the Liquidity Rules.[4] As a part of the new rules—to be effective in November 2018—

DIV., LIBRARY OF CONG., BEHAVIORAL PATTERNS AND PITFALLS OF U.S. INVESTORS 7–14 (2010), https://www.sec.gov/investor/locinvestorbehaviorreport.pdf [perma.cc/U3LQ-RXFD] (discussing investor mistakes). *See also* Jill E. Fisch & Tess Wilkinson-Ryan, *Why Do Retail Investors Make Costly Mistakes? An Experiment on Mutual Fund Choice*, 162 U. PA. L. REV. 605, 620–26 (2014) (summarizing literature on investor mistakes).

[3] For evidence of investors' preference to set investment accounts and then forget them, consider 2016 data collected by the Investment Company Institute (the "ICI") from twenty-nine million employer-based defined contribution retirement accounts, which shows that only 5.6% of participations changed the asset allocation of their contributions and 9.4% rebalanced their existing allocations. SARAH HOLDEN & DANIEL SCHRASS, INV. CO. INST., DEFINED CONTRIBUTION PLAN PARTICIPANTS' ACTIVITIES, 2016, at 5 (2017), https://www.ici.org/pdf/ppr_16_rec_survey_q4.pdf [perma.cc/957U-H54L]. One exception to this observation is target date funds, where investors select the fund based on their target date of retirement. Because the fund rebalances automatically each year and the asset allocation changes as the worker/saver approaches retirement age, investors are encouraged to leave their investment in that fund for the duration of their working/saving life. *See, e,g.*, *Investor Bulletin: Target Date Retirement Funds*, SEC (May 1, 2010), https://www.sec.gov/investor/alerts/tdf.htm [perma.cc/4X3R-YTQP].

[4] The Securities and Exchange Commission (the "SEC") adopted the Liquidity Rules to combat liquidity costs, and other structural concerns related to the mutual fund industry. The Liquidity Rules also address open-end funds' liquidity risk management, derivatives, swing pricing, and propose to codify the fifteen percent illiquid securities guidelines. The rules

the SEC authorized optional partial swing pricing as a liquidity tool to allocate transactional and other costs to the shareholders generating the expenses when exiting or entering a fund.[5] Allocating expenses to the entering or departing fund shareholders through swing pricing prevents dilution of existing shareholders' investments. Swing pricing is facially a technical issue, but a scratch to the surface reveals it as a lens into key aspects of mutual fund investment—a practice 54.9 million U.S. households engage in to the tune of $16.3 trillion.[6]

This Article provides a technical, but accessible, review of swing pricing focusing on the theory, rules, benefits, challenges, and regulatory alternatives. Part II introduces readers to a key attribute of U.S. open-ended mutual funds—the daily Net Asset Value ("NAV")—and explains the relationship between NAV and new SEC regulatory priorities of fund liquid-

were originally released on September 22, 2015 and were finalized in November 2016 with an effective date of January 1, 2018. Open-End Fund Liquidity Risk Management Programs; Swing Pricing; Re-Opening of Comment Period for Investment Company Reporting Modernization Release, 80 Fed. Reg. 62274, 62283 (proposed Oct. 15, 2015) (to be codified at 17 C.F.R. pts. 210, 270, 274) [hereinafter Swing Pricing First Proposal]. The SEC issued final liquidity risk management rules in October 2016. Investment Company Liquidity Risk Management Programs, 81 Fed. Reg. 82142 (Nov. 18, 2016) (to be codified at 17 C.F.R. pts. 270, 274) [hereinafter Final Liquidity Risk Rules]. The SEC's Liquidity Management Rule provides a framework for a fund to evaluate and manage its liquidity profile. *Id.* at 82155. Funds will provide liquidity data to the SEC via Form N-PORT and N-CEN, including details about a fund's liquidity risk management practices. *Id.* at 82193–97, 82222–23. The SEC's stated goal with respect to the liquidity risk management rules is to ensure that funds can meet shareholder redemptions and avoid shareholder investment dilution. *Id.* at 82148–50, 82262. In order to encourage funds to proactively manage and reduce dilution, the SEC incorporated an additional anti-dilution tool in its release: swing pricing. *Id.* at 82262. The SEC established swing pricing guidelines in a separate release, which forms the basis of our discussion in this Article. *See* Investment Company Swing Pricing, 81 Fed. Reg. 82084 (Nov. 18, 2016) (to be codified at 17 C.F.R. pts. 210, 270, 274) [hereinafter Final Rules].

5 Final Rules, *supra* note 4, at 82084.

6 INV. CO. INST., *supra* note 1, at 130; *see also* Holden, *supra* note 3, at 2 (describing defined contribution plan asset trends from 2007–2016).

ity management and shareholders' asset dilution. Part III acquaints readers with swing pricing, connects the conversation with international initiatives, and provides a detailed examination of the new SEC swing pricing rules for U.S. mutual funds. Drawing from the public comments submitted to the SEC and industry sources, Part IV describes the anticipated benefits of the new rules and catalogues the operational and conceptual challenges impeding swing pricing implementation by mutual funds. Finally, Part V discusses existing tools to manage mutual fund liquidity and prevent shareholders' asset dilution, and compares these options to swing pricing.

Part VI first identifies the views on swing pricing shared by both authors of this Article, then proceeds to explicate each author's individual perspective, including the benefits and obstacles that lie ahead. Here these two voices, previously left to the footnotes, take center stage as this Article discusses the merit and challenges of swing pricing from two fundamentally different perspectives. The first contributes an industry, top-down perspective that is practical and focused on implementation. The second provides a bottom-up perspective that emphasizes the role of mutual funds in our retirement system and praises the potential for a more level-playing field for exit-constrained retirement investors who should not subsidize more sophisticated investors' exits. Both authors agree on the relative merits of swing pricing and conclude that the SEC's reliance on market solutions to resolve the considerable operational challenges is a shrewd but ultimately appropriate regulatory choice.

II. MUTUAL FUNDS, LIQUIDITY, AND DILUTION: A PRIMER

"Cash is king," as the old adage goes, applies to mutual fund investments. Liquidity refers to how quickly or easily a fund can convert an asset into cash.[7] Liquidity is central to

[7] For a discussion of liquidity generally and as applied to mutual funds, see Conrad Ciccotello, *The Nature of Mutual Funds*, *in* MUTUAL FUNDS: PORTFOLIO STRUCTURES, ANALYSIS, MANAGEMENT, AND STEWARDSHIP 1, 5–7 (John A. Haslem, ed., 2010).

mutual funds because fund shareholders have a right to redeem their fund shares in exchange for cash, calculated on the fund's current NAV.[8] Funds calculate their NAV daily. It is the price at which new investors buy into a fund and the price paid to redeeming shareholders when they exit the fund.

Daily cash-out or cash-in prices (i.e., the NAV) and quick conversion of mutual fund stock to cash are defining features of open-ended mutual funds.[9] Mutual funds are obligated to respond to a shareholder's redemption and send cash proceeds to the shareholder within seven days of receiving an order to redeem.[10] Every shareholder has a right to quickly cash out of a fund, making liquidity management a fundamental part of the portfolio manager's job.[11] NAV is a key component to understanding fund share dilution and exposing the connection between liquidity and dilution—the SEC's regulatory aim of swing pricing rules.

Here this Article takes a brief detour to familiarize readers with the regulatory landscape unique to mutual funds. Expert readers may wish to skip to Part III. Mutual funds sit at the legislative and administrative intersection of SEC authority

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8 Pricing of Redeemable Securities for Distribution, Redemption and Repurchase, 17 C.F.R § 270.22c-1 (2017).

9 Inv. Co. Inst., Comment Letter on Open-End Fund Liquidity Management Programs A-1 (Jan. 13, 2016) [hereinafter Inv. Co. Inst. Comment Letter], https://www.sec.gov/comments/s7-16-15/s71615-54.pdf [perma.cc/E7RZ-5LP5]. Closed-end funds are traded in a manner similar to stocks—in an exchange facilitated competitive bidding process that determines the price as opposed to trading at NAV. Thus, a closed-end fund can trade at a premium or a discount to its NAV. For a discussion of closed-end mutual funds, see *Closed-End Fund Information*, SEC, https://www.sec.gov/fast-answers/answersmfclosehtm.html [perma.cc/5C4N-H47T].

10 Swing Pricing First Proposal, *supra* note 4, at 62277 (describing quick cash conversion as a "hallmark" of open-end funds). Citations to the Proposed Rules are provided in this Article when the proposal contains a rich discussion of the concepts motivating the new rules, mutual fund practices, or provisions eliminated or differing from the final rules.

11 Inv. Co. Inst. Comment Letter, *supra* note 9; *see also* Ciccotello, *supra* note 7, at 6 ("[A]n open-end fund manager must not only select securities but also manages the portfolio with an eye toward Daily flow into and out of the fund.").

under the Securities Act of 1933, the Exchange Act of 1934, the Investment Advisors Act of 1940, and the Investment Company Act of 1940.[12] Maintaining its mandate to protect investors, the SEC released sweeping liquidity management rules and announced "evaluation of . . . investment advisers' liquidity risk management practices" as an examination priority.[13] Changes to the mutual fund industry drove this liquidity regulation. According to research by the SEC's Division of Economic and Risk Analysis (the "DERA") from 2000–2014, mutual funds' investments in less liquid asset classes grew significantly, with foreign bond and equity funds growing from 11% to 17.4% of total US mutual fund industry assets,

[12] Congress created the SEC to regulate the U.S. securities market with the passage of the Securities Act of 1933 and the Securities Exchange Act of 1934, and designed it "to restore investor confidence" in the markets. Securities Act of 1933, Pub. L. No. 73-22, 48 Stat. 74 (codified as amended at 15 U.S.C. § 77a (2017)); Securities Exchange Act of 1934, Pub. L. No. 73-291, 48 Stat. 881 (codified as amended at 15 U.S.C. § 78a (2017)). *See also What We Do*, SEC, https://www.sec.gov/about/whatwedo.shtml [perma.cc/Q3DK-W253]. In 1940, Congress again acted to pass the Investment Company Act and Investment Advisers Act in order to regulate companies, including investment companies (commonly called mutual funds) and the investment advisers that manage mutual funds. *See* Investment Company Act of 1940, Pub. L. No. 76-768, 54 Stat. 789 (codified as amended at 15 U.S.C. § 80a-1 to 80a-64 (2017)); Investment Advisers Act of 1940, Pub. L. No. 76-768, 54 Stat. 847 (codified as amended at 15 U.S.C. § 80b-1 to 80b-21 (2017)). The Sarbanes-Oxley Act of 2002 and the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 are two prime instances of legislation that stemmed from events significantly affecting the ever-changing markets, and from which the SEC drew new regulations and oversight functions. Sarbanes-Oxley Act of 2002, 15 U.S.C. § 7201 (2002); Dodd-Frank Wall Street Reform and Consumer Protection Act, 12 U.S.C. § 5301 (2010).

[13] Press Release, SEC, SEC Announces 2016 Examination Priorities (Jan. 11, 2016), https://www.sec.gov/news/pressrelease/2016-4.html [perma.cc/6QCJ-7UHF].

as an example.[14] In particular, alternative asset class[15] mutual fund strategies grew from total assets of $365 million in 2005 to $334 billion in 2014—a faster rate than any other asset class.[16] Alternative strategies typically experience more volatility when compared to mutual funds holding traditional asset classes,[17] which equates to less liquidity. DERA's empirical results show that when an average equity fund experiences an outflow, liquidity decreases.[18] Significantly, a fund with fewer assets and less equities may experience a greater liquidity reduction.[19]

The continued growth in mutual fund assets as a whole demonstrates investor reliance on funds to meet financial savings needs.[20] Mutual funds' importance to savings for individual and systemic financial stability, coupled with increased liquidity vulnerabilities in new fund types, prompted the SEC to propose a suite of liquidity risk management rules, including a proposal on swing pricing.[21]

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14 Memorandum from Paul Hanoua et al., Div. of Econ. & Risk Analysis on Liquidity and Flows of U.S. Mutual Funds to Mark Flannery, Dir. & Chief Economist, Div. of Econ. & Risk Analysis 1 (Sept. 2015) [hereinafter SEC Liquidity Whitepaper], https://www.sec.gov/dera/staff-papers/white-papers/liquidity-white-paper-09-2015.pdf [perma.cc/YJ4W-LAJ8].

15 The SEC eschews a singular definition of alternative mutual funds classifying the group by a primary investment strategy that falls into one of three categories: (1) non-traditional asset classes such as currencies or managed futures, (2) non-traditional strategies such as long-short equities, or (3) less liquid investments such as private debt. Final Rules, *supra* note 4, at 82152 n.95.

16 SEC Liquidity Whitepaper, *supra* note 14, at 1.

17 *Id.* at 2. Traditional asset classes include publicly traded stocks and bonds such as U.S. Treasury Notes.

18 *Id.*

19 *Id.*

20 Final Rules, *supra* note 4, at 82119.

21 *See* Swing Pricing First Proposal, *supra* note 4, at 62278–81 (establishing a basis for SEC regulation of mutual funds). There is no comparable discussion in the Final Rules, *supra* note 4. Following the financial crisis in 2008 when money market funds broke the buck, the SEC issued new money market fund regulations in 2010 and 2014 requiring a floating NAV and authorizing new liquidity tools—such as liquidity fees and redemption gates—to money market fund boards in order to curb outflows in a run.

Liquidity management is not a "one size fits all approach," but a complex task requiring individually tailored tools .[22] It is influenced by a broad range of factors, including (1) asset type, the asset's available market (i.e., buyers and sellers), and settlement period; (2) available portfolio cash and the ability to borrow, such as via a credit facility; and (3) market conditions at the time of the transaction. The following discussion provides an overview of liquidity, NAV, fund flows, and dilution, their connection to each other, and the market and regulatory choices that they invoke.

A. Liquidity, Net Asset Value, and Fund Flows

Trading volume—i.e., the amount of a particular security that is traded over a given period of time—is an essential element in assessing the liquidity and price of a security.[23] The

Money Market Funds, 17 C.F.R. § 270.2a-7(c) (2017); *see also* Press Release, SEC, SEC Adopts Money Market Fund Reform Rules (July 23, 2014), https://www.sec.gov/news/press-release/2014-143 [perma.cc/L46N-R8PZ] (describing the money market rules as addressing "risks of investor runs" while "preserving the benefits of the funds").

[22] Inv. Co. Inst. Comment Letter, *supra* note 9, at A-3.

[23] *See* Daniel Fricke & Austin Gerig*, Liquidity Risk, Speculative Trade, and the Optimal Latency of Financial Markets* 3 (SEC, Div. of Econ. & Risk Analysis, Working Paper) (Dec. 1, 2014) https://www.sec.gov/files/dera-wp-liquidity-risk.pdf [perma.cc/JBU7-D5H7] (noting three main factors affecting liquidity including price volatility, "the number of public investors who trade the asset," and correlated asset value). One author of this Article, Holly van den Toorn, has professional experience in the mutual fund industry and conducted interviews with other mutual fund professionals in her research for this Article. The responses received provide a unique perspective on swing pricing and insight into the mutual fund industry. While these professionals agreed to have their responses used for research, they asked to remain anonymous. As such, this Article cites to these interviews as follows: FaceTime Interview with Anonymous (Sept. 3, 2016) (notes on file with author) [hereinafter FaceTime Interview with Anonymous]. Holly van den Toorn also shares her professional experience, observations, and opinions in the footnotes.

higher the trading volume, the more liquid the security is perceived to be.[24] If a limited market exists for a security, pricing of that security will be highly sensitive to the number of bids (requests to buy) and asks (requests to sell) available for the security.[25] The more bids and asks that exist for a particular security, the more liquid that security is perceived to be.[26]

For example, IBM is a large capitalization company of $141.6 billion and heavily traded stock in January 2018.[27] IBM stock traded, on average, 4.3 million shares a day.[28] Large capitalization and frequent trading indicate a highly liquid stock. A portfolio manager wanting to buy or sell IBM stock could do so easily with "plenty of room for trading."[29] A portfolio manager interested in trading in IBM would look at the accumulated trades for that date: If the trading volume is significantly lower than average, it may signal reduced liquidity and thereby influence the decision to sell (less risky in a tight market) or buy (more risky in a tight market).[30]

Conversely, WD-40 is a small capitalization stock, with a market capitalization of only $1.78 billion[31] and an average daily trading volume of 55,538 shares in January 2018.[32] Given its relatively low trading volume, a fund holding WD-

[24] "Liquidity, therefore, is affected by market participation, and we should expect liquidity to increase with market size." Fricke & Gerig, *supra* note 23, at 1.

[25] FaceTime Interview with Anonymous, *supra* note 23; *see also* ROBERT C. POZEN, THE MUTUAL FUND BUSINESS 215–18 (1998).

[26] FaceTime Interview with Anonymous, *supra* note 23.

[27] *See International Business Machines Corporation Common Stock & Summary Data*, NASDAQ, http://www.nasdaq.com/symbol/ibm (last visited Jan. 26, 2018).

[28] *Id*. (generating a ninety-day average daily volume as of close of business on Jan. 26, 2018 of 5,258,836 shares).

[29] FaceTime Interview with Anonymous, *supra* note 23.

[30] *Id*. *See also* POZEN, *supra* note 25, at 219 (noting the importance of supply and demand in investment research and surveying data such as "money flows and volume trends").

[31] NASDAQ, *WD-40 Company Common Stock Quote and Summary Data,* http://www.nasdaq.com/symbol/wdfc (last visited Jan. 26, 2018).

[32] *Id*. The ninety-day average daily volume is not provided on the NASDAQ website; therefore the fifty-day average daily volume is provided in this instance.

40 stock would experience a significant hit to share price if a portfolio manager tried to sell its entire holding all at once.[33] As a consequence, a fund would choose to "work the order" to sell its shares of a low trade volume stock over the course of several days to lessen the depression of the stock's price.[34]

The asset type—e.g., stocks or bonds—may influence trading volume, the availability of counterparties, and liquidity. Stock, for example, represents a share of ownership in a company (i.e., equity); the stockholder is entitled to earnings, or dividends.[35] Common and preferred stock are the two big buckets of equity, with common stock dominating the exchanges and serving as the focus of liquidity regulations.[36] The stock market is comprised of central exchange where each day investors buy and sell over $5 trillion in assets worldwide.[37] Supply and demand for a given stock, influenced in part by company and market-wide news, drive an ever-fluctuating, but readily available, current stock price.[38]

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33 FaceTime Interview with Anonymous, *supra* note 23; *see also* POZEN, *supra* note 25, at 217 ("[P]ortfolio managers need to take into account other factors relating to the management of a mutual fund. These include the cash flows resulting from shareholder purchases and redemptions, as well as the liquidity of individual securities and market sectors.").

34 FaceTime Interview with Anonymous, *supra* note 23.

35 *See* GAIL ROLLAND, MARKET PLAYERS: A GUIDE TO THE INSTITUTIONS IN TODAY'S FINANCIAL MARKETS xxi–xxii (2011) (describing stock attributes); *see also* POZEN, *supra* note 25, at 211–12 (discussing dividends).

36 ROLLAND, *supra* note 35, at 34–35 (discussing the initial public offering of shares and the choice to offer common or preferred stock); *see also* POZEN, *supra* note 25, at 2225–28 (discussing common and preferred stock).

37 *See* David Scutt, *Here's How Much Currency Is Traded Every Day*, BUSINESS INSIDER (Sept. 2, 2016), http://www.businessinsider.com/heres-how-much-currency-is-traded-every-day-2016-9 [perma.cc/5XU9-859T] (discussing the size of the equities market). The World Bank estimates of global trading value at $77.5 trillion in 2016. *Stocks Traded, Total Value*, WORLD BANK, http://data.worldbank.org/indicator/CM.MKT.TRAD.CD (last visited Jan. 26, 2018). For a list of major exchanges worldwide, and their visualization by size, see *All of the World's Stock Exchanges by Size*, MONEY PROJECT (Feb. 16, 2016), http://money.visualcapitalist.com/all-of-the-worlds-stock-exchanges-by-size/ [https://perma. cc/XLE4-ZFUJ].

38 *See generally*, POZEN, *supra* note 25, at 215–19 (discussing portfolio managers and active management strategies that incorporate corporate news events).

Bonds, on the other hand, are contractual agreements to pay money (i.e., a debt) with a range of features including varying qualities, variable or fixed coupons (or interest rates), maturities, and yields.[39] Interest rates and credit ratings affect bond pricing.[40] Bonds primarily trade over the counter ("OTC"),[41] through intermediaries, such as broker-dealers, in order to link counterparties.[42] Bonds trade at a variable pace, with a particular bond possibly not trading for weeks or even months.[43] Because of this, current prices may not be readily available, making it difficult to trade bonds on the stock market.[44] OTC bonds may be traded over the telephone so that traders can capture the most current information about the availability of buyers and the bond features themselves.

Assets outside the mainstream classes of stocks and bonds introduce new complexity and obscurity that impact a security's perceived liquidity.[45] For example, a mortgage-backed security ("MBS") experiences a limited trading market, as it is a complex, structured investment vehicle with a limited consortium of buyers.[46] Pools of individual mortgages are collateral for an MBS, which are subject to credit and default

[39] *Id.* at 167–70 (describing the bond market generally and key features).

[40] ROLLAND, *supra* note 35, at xx ("Credit risk is the risk that the borrower will not make the expected payments, such as repaying the debt at maturing or the interest payments promised. Interest rate risk comes about from these interest payments.").

[41] Melissa Woodley, Liquidity in the Over-The-Counter Market for Corporate Bonds 1 (Jan. 17, 2008) (unpublished manuscript), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1084560 [perma.cc/ WKE7-33TC].

[42] Nathan Foley-Fisher et al., Over-the-Counter Market Liquidity and Securities Lending 7 (June 25, 2017) (unpublished manuscript), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2869959 [perma.cc/VHX5-T9LC].

[43] FaceTime Interview with Anonymous, *supra* note 23.

[44] *Id.*

[45] POZEN, *supra* note 25, at 217 (noting that the liquidity of securities is "especially important in thinly traded markets").

[46] *See* ROLLAND, *supra* note 35, at 183–84.

risks.[47] The interest and principal payments of these mortgages support the MBS, and any mortgage default affects the pooled security.[48] As default rates rise in the pooled mortgages, the MBS is also more likely to default.[49] Increased default risk negatively affects an investor's ability to sell the MBS, and, thus negatively affects the value of the security.[50] Limited buyers and depressed pricing may produce a wider bid/ask spread on an MBS when a portfolio manager decides or is forced to sell an MBS position. [51] A wider bid/ask spread indicates that the security is less liquid, and a greater disparity between the expected market price and price actually received indicates a riskier investment.[52] The 2008 financial crisis exemplifies a time when homeowners defaulted on mortgage payments, which resulted in a downward spiral for MBS value where few buyers existed and those who did were only willing to pay cents on the dollar.

The aggregate of individual security prices in the fund provides the basis for a fund to calculate its daily NAV.[53] The prices of portfolio securities rise or fall daily in concert with market influences and securities transactions conducted in the portfolio.[54]

Consider $10 million of an MBS priced at $100.00 in a fund's portfolio. The security price ($100.00) represents what

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47 *Id.*

48 *Id.*

49 *Id.*

50 *See* POZEN, *supra* note 25, at 178–80 (discussing the risks associated with investing in bonds and noting that "[l]iquidity or marketability risk depends on the ease with which an issue can be sold at or near its value").

51 Swing Pricing First Proposal, *supra* note 4, at 62299 (defining the bid/ask spread as the "difference between bid and offer prices for a particular asset" and mentioning that the spread has "historically been viewed as a useful measure for assessing the liquidity of assets that trade in the OTC markets"); *see also* POZEN, *supra* note 25, at 180 (noting that the primary measure of liquidity is the size of the bid/ask spread: the wider the spread, the greater the risk).

52 POZEN, *supra* note 25, at 180.

53 *See* Ciccotello, *supra* note 7, at 5–6 (discussing NAV calculation components and challenges).

54 *Id.*

a portfolio manager expects to receive when she sells the security. If a substantial fund redemption occurs, the fund manager must sell assets, including the MBS, to meet the redemption.[55] Assume that on the day they are forced to sell, however, the market experiences low trading volume. The broker-dealer to whom they attempt to sell the MBS knows that there is limited demand for it, and thus offers only $99.50. Though the fifty-cent hit—$50,000 in total—may seem insignificant in relation to near-billion dollar funds, it is a big loss on a single trade. With forced selling in an illiquid market, these losses can represent a large portion of a fund's portfolio and compound over time.[56] When funds sell steeply discounted assets, such as this MBS, in a distressed market with few buyers, the sale results in illiquidity and substantial dilution to remaining shareholder investments by means of a reduced NAV.[57]

B. Defining Dilution

Shareholder dilution is the reduction in a shareholder's investment holding—reflected as the NAV times the number of fund shares held. When shareholder capital activity—namely, inflows to, or outflows from, the fund—occur a NAV price that does not mitigate the transaction costs of buying or selling the assets in the fund, dilution occurs.[58] In other words, dilution occurs when a fund's NAV declines for existing (sedentary)

[55] *See* POZEN, *supra* note 25, at 217 (describing redemption demands).

[56] *Id. See also* FaceTime Interview with Anonymous, *supra* note 23 (interviewee commenting that losses compound over time to become significant and terming a loss on ten percent of a fund as "a big knock"); SEC LIQUIDITY WHITEPAPER, *supra* note 14, at 3.

[57] *See The Origins of the Financial Crisis,* ECONOMIST (Sept. 7, 2013), https://www.economist.com/news/schoolsbrief/21584534-effects-financial-crisis-are-still-being-felt-five-years-article [perma.cc/YG5E-943E? type=image] (describing the factors that contributed to the financial crisis, the systemic impact of devaluations of CDOs, and the subsequent "fire-sale prices" of such assets); *see also* ROLLAND, *supra* note 35, at 183–84.

[58] ASS'N OF THE LUX. FUND INDUS., ALFI SWING PRICING SURVEY 4 (Dec. 2015) [hereinafter ALFI 2015 SURVEY], http://www.alfi.lu/sites/alfi.lu/files/ALFI-Swing-Pricing-Survey-2015-FINAL.pdf [perma.cc/RT9M-XH54].

shareholders when the fund buys or sells assets to accommodate shareholder purchases or redemptions.[59] The triggering shareholder(s) does not cover the transaction cost; rather, the existing shareholders do so with a reduced NAV.

For example, assume that a fund has $100 million in total assets and that its NAV is $10.00. A typical redemption for a large institutional shareholder is $500,000, but a shareholder may become unhappy with the fund's performance and decide to withdraw its entire investment in the fund—say, $5 million. In order to process the redemption and send cash proceeds of $5 million to the exiting shareholder, the fund manager must sell five percent of the fund's portfolio assets. At the time of the redemption order, the market is flat—i.e., assets were trading at stable and predictable prices—so the fund would have carried the $10.00 NAV to the next day. Once the transaction is underway, the rapid increase in sales depresses the market price, which, combined with transaction costs, decreases the fund's NAV to $9.90 per share.[60]

Funds are required to process the shareholder redemption at a price based on the next calculated NAV—i.e., on the day that the redemption order was placed.[61] And the redeeming shareholder receives the $10.00 NAV for the following reasons. Funds typically sell securities on the same day, or the days immediately following a redemption order. [62] Funds book

[59] To illustrate, consider a shareholder who redeems 1000 shares on a day when the fund's NAV is $1000 per share, but the fund incurs significant transaction costs in meeting the shareholder redemption—costs that are not charged to the exiting fund shareholders, but which is a cost borne by the shareholders that stay in the fund. After the redemption closes, the fund's NAV may decline to $990 per share resulting in a dilution in the value of the sedentary shareholders' per share interest in the fund from $1000 to $990. *See* POZEN, *supra* note 25, at 263–65 (discussing the effect of large trade size on sale process and price); *see also supra* Section II.A.

[60] *See* POZEN, *supra* note 25, at 263–65 (discussing the sale process involved in executing large trades and their effect on price); *see also supra* Section II.A.

[61] Pricing of Redeemable Securities for Distribution, 17 C.F.R § 270.22c-1 (2017).

[62] *See* Swing Pricing First Proposal, *supra* note 4, at 62326 (discussing the redemption process).

the security sale price the next business day after the transaction.[63] The triggering shareholder escapes the negative financial impact caused by its redemption order because the fund has not yet recorded the financial implications of the securities transactions.[64] The remaining shareholders' portfolio value drops because of the decreased NAV—i.e., the dilution of their investment. The sedentary shareholders absorb transaction-cost effects on the fund's NAV and long-term performance.[65] Fund performance declines by one percent in the above scenario, but only for the shareholders who remain in the fund at the discount NAV of $9.90, and not for the shareholders who exited at the $10.00 NAV. The remaining shareholders' return on investment is thereby reduced by one percent in this limited scenario. Over time, these small negative price impacts equal a significant cumulative drag on performance over the lifespan of a sedentary shareholders' investment.

One of the SEC's primary objectives with respect to mutual funds is to minimize the impact of redemptions on the value of fund shares and prevent dilution.[66] Portfolio managers also have a vested interest in minimizing dilution as it adversely affects the performance of the fund,[67] and thus usually adversely affects the portfolio manager's compensation.[68] Port-

63 *Id.* This means that a fund records the transactions that affected the NAV on the day after the trades were executed (or trading day, noted as T+1). For example, a fund shareholder redeems shares on Monday, causing the fund manager to sell fund assets to meet the shareholder redemption. The sales may not be recorded, and therefore factored into NAV until Tuesday (T+1).

64 *See supra* Section II.A.

65 Anne M. Tucker, *Locked In: The Competitive Disadvantage of Citizen Shareholders*, 125 YALE L. REV. FORUM 163, 179 (2015).

66 Inv. Co. Inst. Comment Letter, *supra* note 9, at 9.

67 *Id.* at 10.

68 A portfolio manager's bonus compensation is typically tied to the performance of the fund she manages. Disclosures relating to a portfolio manager's compensation can be found in a fund's Statement of Additional Information attached to the annual prospectus filing (Form NA-1). *See e.g.*, Virtus Asset Trust, Supplement to Statement of Additional Information,

folio managers also, and importantly, owe shareholders a fiduciary duty.[69] A fund with a stable shareholder base and relatively low flows and transaction costs is likely to experience little dilution.[70] Nonetheless, even a fund that experiences minimal dilution or shareholder activity can suffer a performance drag over time from paying transaction costs related to shareholder purchases and redemptions.

Various jurisdictions, including the United States, have developed solutions for mitigating dilution. For example, since 2002 the United Kingdom's Financial Services Authority (the "FSA") has permitted funds to charge dilution levies.[71] A fund may charge an entering or exiting shareholder a tax—i.e., a dilution levy—that is paid to the fund rather than to the fund manager.[72] Part V discusses other methods such as redemption fees, dual pricing, and redemptions in-kind to allocate transaction costs to triggering shareholders and addressing liquidity needs. Many international jurisdictions already use swing pricing to combat the dilutive effects of unallocated transaction costs triggered by active shareholders.

(July 17, 2017), https://www.virtus.com/assets/files/1bo/8622b_assettrust_sai.pdf [perma.cc/G4AK-Z8NG] ("Each portfolio manager's bonus may be structured differently but generally incorporates an evaluation of the Fund's investment performance as well as other subjective factors.").

[69] Sec. & Exch. Comm'n v. Capital Gains Research Bureau, Inc., 375 U.S. 180, 191 (1963) ("The Investment Advisers Act of 1940 thus reflects a congressional recognition 'of the delicate fiduciary nature of an investment advisory relationship,' as well as a congressional intent to eliminate, or at least to expose, all conflicts of interest . . . .").

[70] *Id.* at 64.

[71] *Id.* at E-7; s*ee also* COLUMBIA THREADNEEDLE INVS., *Fund Charges and Costs Explained*, http://www.columbiathreadneedle.com/fees/fund-charges-and-costs-explained/ [perma.cc/GW92-HH25] (providing an example of dilution adjustment transaction costs).

[72] *See Dilution Levy*, SOMERSET CAPITAL MGMT., http://somersetcm.com/investment-approach/dilution-levy/ [perma.cc/E23A-XXRY] (describing a dilution levy event in June 2014).

III. SWING PRICING

A. Swing Pricing Overview

Swing pricing is a process by which a mutual fund adjusts its daily NAV in an attempt to impose transaction costs on the shareholders initiating the expense-generating activity.[73] A fund incurs transaction costs when a shareholder redeems shares, for example, and, as a result, the fund must sell portfolio securities to raise cash to meet the redemption order. Similarly, a large shareholder purchase into the fund will prompt the fund manager to purchase securities aligned with its investment strategy, again incurring certain transaction costs. Portfolio managers are typically more concerned with large redemptions than purchases, because purchases present less urgency to take action; a fund can maintain a cash position and wait for an opportune time to purchase securities.

Expenses include transaction fees and charges—e.g., commissions, custody fees, transfer taxes, or repatriation costs[74]—as well as costs such as market impact and spread costs arising from purchases or redemptions.[75] Attributing expenses to the triggering, and mobilized, shareholder protects the existing, and sedentary, shareholders from incurring the expense and thereby diluting their shares.[76] Simply stated, a fund's NAV could be adjusted up in the event of a large purchase, and adjusted down in the event of a large redemption.[77]

A mutual fund can shield its investors from market impact by utilizing swing pricing. A mutual fund confronts market impact when it must sell securities at a lower price than it

73 *See* Swing Pricing First Proposal, *supra* note 4, at 62276 (defining swing pricing).

74 Swing Pricing First Proposal, *supra* note 4, at 62337; *see also* Final Rules, *supra* note 4, at 82105 (discussing transaction costs).

75 Swing Pricing First Proposal, *supra* note 4, at 62337; *see also* Final Rules, *supra* note 4, at 82105 (discussing redemptions).

76 Swing Pricing First Proposal, *supra* note 4, at 62329; *see also* Final Rules, *supra* note 4, at 82094 (discussing dilution).

77 Swing Pricing First Proposal, *supra* note 4, at 62329; *see also* Final Rules, *supra* note 4, at 82094 (discussing price adjustments).

would have if given more time to sell.[78] At times, a fund may be compelled to sell a less liquid security, or a smaller market security where a large sale would depress the price, in order to meet a redemption.[79]

Shareholder inequity may motivate swing pricing implementation. When costs diminish a fund's NAV, shareholders who remain in the fund hold a portfolio with fewer reflected assets. Any shareholder who redeems the following day (or later) will do so at a lower redemption price,[80] harming existing fund shareholders. Conversely, the diminished NAV benefits an entering fund shareholder who is able to purchase more shares at an artificially lower price.[81] Swing pricing, if applied in this situation, would cause a downward adjustment to the NAV, externalizing the transaction costs (from the perspective of the fund and remaining shareholders) and allocating it to the redeeming (exiting) shareholder. Swing pricing smooths NAV fluctuation and price impacts after large shareholder transactions, thereby supporting more consistent fund performance and diminishing the negative impact to, and unequal treatment of, remaining shareholders.[82]

B. International Perspectives on Swing Pricing

While swing pricing rules are new to U.S. markets, they reflect established mutual fund practice trends in Europe, with asset managers based in in the United Kingdom (the "UK"), Switzerland, and France applying swing pricing.[83]

78 *See* discussion *supra* Section II.A.

79 *See* discussion *supra* Section III.A.

80 *See* discussion *supra* Section II.B.

81 Such a significant NAV deterioration opens opportunities for arbitrage, particularly for large institutional shareholders who may have multiple accounts. Utilizing multiple accounts to conduct arbitrage—i.e., the selling out of one account and purchasing in another at an opportune time when the NAV is reduced significantly—permits the shareholder to circumvent a fund's short-term trading and market-timing monitoring process.

82 Final Rules, *supra* note 4, at 82130.

83 CHRISTINE CUSATIS, SWING PRICING 101, at 3 (2016), http://www.nicsa.org/downloads/White%20Papers/SwingPricing101_WhitePaper_March2016.pdf [perma.cc/W59S-SNMB]; *see also* FRENCH ASSET

Luxembourg is the largest mutual fund capital in the world outside of the United States, and funds domiciled in Luxembourg have used swing pricing for two decades.[84] In 2006, the Association of the Luxembourg Fund Industry ("ALFI") convened a working group to study the theory and practice of swing pricing and released a swing pricing survey and guidelines in 2011, with updates in 2015. [85] The SEC relied on ALFI research and data in creating the U.S. swing pricing proposed rules.[86] The remainder of this Article compares and contrasts, where meaningful, the U.S. rules with those in European jurisdictions.

C. U.S. Swing Pricing Rules

In October 2016, the SEC finalized and enacted the Liquidity Risk Management Program Rules[87] and the Swing Pricing Rules,[88] originally released September 22, 2015.[89] All open-end management investment companies, excluding money market funds and exchange-traded funds ("ETFs"), must comply with the broader liquidity rules, and *may* implement swing pricing practices.[90] The swing pricing rules—the focus of this Article—will be effective in November 2018,[91] and the liquidity risk management program rules have a compliance

MGMT. ASS'N, CODE OF CONDUCT FOR ASSET MANAGERS USING SWING PRICING AND VARIABLE ANTI-DILUTION LEVIES (2016), http://www.afg.asso.fr/wp-content/uploads/2014/06/GuidePro_SwingPricing_actualise_2016_ENG.pdf [perma.cc/JK82-3WU2] (describing swing pricing policies and procedures in France).

84 CUSATIS, supra note 83, at 3.

85 ALFI 2015 SURVEY, supra note 58, at 6.

86 Swing Pricing First Proposal, *supra* note 4, at 62327; *see also* Final Rules *supra* note 4, at 82095 (citing to ALFI for guidance on swing pricing rules).

87 Final Liquidity Risk Rules, *supra* note 4, at 82142.

88 Final Rules, *supra* note 4, at 82084.

89 Swing Pricing First Proposal, *supra* note 4, at 62388.

90 Final Rules, *supra* note 4, at 82089; Final Liquidity Risk Rules, *supra* note 4, at 82142.

91 Final Rules, *supra* note 4, at 82084. Because swing pricing rules are optional, the rules have a stated effective date, not an effective compliance date.

date of December 1, 2018 for large funds and June 1, 2019 for small funds.[92] The rules aim to promote fairness in investments, prevent investor dilution, and discourage early redemptions in times of heightened illiquidity.[93] The following subsections explore the main swing pricing rule components, including the voluntary nature of the rules, the swing threshold, and the swing factor. They also examine a fund's board of directors' implementation and oversight responsibilities, fiduciary duties, as well as reporting and shareholder disclosure requirements.

1. Optional

Swing pricing is optional, which creates an opt-in approach.[94] A mutual fund may implement swing pricing if the fund's board of directors adopts swing pricing policies and procedures.[95]

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92 Final Liquidity Risk Rules, *supra* note 4, at 307. Because the liquidity risk management program rules are mandatory and thus the effective date is the same as the compliance date.

93 Final Rules, *supra* note 4, at 82117–18 ("The primary goals of the swing pricing regulations are to promote investor protection by allowing a fund, if it chooses, to use swing pricing to mitigate potential dilution of non-transacting shareholders' interests that could occur when the fund incurs costs as a result of other investors' purchase or redemption activity . . . . Furthermore, because redeeming shareholders do not bear the cost of existing a fund, shareholders might have an incentive for early redemptions in times of liquidity stress because of a first-mover advantage, which could result in further dilution of non-transactions shareholders' interests. To the extent that such a first-mover advantage triggers the sale of less liquid portfolio investments at discounted or even fire sales prices, correlated investments and funds and other investors holding these and correlated investments will be negatively impacted . . . .").

94 *Id.* at 82128 ("But because funds differ notably in terms of their particular circumstances and risks, as well as with respect to the tools funds use to manage risks relating to liquidity and shareholder purchases and redemptions, we decided to adopt a rule that would permit swing pricing as a voluntary tool for funds.").

95 Final Rules, *supra* note 4, at 82108.

2. Swing Threshold

A mutual fund that opts in to swing pricing must set a threshold at which its swing pricing procedures are triggered and NAV will be adjusted[96]—a practice known as partial, as opposed to "full," swing pricing.[97] Whether the swing pricing rules should be partial or full was a matter of debate in the rule comments, with the SEC electing a partial approach in the proposed and final rules.[98]

The swing threshold is a specified percentage of a fund's NAV, and is triggered when the absolute value of net purchases and redemptions exceeds it.[99] Trading within the mutual fund, as a whole, as opposed to within individual share classes, triggers the threshold.[100] Balanced redemptions and purchases will not trigger swing pricing because the regulatory focus is on *net* transactions.[101] Swing pricing will only apply to significant one-directional trading.

The SEC established a process to set the swing threshold rather than prescribing a formula or set percentage for the threshold.[102] The threshold, however, must be greater than

96 Final Rules, *supra* note 4, at 82088.

97 *See* ALFI 2015 SURVEY, supra note 58, at 4 ("Swing pricing has two distinct forms: First, the 'full' swing method, whereby the NAV adjusts up or down every NAV calculation day based on the direction of net capital activity regardless of the size of shareholder dealing; Second, the 'partial' swing method that is only invoked when the net capital activity is greater than a pre-determined threshold . . . .").

98 Invesco, Comment Letter on Liquidity Management 6 (Jan. 13, 2016), https://www.sec.gov/comments/s7-16-15/s71615-75.pdf [perma.cc/GV2Y-LW7K] (stating that it should be mandatory, partial swing pricing in order to encourage implementation and avoid the equalization critiques raised below).

99 Final Rules, *supra* note 4, at 82120.

100 *Id.* at 82099 ("[B]ecause the economic activity causing dilution occurs at the fund level, it would not be appropriate to employ swing pricing at the share class level to target such dilution.").

101 *Id.* at 82128. Note that the SEC rejected comment suggestions that only net redemptions (as opposed to net subscriptions or redemptions) trigger the swing pricing threshold. *Id.* at 82097–98.

102 *Id.* at 82095, 82097 ("On balance, we [the SEC] continue to believe that setting a minimum threshold for all funds would not be appropriate,

zero.[103] Funds using swing pricing must determine their own swing threshold based on fund size, cash and cash equivalents, borrowing, and historical purchase and redemption activities, among other factors.[104]

The SEC identifies four non-exhaustive "factors" for consideration in setting the threshold.[105] These factors include fund portfolio contents and history, investment strategy and likely transaction costs, and cash holdings.[106] Two factors—investment strategy and cash—overlap with the liquidity risk assessment components required under the suite of new liquidity regulations.[107]

First, a fund should evaluate the "size, frequency, and volatility of historical net purchases or net redemption of fund shares during normal and stressed periods."[108] For example, consider a smaller fund with a shareholder who controls over fifty percent of the fund. The fund could experience an infrequent but significant redemption, versus a large fund with a diverse base of shareholder constituents who trade frequently. The swing threshold for each fund would differ based upon investor flow expectations. This factor also indicates that an investment adviser who manages multiple funds in the same fund family may consider a different threshold for each fund.[109]

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and that funds should be provided the flexibility to implement swing pricing at a threshold level that best fits their particular circumstances based on the required factors and the guidance set forth herein.").

103 Final Rules, *supra* note 4, at 82097.

104 Final Rules *supra* note 4, at 82095.

105 *Id. See also id.* at 82096 ("The rule does not preclude a fund from considering other factors that the fund believes may be relevant.").

106 Final Rules *supra* note 4, at 82095.

107 Final Rules, *supra* note 4, at 82096 (describing the overlap as "not surprising, because evaluating a fund's liquidity risk may be relevant to determining the fund's swing threshold").

108 Final Rules, *supra* note 4, at 82095.

109 For example, if an investment adviser manages a large cap equity fund (highly liquid) with infrequent flows, a small cap equity fund (less liquid) with large flows, and an alternative fund (least liquid) with constant flows, the adviser may choose a different threshold for each based on each fund's unique characteristics. An investment advisor may manage a variety

Second, a mutual fund must consider its "investment strategy and the liquidity of the fund's portfolio assets." [110] As discussed above,[111] the asset type being sold is germane to its liquidity, which in turn affects the daily NAV of the fund. Asset types such as MBS, banks loans, and derivatives will naturally be less liquid than large-capitalization stocks and U.S. Treasury securities. If a significant portion of the fund portfolio is invested in equities or U.S. Treasuries, the fund's threshold may need to be set higher, as it can better accommodate redemptions while still maintaining liquidity and a stable NAV than if it were heavily invested in bonds and MBS.

Transaction costs unique to the asset market are a third, related factor.[112] Different assets, as discussed above, have different exposure to market impact costs where liquidity and availability influence price fluctuations, especially in the face of a large transaction. In this way, the SEC requires that fund managers consider market impact costs in setting a threshold. Additionally, different portfolio assets have different commissions, expenses, etc.[113]

Fourth, funds must consider cash holdings and alternative funding sources.[114] How much cash or cash equivalent a fund holds in anticipation of liquidity needs may offset the market impact of a less liquid portfolio. Many funds also currently utilize a credit facility such as a line of credit or inter-fund lend-

of funds such as a small bank loan fund with frequent flows, a large-cap equity fund with minimal flows, a large alternative fund with average flows, and a mid-size U.S. Treasury fund with volatile flows based on market fluctuations. Because of the different asset types, sizes, and flows, and therefore the differences in the relative liquidity of each fund, the swing thresholds may be different based on each fund's ability to meet its redemptions.

110 Final Rules, *supra* note 4, at 82095 (discussing Rule 22c-1(a)(3) and threshold factors).

111 *See supra* Section II.A.

112 Final Rules, *supra* note 4, at 82095.

113 The author has made this observation in her role in the mutual fund industry. *See also* POZEN, *supra* note 25, at 516 (discussing mutual fund fees).

114 Final Rules, *supra* note 4, at 82095.

ing, borrowing against it in order to satisfy a shareholder's redemption.[115] Cash on hand, or the ability to borrow cash, to satisfy shareholder redemptions allows the fund to wait for a better market price with sufficient buyers and potentially curb losses from a forced sale of less liquid securities.

Other jurisdictions' experiences with swing pricing informed the SEC's threshold framework.[116] In December 2015, the ALFI—a main organization studying mutual fund swing pricing in the international mutual fund capital of Luxembourg—released new information on swing pricing.[117] According to the ALFI's 2015 swing pricing survey, the most common swing threshold was one percent or less.[118] Roughly half of respondents indicated a three percent swing threshold or less, and the remaining half of managers reported a three percent or more threshold.[119] In addition, the majority of responding managers indicated that they distinguish thresholds by fund, primarily based on fund-specific characteristics such as investment objective, fund size, or asset class.[120]

3. Swing Factor

The swing factor is an amount, expressed as a percentage of the fund's NAV, by which a fund adjusts its NAV per share once the swing threshold (discussed above) is met.[121] The

115 The author has made this observation in her role in the mutual fund industry.

116 Final Rules, *supra* note 4, at 82096.

117 ALFI 2015 SURVEY, supra note 58, at 6; ASS'N OF THE LUX. FUND INDUS., SWING PRICING GUIDELINES 11 (2015) [hereinafter ALFI 2015 GUIDELINES], http://www.alfi.lu/ sites/alfi.lu/files/Swing-Pricing-guidelines-final.pdf [perma.cc/ URM6-Q5ZJ] (explaining that the ALFI provides additional considerations in setting the swing threshold: (1) setting a threshold too low will increase NAV volatility; (2) setting it too high will void the purpose of protecting from dilution; (3) whether a consistent threshold across all funds is appropriate; and (4) correlating high liquidity to a higher threshold and lower liquidity to a low threshold).

118 ALFI 2015 SURVEY, *supra* note 58, at 11.

119 *Id.*

120 *Id.* at 12.

121 Final Rules, *supra* note 4, at 82103.

swing factor is the discount or tax applied to the NAV to account for any near-term liquidity stress experienced by the fund. A fund's swing factor must be calculated[122] based on expected near-term costs generated by net purchases or redemptions incurred on the day that the swing factor is used.[123]

Near-term costs are estimated costs that are not anticipated to be incurred by the fund for several days, including spread costs.[124] Transaction fees—including mark-ups and downs, brokerage commissions and custody fees, transfer taxes, repatriation costs, and fees for investments in *other* funds—are additional near-term costs.[125] Charges resulting from purchases or sales and borrowing-related costs—such as interest charges or credit draw downs—generated with redemptions are also near-term costs.[126]

Swing factors are not intended to be stable, but are designed to accommodate fluctuation.[127] The swing factor can be determined using a base amount subject to adjustments or calculated based upon a formula or algorithm.[128]

Each participating fund sets their own swing pricing procedures, subject to the following restrictions. First, any swing factor used must be reasonable in relation to the cost incurred by the fund.[129] Second, a mutual fund's board of directors must establish and disclose an upper swing limit that cannot

122 The designated swing pricing administrator within the fund sets the swing factor, though the upper limit must be approved by the board. Final Rules, *supra* note 4, at 82104, 82108. *See also id.* at 82108 (requiring swing pricing funds to designate an officer responsible for administering the policy).

123 *Id.* at 82104.

124 *Id.*

125 Final Rules, *supra* note 4, at 82104–05. *See also* Swing Pricing First Proposal, *supra* note 4, at 62336 (also including market impact costs, which were eliminated from consideration in setting the swing factor in the final rule).

126 Final Rules, *supra* note 4 at 82104–05; Swing Pricing First Proposal, *supra* note 4, at 62336–37.

127 Swing Pricing First Proposal, *supra* note 4, at 62336.

128 Final Rules, *supra* note 4, at 82107.

129 *Id.* at 82106.

exceed two percent of assets,[130] which avoids high NAV adjustments and resulting volatility.[131] The two-percent cap reflects common practice in Luxembourg, as well as similar caps on redemption fees under SEC Rule 22c-2 and restrictions on money market funds.[132] The swing pricing limits reflect the balance the SEC struck between fund discretion and investor-protection concerns.[133]

The final swing pricing rules differ from the proposed rules by excluding market impact costs and asset values from the swing factors.[134] The SEC cited difficulty in calculating market impact costs and the limited experience in other swing pricing jurisdictions.[135] ALFI's 2015 swing pricing survey documented that few funds incorporate market impact costs into its swing factor.[136]

The final rules also excluded the value of assets purchased or sold from the swing factor because it would have required "a level of precision in setting the swing factor . . . that would undercut funds being able to set a swing factor on a periodic basis."[137] Asset value, if left in, would have required managers to evaluate possible future trades—a difficult task in volatile market conditions. Consider for example, that a fund manager

130 *Id.* at 82106. Funds must disclose the upper limits in Form N-1A and Form N-CEN. *Id.* at 82107. Under the proposed rules, a fund could choose a ceiling, but was not required to do so. Swing Pricing First Proposal, *supra* note 4, at 62337–38; Final Rules, *supra* note 4, at 82108–09 (discussing comments received on swing pricing threshold).

131 *See supra* note 117.

132 Final Rules, *supra* note 4, at 82106–07; ALFI 2015 SURVEY, *supra* note 58, at 4, 11 (in its 2015 survey, ALFI notes that most fund managers set a cap on the swing factor, with two percent, the most common number).

133 Final Rules, *supra* note 4, at 82109.

134 Final Rules, *supra* note 4, at 82105.

135 *Id.* Note that the third swing threshold considers "costs associated with transactions in the markets in which the fund invests" so the rules indirectly incorporate market impact costs. *Id.* at 82095.

136 ALFI 2015 SURVEY, *supra* note 58, at 9–10. Other variations in the swing factor in European jurisdictions include a combination of bid/offer spread impacts, excluding transaction taxes, and even excluding explicit transaction costs. *Id.*

137 Final Rules, *supra* note 4, at 82105.

may prepare to mitigate liquidity concerns if a threshold is met. She may utilize a credit facility[138] with the plan to trade the following day after volatility has decreased. She has an idea of what to sell, but if the following day an off-setting purchase is made into the fund, it negates the need for any additional securities transactions. Downward adjustment to the NAV because of the anticipated, but unrealized, transaction would invert the investor protection and anti-dilution principles of the swing pricing rules.

4. BOD Implementation and Oversight

The SEC's swing pricing rules emphasize implementation procedures and ongoing oversight to facilitate accountability, fiduciary duty-triggering actions, and shareholder disclosure.

a. Operational Accountability

A fund must segregate swing pricing operations from fund portfolio management.[139] A fund board must also appoint a swing pricing administrator—a fund officer, investment advisor, or committee—responsible for implementing and overseeing swing pricing.[140] The swing pricing administrator submits

138 A credit facility is a line of credit available to funds from a bank or other financial institution that allows funds to borrow instead of selling shares in an unfavorable market in order to meet large redemptions or address liquidity concerns with small cap companies. *See, e.g.*, LEE GREMILLION, MUTUAL FUND INDUSTRY HANDBOOK: A COMPREHENSIVE GUIDE FOR INVESTMENT PROFESSIONALS 115 (2005) (discussing fund lines of credit).

139 Final Rules, *supra* note 4, at 82108, 82110. The SEC clarified segregation requirements in the final rules and specifically excluded portfolio managers in order to discourage potential incentives to set swing factors to manipulate short-term performance, benchmark setting, and peer comparisons. *Id*. at 82110–11.

140 *Id*. at 82108, 82110. *See also* Pricing of Redeemable Securities for Distribution, Redemption and Repurchase, 17 C.F.R. § 270.22c-1 (2017) (describing redeemable securities). A fund's valuation committee would be a natural fit to house swing pricing functions as they relate to the primary function of the valuation committee. For a discussion of mutual fund boards of directors, *see* GREMILLION, *supra* note 138, at 40–42 (discussing mutual fund board functions and committees).

a written report to the fund's board. [141] The report must review the adequacy of the fund's swing pricing policies and procedures, implementation effectiveness, success in mitigating dilution, materials changes since the last report, and the fund's compliance with swing threshold and factor requirements under the SEC rules.[142] The swing pricing administrator also must comply with record keeping requirements under SEC Rule 31a-2(a)(2) for computing and evidencing the daily NAV.[143]

When the swing threshold is met, the administrator must document the unswung NAV, data for the swing factor calculation, the actual level of redemptions or purchases exceeding the threshold, the swing factor applied, and any back-testing data to verify the swing calculation.[144]

b. Board Accountability & Fiduciary Duty

A fund's board of directors must establish swing pricing policies and procedures—importantly the swing threshold, swing factor, and swing procedures—approved by a majority of the fund's independent directors.[145] Additionally the board reviews the swing pricing reports and implementation process at least annually.[146] The SEC likens the board's role with

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[141] The swing pricing report is another reason to consider locating swing pricing functions within the valuation committee because the report—similar to the new compliance and new LMP reports—would likely entail back testing and other types of verification, which are analyses already performed by the fund's valuation committee. For a discussion of the types of post-trade compliance monitoring that may be a part of a fund's valuation committee work, *see* GREMILLION, *supra* note 138, at 121–23 (describing post trade compliance procedures).

[142] Final Rules, *supra* note 4, at 82108–09. *See also* Liquidity Risk Management Programs, 17 C.F.R. § 270.22e-4 (2017).

[143] Final Rules *supra* note 4, at 82111.

[144] *Id*. at 82125.

[145] *Id*. at 82108–09.

[146] *Id*. at 82109, 82111. *See also* Compliance Procedures and Practices of Certain Investment Companies, 17 C.F.R. § 270.38a-1 (2017) (requiring that a board receive reports on policies and procedures reasonably intended to prevent the violation of federal securities law, including Rule 22c-1).

swing pricing to its significant responsibility regarding valuation and pricing related matters under the Investment Advisors Act.[147]

The SEC attempts to strike the right balance between board oversight and the role of management in daily operations with the swing pricing rules.[148] The required fund board actions under the rules trigger fiduciary duties and actions must be taken in the best interest of fund shareholders. Fiduciary duty liability follows board action and, at least symbolically, transaction-price monitoring.[149] In discharging its duties, the board may rely upon officer reports and data provided by management, including the swing pricing administrator.[150]

147 Final Rules, *supra* note 4, at 82108. *See also* Investment Advisors Act, 15 U.S.C. § 80a-2 (2017) ("'Value', with respect to assets of registered investment companies . . . means . . . with respect to other securities and assets owned at the end of the last preceding fiscal quarter, fair value at the end of such quarter, as determined in good faith by the board of directors."). SEC regulations regarding securities valuation include 17 C.F.R. §§ 2a-4, 2a-7(c)(1)(i), 2a-7(g)(1)(i)(A)–(C), and 18f-3d.

148 Final Rules, *supra* note 4, at 82108. Some commentators requested that the fund advisor, with better daily operational knowledge, oversee and administer swing pricing.

149 *Id.* at 82109. *See also* Interpretive Matters Concerning Independent Directors of Investment Companies, Investment Company Act Release No. 24083, 64 FR 59877, 59877–79 (Nov. 3, 1999) (discussing the independence of mutual fund directors). For a discussion of the perceived conflict of interest between mutual fund boards of directors and the investor advisors, especially as related to fee structures and oversight functions, see, e.g., R. GLENN HUBBARD ET AL., THE MUTUAL FUND INDUSTRY: COMPETITION AND INVESTOR WELFARE 20–24 (2010); *cf*. Donald C. Langevoort, *Private Litigation to Enforce Fiduciary Duties in Mutual Funds: Derivative Suits, Disinterested Directors and the Ideology of Investor Sovereignty*, 83 WASH. U. L.Q. 1017, 1040 (2005) ("One can have relatively moderate expectations for the performance of disinterested directors and still believe that the strategy adds some value, and there is a body of evidence to support this.").

150 Final Rules, *supra* note 4, at 82110. *See also* Letter of Michael Didiuk, Div. of Inv. Mgmt., SEC, to Dorothy Berry, Chair, Indep. Dirs. Council and Jameson Baxter, Chair, Mutual Fund Dirs. Forum (Nov. 2, 2010), https://www.sec.gov/divisions/investment/noaction/2010/idc-mfdf110210.pdf [perma.cc/73AY-D8DW] (urging mutual fund board reliance on summary quarterly reports).

A participating fund's board of directors is responsible for overseeing policies to identify and correct errors in swing pricing estimates and application.[151] The swing pricing administrator, overseen by a fund's board of directors, is responsible for ensuring the reasonableness and accuracy of any swing pricing system.[152]

c. Transparency & Shareholder Disclosures

In the final rules and in response to extensive comments, the SEC revised the reporting components of price deviations on participating funds' financial statements. Utilizing Form N-1A, the annual registration form for investment companies,[153] participating funds must report swing pricing components in a fund's financial highlights, notes to the financial statement, statement of assets and liabilities, and statement of changes in net assets.[154]

The financial highlights section of Form N-1A is the focus of the required disclosures. Funds' financial statement notes will include disclosures that a fund has adopted swing pricing, the methods to determine whether the swing threshold is met, whether swing pricing was utilized in the reporting period, and if so, what effects it had on a fund's reported NAV.[155] Funds must explain swing pricing to provide investors with

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151 Final Rules, *supra* note 4, at 82111–12. Policies may include the swing pricing estimate components and the use of back testing of estimated fund flows to verify the accuracy and reliability of a fund's estimation techniques. *Id.* at 82114–15.

152 *Id.* at 82115 (noting that it is not a fund's auditor's responsibility to ensure reasonableness and accuracy because auditors do not have the requisite "expertise").

153 Form N-1A. *See also* 17 C.F.R. § 270.8b-5 et seq. (2005).

154 Final Rules, *supra* note 4, at 82111–13. Participating funds are also encouraged to discuss swing pricing, as applicable, in the existing prospectus and statement of additional information sections. *See id.* at 82116 n.366.

155 *Id.* at 82114. *See* SEC Form N-1A., Item 6(d). The required disclosures are similar to what funds report when using securities lending programs or lines of credit. Questions remain about whether auditors and counsel must, or should, provide opinions about the appropriateness of the actions taken.

the general information needed to understand it.[156] Participating funds must report the upper swing limit. The SEC characterized the reported upper limit as a "critical" disclosure assisting investors in comprehending investment risks associated with particular funds.[157] It also creates transparency regarding potential price adjustments. Importantly, and to prevent gaming and unfair trading, participating funds are not required to disclose the swing threshold or swing factor in the prospectus.[158]

Participating funds must make additional disclosures in a variety of formats and subject to different valuation standards. For example, participating funds can report the swung NAV as a separate line item in addition to the GAAP (the U.S. Generally Accepted Accounting Principles) NAV.[159] Participating funds will report the GAAP NAV, rather than a swung NAV, on the statement of assets and liabilities[160] and in communicating shareholders' total financial return.[161] Participating funds will report the swung NAV on the statement of changes in net assets to reflect the number of shares and the dollar amounts received and paid for shares for shares sold or redeemed.[162] The technical specificity of the additional disclosure rules reveal the operational complexity and fundamental change to mutual fund operations required by swing pricing.

156 *Id.* at 82116. *See also* SEC Form N-1A, Item 6 (instructing funds on required share purchase and sale disclosures).

157 Final Rules, *supra* note 4, at 82106. *See also* Amended Part C of Form N-CEN (outlining disclosure of the swing factor upper limit).

158 Final Rules, *supra* note 4, at 82116.

159 *Id.* at 82113.

160 The final rules did not implement an amendment to Regulation S-X rule 6-04.19 to require funds to disclose the swung NAV, as originally proposed. *Id.* at 82112. The GAAP NAV should incorporate the effects of swing pricing through the accounting period. *Id.*

161 *Id.* at 82113–14 (citing to the incorporation of swung NAV pricing effects in the total return using GAAP NAV).

162 *Id.* at 82113. *See also* 17 CFR 210.6-09.4(b) (establishing the current regulations on mutual fund share price reporting).

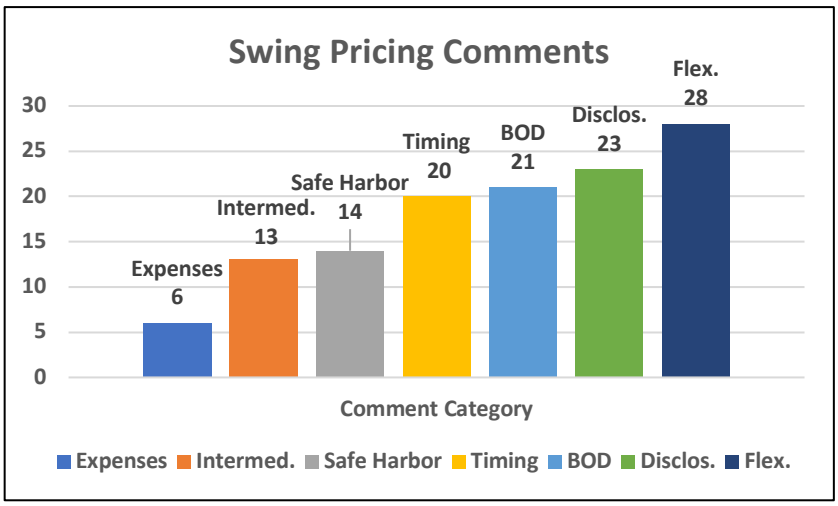
IV. ANALYSIS OF SWING PRICING COMMENTS & RULE RAMIFICATIONS

The mutual fund industry actively participated in the notice and comment period of the proposed rules and influenced the final rules. The SEC extended the liquidity rule comment period to January 13, 2016, during which time it received 89 comments, 48 of which addressed swing pricing. Roughly half (48.8%) generally supported swing pricing, and half did not. The submitted comments varied in length, relevance, and technicality.[163] The comments provided a technical background to the proposed rules, and informed the analysis of the benefits and detriments of the rules in the following subsections.

The swing pricing comments grouped around the following issues: general liquidity benefits, cost spreading and dilution, the role of board oversight, transparency/disclosure issues to shareholders, implementation expenses, operational concerns regarding the timing and price calculations in the U.S. mutual fund market, and the lack of a safe harbor for pricing errors.

[163] *See, e.g.*, John Wahh, Comment Letter on Swing Pricing (Oct. 1, 2015), https://www.sec.gov/comments/s7-16-15/s71615-2.htm [perma.cc/83BQ-8YHS] (totaling 1 page in length); *cf*. Inv. Co. Inst. Comment Letter, *supra* note 9 (totaling 117 pages in length).

FIGURE 1: SWING PRICING COMMENTS BY CATEGORY



A. Benefits

Swing pricing promises three main benefits to individual investors, the mutual fund industry, and the investment landscape. First, swing pricing may benefit individual investors by mitigating dilution of invested assets caused by *other* investors' transactions costs. Second, swing pricing offers benefits to mutual funds through higher reported investment returns and a larger asset pool if funds can successfully siphon out transaction costs from its valuations. Third, swing pricing removes disincentives for long-term investment positions (the default of so many American retirement investors), counters first-mover advantages in a liquidity crisis, and levels the playing field between active and sedentary investors. In Part VI, this Article evaluates the relative weight of these benefits from the authors' academic and industry perspectives.

Swing pricing counteracts the dilutive nature of mutual fund shareholder purchases and redemptions where the transaction cost of the activity may not be fully paid by the initiating shareholders.[164] Without swing pricing, long-term

164 Inv. Co. Inst. Comment Letter, *supra* note 9, at 56.

mutual fund shareholders who were, and remain, investors in the fund may finance and subsidize transaction costs associated with mutual fund shareholder exit or new investment.[165] SEC comments generally supported the dilution-mitigating effects of swing pricing.[166] Shifting transaction costs to triggering shareholders and away from the existing shareholders facilitates equitable pricing and returns among all shareholders. Swing pricing removes the unintended preferential pricing that funds may inadvertently give to active, over sedentary, investors.

Experts debate the superiority of certain investment strategies and approaches, but there is evidence and *agreement* on the eroding effects of fees on investment returns.[167] The individual transaction costs shifted from triggering, active mutual fund shareholders to sedentary, long-term mutual fund shareholders is small compared to mutual fund assets as a whole, and even the assets of individual investors. The collective transaction costs, especially when applied to sedentary shareholders investing in a single fund over an extended period, is significant in absolute terms.[168] A 2013 study estimated that

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165 ALFI 2015 SURVEY, *supra* note 58, at 6.

166 *See* Charted Fin. Analyst Inst., Comments Letter on Swing Pricing, (Jan. 12, 2016), https://www.sec.gov/comments/s7-16-15/s71615-34.pdf [perma.cc/ Q874-6BKW] ("We generally support giving funds the option to use swing pricing as a way to mitigate the dilution of share value for fund shareowners as a result of transaction costs related to purchases and redemptions.").

167 *See e.g.*, *Investor Bulletin: Mutual Fund Fees and Expenses*, SEC (May 12, 2014), https://www.sec.gov/files/ib_mutualfundfees.pdf [perma.cc/P3GK-CB6C] ("The more you pay in fees and expenses, the less money you will have in your investment portfolios, and These fees and expenses really add up over time. Given the compounding effect of fund fees and expenses and their impact on your investment returns, you may want to use a mutual fund cost calculation to compute how the costs of different mutual funds would add up over time.").

168 High mutual fund fees can consume up to thirty percent of an investor's return on a thirty-year investment, and liquidity fees contribute to the erosion of investor returns. Liquidity fees are relatively low in comparison with fees charged by mutual funds, but in absolute terms, liquidity transaction costs extract real costs from sedentary investors. *See e.g.*, Susanna Kim, *401(k) Fees May Cut 30% from Retirement Balance,* ABC NEWS

sedentary mutual fund investors absorbed trading and liquidity costs of $10–17 billon.[169] Additional studies estimated the trading costs reduced annual returns "of actively managed U.S., international and global equity mutual funds by an average of 26 basis points on an equal-weighted basis and 20 basis points asset-weighted over the 2007 to 2013 period."[170] Mutual fund investors entering through a retirement savings plan—such as a 401(k)—are among the investors likely to bear the residual transaction costs if unmitigated by swing pricing.[171]

In addition to preventing an undue advantage to active mutual fund shareholders, swing pricing may positively affect mutual fund shareholder returns and correlated fund manager compensation.[172] The 2015 ALFI survey demonstrated

(May 30, 2012), http://www.demos.org/news/401k-fees-may-cut-30-retirement-balance [perma.cc/3QUP-XLGN] (reporting that average 401(k) fees can consume thirty percent of retirement savings); *see also* Tucker, *supra* note 65, at 181.

169 Miles Livingston & David Rakowski, *Mutual Fund Liquidity and Conflicts of Interest*, 23 J. APPLIED FIN. 95, 97–103 (2013); *see also* Tucker, *supra* note 65, at 179. 2016 SEC comments from the same sources estimated the dilution costs at $20 billion annually. Seymour Sacks, Sacks Equalization Model, Inc., Comment Letter on Swing Pricing (Nov. 20, 2015), https://www.sec.gov/comments/s7-16-15/s71615-19.pdf [perma.cc/9A6L-CJ2Q] (estimating "that this trading activity fees and including market impact costs, are costing existing shareholders an estimated total of $20 billion a year").

170 Eaton Vance Inv. Advisors, Comment Letter on Swing Pricing (June 13, 2016) https://www.sec.gov/comments/s7-16-15/s71615-151.pdf [perma.cc/RCX3-MYL]; *see also* Swaffield, Comment Letter on Swing Pricing 8–9 (Jan. 13, 2016).

171 Retirement investors entering through plans such as 401(k) have limited exit options because they "are likely to be low-dollar (due to contribution limits); long-term (due to tax penalties on preretirement-age withdrawals); and unsophisticated in account allocation strategies and management." Tucker *supra* note 65, at 164. *See also id.* at 168–69 (discussing why retirement investors are comparatively "locked in" or sedentary compared with retail investors).

172 *Cf.* Eaton Vance Comment Letter, *supra* note 170 (disclaiming the net benefits of swing pricing). "[T]he aggregate returns of fund shareholders, before expenses, are exactly the same whether or not a fund uses swing pricing. It's a zero sum game: the observed improvement in fund returns

swing pricing's positive effect on mutual fund returns.[173] By shielding the fund, and therefore the investors, from liquidity transaction costs, the fund retains a larger asset pool, which in turn increases NAV, or the trading value of the fund.[174] If, for example, a fund reallocates $1 million in liquidity transaction costs to the triggering/active shareholders, then the fund's assets under management reflect the retained $1 million, the NAV reflects the higher asset pool, and manager's performance incentives are calculated based on the higher asset pool. The SEC posits that swing pricing could "indirectly foster capital formation by bolstering investor confidence."[175] The theory is that if potential investors, particularly long-term investors, understand the anti-dilution protections of swing pricing, they will be more likely to invest in mutual funds offering swing pricing.[176] Swing pricing's positive effects may be the carrot that the mutual fund industry needs in order to undertake the operational and organizational changes necessary to implement swing pricing. Recall that swing pricing is *optional*, meaning that funds will only participate if it makes economic sense to do so.

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that comes with swing pricing is sourced from, and equally offset by, the net transaction costs paid by buyers and sellers of fund shares each day that swing pricing is in effect. After expenses, swing pricing actually *reduces* aggregate shareholder returns by the amount of fund expenses incurred to implement the fund's swing pricing program." *Id.*

173 ALFI 2015 SURVEY, *supra* note 58, at 6.

174 *Id*.

175 Swing Pricing First Proposal, *supra* note 4, at 62369. *See also* Final Rules *supra* note 4, at 82126. The authors question this logic and ask which investors they are referring to. Individual retirement investors are unlikely to understand swing pricing or seek it out, which leaves sophisticated investors to do so. Many retirement investors invest through employer-sponsored plans where investment professionals select and monitor the plan's menu of investment options. The persistence of high-fee funds and potential conflicts of interest through revenue sharing are common criticisms of the effectiveness of the professional investment services provided to 401K investors. *See e.g.*, Ian Ayres & Quinn Curtis, *Beyond Diversification: The Pervasive Problem of Excessive Fees and "Dominated Funds" in 401(k) Plans*, 124 YALE L.J. 1476, 1487–91 (2015).

176 Final Rules, *supra* note 4, at 82126.

Swing pricing may also deter short-term trading and possible market-timing or arbitrage.[177] Imposing liquidity transaction costs on triggering shareholders increases the price at which one can earn a short-term sale profit, and therefore increases the risks of short-term trading. The 2015 ALFI Guidelines note that a shareholder's investment will likely need to increase by at least double the value of the swing factor in order to recoup costs and realize a gain.[178] Swing pricing deterrence would work on top of existing anti-market-timing tools that funds independently possess, permitting restrictions on market-timing shareholders.[179] Mutual funds' use of existing market-timing tools[180] mitigates deterrence benefits gained from swing pricing rules.

177 *Id.*

178 *Id.*

179 Market-Timing Rule, 17 C.F.R § 270.22c-2. The SEC began to require disclosure in a fund's prospectus regarding the risks of frequent purchases and redemptions of fund shares, including the risk of dilution and the increased trading and administrative costs. As a result of these risks, the SEC also required a fund to disclose its policies and procedures designed to deter frequent trading, including the specific restrictions such as the number of "round trips" (in and out = 1 round trip), minimum holding periods, redemption fees, or other restrictions a fund may have on purchases and redemptions. Funds may also impose restrictions on individual shareholders who may be deemed to be disruptive shareholders based on their transaction history and the circumstances surrounding the transactions. Disclosure Regarding Market Timing, 69 Fed. Reg. 22300 (Apr. 23, 2004) (codified at 17 C.F.R. pts. 239, 274) [hereinafter Market Timing Disclosure Rule].

180 Each fund is required to disclose whether the fund's board of directors has adopted a frequent trading policy and procedures; or, if not, the specific basis for the board's determination that it does not need such policy and procedures. The vast majority of fund boards have adopted a frequent trading policy and procedure, which it can define as it sees fit. Funds must disclose any restrictions or limitations it may impose on shareholders deemed to be "frequent traders." For example, a fund may choose a policy that prohibits a shareholder from purchasing a fund within thirty days after the shareholder sells the fund. Funds must also disclose any fees imposed to shareholders deemed to be frequent traders. Market Timing Disclosure Rule, *supra* note 179, at 22302.

In times of liquidity stress, mutual fund shareholders may perceive a first-mover advantage[181] in racing to redeem their mutual fund shares at a declining, but not bottom, price.[182] Redemptions motivated by concerns about a tanking fund price can generate significant outflows, exacerbating the price declines and creating a mutual fund run. A fund experiencing large outflows "may be exposed to predatory trading activity in the securities it holds."[183] Shareholders remaining in the fund suffer the consequences of these actions—namely a "material dilution" of the fund's' assets.[184] Existing redemption fees may stem first-mover advantage concerns, and swing pricing would add additional deterrence.[185] The SEC described the intended disincentive as:

> [I]f non-transacting shareholders understood that redeeming shareholders—especially shareholders seeking to redeem large holdings—would bear the estimated costs of their redemption activity, it would reduce shareholders' incentive to redeem large holdings quickly because there would be less risk that non-transacting shareholders would bear the costs of other shareholders' redemption activity.[186]

The absence of a minimum swing pricing threshold under the rules further discourages a first-mover advantage.[187]

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181 The first mover advantage identifies the incentive to sell before the transaction costs of a large redemption are incurred. A shareholder not personally interested in selling shares may decide to do so if they perceive that other, especially large, shareholders will redeem their shares. The incentive to be the first, if shared among a large group of shareholders, can create a run on a fund, which accelerates the negative pricing pressures that funds may experience when they need to meet large redemption orders. *See* Final Rules, *supra* note 4, at 82091.

182 *Id.* at 82086.

183 *Id.*

184 *Id.*

185 *Id.* at 82091. *Cf.* Eaton Vance Comment Letter, *supra* note 170, at 9 (arguing that an undisclosed swing factor and threshold cannot meaningfully influence shareholder behavior).

186 Final Rules, *supra* note 4, at 82091.

187 *Id.* at 82091, 82096–97. "Swing pricing provides funds with an additional tool to pass estimated near-term costs stemming from shareholder

An equalization rationale or level mutual fund playing field may be a silent or unacknowledged force behind the swing pricing rules.[188] Mutual funds currently enjoy popular and policy prominence in retirement savings. Mutual funds are a key design component of individual investors' financial stability and in American retirement policy. Perceived, and documented, inequities in the system are undesirable, particularly those without a market solution that extract costs from long-term retirement investors. Mutual fund inattention to disparities may create a public relations crisis, if not a regulatory one, in the future—the kind that leads to severe intervention or more restrictive regulation, in addition to public backlash. The optional swing pricing rules may be an opportunity for mutual funds to address these inequities on *mostly* their own terms and timetable without more onerous SEC intervention. While not explicitly stated in any of the comments or the SEC's preamble to the swing pricing rules, the equalization and public opinion rationales may be driving forces behind the rules.

B. Swing Pricing Obstacles

Challenges litter the path to achieving the promised benefits of swing pricing described above, and they are catalogued in this Subsection. These challenges may be thought of as operational and conceptual in origin. The operational challenges

purchase or redemption activity on to the shareholders associated with that activity, and could therefore lessen dilution of non-transacting shareholders and limit any possible redemptions motivated by a potential first-mover advantage." *Id.* at 82121.

188 Consider, for example, the text accompanying the swing pricing rules:

> In order to effectively mitigate possible dilution arising in connection with shareholder purchase and redemption activity, a fund's swing threshold should generally reflect the estimated point at which net purchases or net redemptions would trigger the fund's investment adviser to trade portfolio assets in the near term, to a degree or of a type that may generate material liquidity or transaction costs for the fund.

Id. at 82096.

relate to fund data, the mechanics of the mutual fund market, and funds' risk in cost estimates without a safe harbor. Conceptually, swing pricing rules raise concerns about price volatility, imperfect equalization among mutual fund shareholders, and compliance costs and priority. Conceptual criticisms would persist even after a mutual fund industry operations adjustment to implement swing pricing. Part VI evaluates the relative impediments posed by these challenges from both academic and industry perspectives.

1. Operational Challenges

BlackRock and Vanguard, two of the largest U.S. mutual funds, expressed support for swing pricing as an option to mitigate shareholder dilution while simultaneously cautioning that the U.S. mutual fund industry does not have the pricing and data capabilities to successfully implement it.[189] A seemingly insurmountable time conflict exists for mutual funds under current procedures. Funds receive the information needed to trigger swing pricing late in the day, but must report either a standard or swung NAV early in the day. This time conflict creates a scenario where funds may end up electing to swing the fund with incomplete information—aptly called blind swinging—and must do so without a liability shield. The mutual fund industry is understandably nervous about these crucial operational questions because any change to operating procedures will affect mutual funds *and* the intermediaries that service them. In short, operational changes are necessary

[189] BlackRock and Vanguard, large institutional players in the mutual fund industry, express support for swing pricing as well as concerns regarding the current operational viability of swing pricing in the United States, stating that the SEC should delay the rule or assist in facilitating industry change that would be necessary to implement swing pricing. *See* Barbara Novick & Benjamin Archibald, BlackRock, Comment Letter on Swing Pricing, at 7 (Jan. 13, 2016), https://www.sec.gov/comments/s7-16-15/s71615-36.pdf [perma.cc/X2KY-HWH7]; *see also* Mortimer J. Buckley, Vanguard, Comment Letter on Swing Pricing, at 16–17 (Jan. 6, 2016), https://www.sec.gov/comments/s7-16-15/s71615-29.pdf. [perma.cc/BV6X-FEW7].

to implement swing pricing, and those changes will be time-consuming, costly, and difficult.

a. Mutual Fund Data & Market Timing

The timing of U.S. mutual fund operations creates a "blind" swing pricing implementation where funds must declare the trading threshold met without complete trading information. Twenty SEC comments discussed these data timing challenges, approximately forty-two percent of the comments received.[190] Several industry commentators decried the existing operational feasibility in the mutual fund industry, and its reliance on intermediaries, to support swing pricing.[191]

Consider first that U.S. mutual funds strike the daily NAV shortly after the trading deadline of 4:00 pm (eastern standard time zone), the time by which most funds receive their purchase and redemption orders.[192] Funds would swing the daily NAV price, if appropriate, by adjusting it per the swing factor for liquidity costs due to trading volumes. Broker-dealers and other intermediaries like retirement accounts, however, are permitted to transmit orders to funds *after* the 4:00 pm deadline and after the NAV price is struck.[193] The 4:00 pm trading deadline applies to intermediaries, who may receive a

190 *See e.g.*, Inv. Co. Inst. Comment Letter, *supra* note 9, at 21 (discussing the operational challenges of the "arbitrary time intervals" in the proposed rules); *see also supra* Figure 1. For a complete list of comments on the Proposed Rule: Open-End Fund Liquidity Risk Management Programs; Swing Pricing; Re-Opening of Comment Period for Investment Company Reporting Modernization Release, visit https://www.sec.gov/comments/s7-16-15/s71615.shtml [perma.cc/AYQ5-JNGA].

191 *See, e.g.*, Marc R. Bryant, Fidelity Mgmt. & Research Co., Comment Letter on Swing Pricing, at 11 (Jan. 13, 2016), https://www.sec.gov/comments/s7-16-15/s71615-45.pdf [perma.cc/Z8LJ-SK33] (cautioning that "the existing operational systems supporting the mutual fund industry will not support effective swing pricing").

192 *Id.* at 11–12. *See also* Timothy W. Cameron & Lindsey Weber Keljo, Sec. Indus. and Fin. Mkts. Ass'n, Comment Letter on Swing Pricing (Jan. 13, 2016), https://www.sec.gov/comments/s7-16-15/s71615-65.pdf [perma.cc/UB97-PPY9] (setting out in detail the timing of receipt of fund flow information to U.S. mutual funds).

193 Vanguard Comment Letter, *supra* note 189, at 17 n.47.

purchase or sale order from individual investors through the close of trading. Intermediaries need time to aggregate and transmit the buy and sell orders to the respective funds, which happens after the 4:00 pm trading deadline, and processing occurs throughout the night.[194]

Mutual funds strike the NAV between 6:00–8:00 pm, and often without complete purchase order information.[195]

> While broker-dealer intermediaries may accept orders until 4:00 pm, these intermediaries do not transmit the orders to the fund company until after 4:00 pm. In the U.S., a significant percentage of shareholder transactions through intermediaries are not transmitted to the fund company until after the fund's NAV is calculated. The primary mechanism for these intermediaries to submit trades is through the National Securities Clearing Corporation, which allows intermediaries to transmit the amount of shares until 8:30 pm for orders that met the proper order cutoff of 4:00 pm.[196]

The Securities Industry and Financial Markets Association ("SIFMA") reports that an estimated eighty percent of shareholders do not invest directly with a fund, but rather through a financial intermediary such as a retirement plan.[197] Most funds, SIMA cautioned, will not "have sufficient information about fund flows at the time the NAV is struck to determine whether the swing threshold has been breached and thus the NAV should be adjusted."[198] Certain intermediaries, such as retirement plans and insurance companies, may require the NAV *before* processing fund trading thus further ex-

194 *Id. See also* INV. CO. INST., EVALUATING SWING PRICING: OPERATIONAL CONSIDERATIONS 6 (2016), https://www.ici.org/pdf/ppr_16_evaluating_swing_pricing.pdf [perma.cc/SY32-JW29] [hereinafter INV. CO. INST. CONSIDERATIONS].

195 Vanguard Comment Letter, *supra* note 189, at 17 n.47. *See also* INV. CO. INST. CONSIDERATIONS, *supra* note 194, at 6.

196 Fidelity Comment Letter, *supra* note 191, at 12.

197 Sec. Indus. and Fin. Mkts. Ass'n, *supra* note 192, at 15–16.

198 *Id.* at 3.

tending the time for funds to receive complete trading information and complicating the information loop needed to implement swing pricing accurately.[199]

Under swing pricing rules, a fund must evaluate net shareholder activity to determine if the swing threshold has been met *before* the NAV is struck.[200] The most crucial component of the swing pricing framework is whether the swing threshold has been met or not. Estimating a swing threshold for purposes of adjusting—or swinging—the NAV shortly after the 4:00 pm deadline, and without complete trading information, creates an operational impediment and forces "blind" swinging by participating funds.[201] One industry commentator summarized the "conflicting requirements":

> Established workflows provide for the broker-dealers, bank trust departments, retirement recordkeepers and other intermediaries that process the vast majority of mutual fund purchases and redemptions to use the current transaction price as an input in their daily processing. Among other considerations, intermediaries require receipt of the current transaction price to translate the value of customer orders expressed in share amounts or as percentages of holdings into dollar amounts. So long as fund transaction processors and distribution intermediaries require a fund's price as an input into their processes for determining the value of daily net fund flows, the swing pricing requirement that a reliable estimate of daily net flows is available at the time the daily transaction price is established cannot be fulfilled.[202]

199 Final Rules, *supra* note 4, at 82100–01.

200 Inv. Co. Inst. Comment Letter, *supra* note 9, at 55–56, 59–60.

201 Dechert LLP, Comment Letter on Swing Pricing, at 20 (Jan. 13, 2016), https://www.sec.gov/comments/s7-16-15/s71615-70.pdf [perma.cc/2M5T-367H] ("Given that the successful implementation of swing pricing depends heavily on a fund's receipt of timely and reasonably accurate cash flow estimates, to the extent that current trade processing systems and practices limit the ability of funds to receive intraday order flow information, it will be very difficult to develop a workable swing pricing regime.").

202 Eaton Vance Comment Letter, *supra* note 170, at 5.

The rules force a seemingly impossible set of operations by on participating funds.[203] First, it requires the nearly instantaneous processing and collection of all trading activity from a variety of sources, including intermediaries. Second, it requires an instantaneous and simultaneous assessment of trading activity to determine if the threshold is met. The rules require a third immediate and simultaneous action: assessing the trading costs and setting the swing factor. Between 4:00 pm and 6:00 pm, participating funds must complete trading, garner it from a variety of sources, evaluate trading volumes and costs, and issue an adjusted NAV.[204] Layered service providers within the mutual fund industry serve as consolidation clearing houses for other mutual fund platforms. These intermediaries rely upon the technology of those other service providers (i.e., broker-dealers and retirement platforms) to incorporate the trading data for the day from the underlying intermediaries in order to generate a consolidated purchase and redemption order.[205] Transactions within retirement accounts must also be verified for compliance with retirement savings rules, adding an additional transactional layer and delay between trading close, transmission, and incorporation into the fund's NAV.[206]

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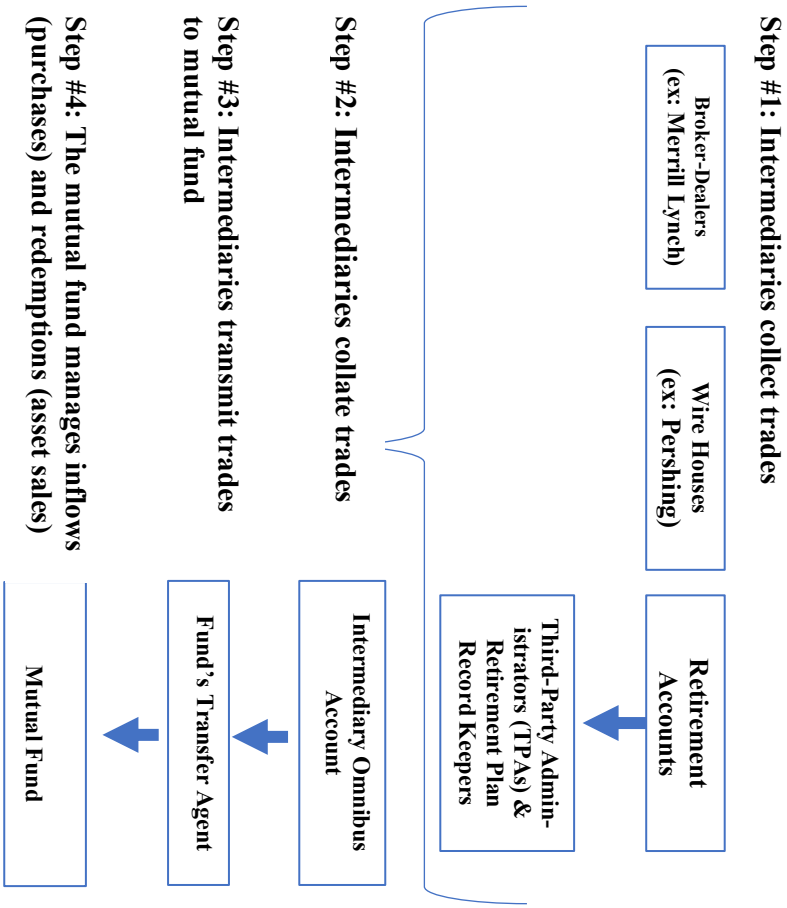
[203] Sec. Indus. and Fin. Mkts. Ass'n, *supra* note 197, at 15–16 (setting out in detail the timing of receipt of fund flow information to U.S. mutual funds).

[204] Contrast the U.S. operations with those of European jurisdictions, where mutual funds receive complete trade information by noon each day. European funds have up to seven hours to assess shareholder trade information as well as portfolio trading needs and related costs. Inv. Co. Inst. Comment Letter, *supra* note 9, at D-1 to D-3. The current NAV calculation process, however, requires subjective judgments and estimates such as valuations for standardized market pricing. *See* Final Rules, *supra* note 4, at 82093 ("We note that current NAV calculation processes already include subjective judgments and estimates, including, for example, fair-value determinations for assets that lack readily available market quotations.").

[205] Inv. Co. Inst. Considerations, *supra* note 194, at 6–7.

[206] *Id. See also* Interview with Holly van den Toorn, Legal and Compliance Manager, in Atlanta, Ga. (2017). Holly van den Toorn also noted additional operational challenges regarding fund flow estimation such as whether dividend reinvestments, automatic investment plans, or mandatory minimum withdrawals should be included in the transactions to which

FIGURE 2: RELATIONSHIPS BETWEEN INTERMEDIARIES, RETIREMENT INVESTORS, AND MUTUAL FUNDS



At step 1, intermediaries collect trades. At step 2, intermediaries collate trades.[207] At step 3, intermediaries transmit

the swing factor must be applied. As a practical matter, the operational difficulty of achieving the exclusion of such transactions from an adjusted NAV may not even be possible at this time.

207 Each intermediary collects trades from underlying shareholders and sends them through "omnibus accounts" (as one big group trade) to the fund's transfer agent. These trades are collected by intermediaries throughout the day up until the 4:00 p.m. cut-off time mandated by the SEC. It could still take the intermediary until 6:00 p.m. or later, or even overnight, to deliver the trade files to the fund's' transfer agent.

trades to mutual fund.[208] Finally, at step 4, the mutual fund manages inflows (asset purchases) and redemptions (asset sales).[209]

b. No Safe Harbor

Unlike in European jurisdictions,[210] the U.S. swing pricing rules do not create a safe harbor to protect a fund's miscalculation of the swing threshold based upon reasonable estimates.[211] Mutual fund insiders, including one author, are concerned that the operational impossibility will breed a situation ripe for mutual fund shareholder lawsuits and enforcement actions.[212] David Blass, the General Counsel of the Investment Company Institute (the "ICI"), summarized the concern as "[s]wing pricing would introduce a new potential source of pricing error" because a fund may well be using estimated flow information, and if materially inaccurate, cause the fund to materially misstate its NAV.[213] Incorrect estimations of the swing factor may trigger a fund's price or NAV

208 Direct Shareholders are shareholders whose accounts are directly on the fund's transfer agent system and don't go through an intermediary.

209 The transfer agent processes all trades and tells the fund how much cash it needs to make available for redemptions, or how much it has to invest. Shareholder trades can be T+1 or T+3, so funds may have advanced notice of large trades. The information is sent to the fund's accounting agent who sends a "cash sheet" or "super sheet" to the portfolio manager/team who will then adjust the portfolio as needed.

210 The ALFI Swing Pricing Guidelines provide: "If acting in good faith, the fund is swung based on a flow estimate which is subsequently found to be inaccurate, this in itself would not normally be considered an error if the fund's standard and appropriate policies and procedures have been followed." ALFI 2015 GUIDELINES, *supra* note 58, at 30.

211 Final Rules, *supra* note 4, at 82100 n.189. *See also* Swing Pricing First Proposal, *supra* note 4, at 62340.

212 Dechert, *supra* note 201, at 24 ("[T]he Commission could expressly provide that the relevant parties, including the fund, the swing pricing administrator and the fund board, would not be exposed to liability for NAV errors of this type if there were adequate guardrails in place and reasonable measures were taken to implement swing pricing.").

213 Inv. Co. Inst. Comment Letter, *supra* note 9, at 62.

correction policies.[214] Funds' NAV correction policies typically provide for a fund to correct a material NAV error and require a fund's investment advisor to reimburse shareholders suffering "material economic loss due to the errors."[215] NAV misstatements would require reprocessing all shareholders affected by the inaccurate NAV; a significant burden would thereby be placed on funds and their service providers.[216]

Rather than create a safe harbor, the rules rely on a reasonable estimate of fund flows after a reasonable inquiry.[217] The swing pricing policies and procedures required under the rules should outline flow estimate procedures.[218] What constitutes a reasonable estimate will vary depending on the fund and the trading circumstances.[219] For example, a fund with consistent redemption levels and a large, direct shareholder base (as opposed to retirement plan investors) may be "better positioned to make a high confidence estimate of flows with less effort, than a fund that is primarily distributed through intermediaries, who has experienced volatile purchases and redemptions and has a mix of distribution partners and institutional and retail shareholders."[220] The SEC also encouraged

214 *Id.*

215 *Id.* at 61–62.

216 *Id.* at 62.

217 Final Rules, *supra* note 4, at 82099 (discussing price and swing threshold estimates). *Cf.* Invesco, *supra* note 98, at 6 (urging the SEC to create a "safe harbor for good faith decisions and actions that shield funds from potential liability").

218 Final Rules, *supra* note 4, at 82100 ("Such policies and procedures could describe the process by which the fund obtains shareholder flow information—including flows obtained from intermediaries—as well as the amount and kind of transaction data that the fund believes necessary to obtain before making its estimate of total net flows in order to determine whether the swing threshold has been exceeded, and applying swing pricing that day.").

219 *Id.* at 82100 ("We recognize that funds may take different approaches in determining whether they have sufficient flow data to make a reasonable high confidence estimate, and that the completeness of data—such as the percentage of actual versus estimated net flow data—as well as the nature and types of estimates used may vary based on the particular circumstances of the fund.").

220 *Id.*

funds, consistent with European practices, to regularly back-test fund flow-estimating procedures with actual data to confirm and refine the estimating procedures.[221]

c. Fund Size Matters

Large-fund-complex advantages and restricted fund options are two possible side effects of the intermediary/mutual fund-timing problem. Under the first—large fund complex advantages—the concern is that larger funds can exert more pressure to get their orders processed first by their distribution partners thus improving their information and reducing operational friction.[222] This is the mutual fund "Wal-Mart" advantage where the largest provider garners the most supply chain support and priority, reinforcing its superiority over smaller offerings. The second concern reflects a practical reality that intermediaries may choose to protect themselves from the timing pressures exacerbated by swing pricing and exclude participating funds from the platform.[223] There are thousands of mutual funds, and the idea is that if intermediaries find compliance to be a hassle, they will opt for funds without swing pricing.

The diversity of the mutual fund industry—there were over 9500 mutual funds in the United States in 2016[224]—ensures that there will be early adopters in the market to utilize

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221 *Id.*

222 *Id.* at 82101–02. *See generally* Inv. Co. Inst. Considerations, *supra* note 194, at 5–7.

223 Final Rules, *supra* note 4, at 82101 ("In addition, funds also expressed concerns that intermediaries may choose not to offer funds that choose to implement swing pricing, due to the increased processing and technology burdens that swing pricing would impose on intermediaries, a consideration that funds will evaluate as they determine whether to adopt swing pricing.").

224 *Number of Mutual Funds in the United States from 1997 to 2016*, STATISTA, https://www.statista.com/statistics/255590/number-of-mutual-fund-companies-in-the-united-states/ [perma.cc/7UGG-AZE4]. *See also Distribution of Investment Fund Assets in the United States in 2016, by Type*, STATISTA, https://www.statista.com/statistics/255606/asset-allocation-mutual-funds-usa/) [perma.cc/2KER-EPPM] (displaying that of these funds, as-

swing pricing with distribution models and an investor base better able to accommodate the information challenges of swing pricing.[225] These early adopters, including larger fund complexes, may drive industry changes through the market, rather than through an SEC mandate. Additionally, the extended implementation time for the *optional* rules further allow early adopters to drive market changes necessary for broader participation.[226]

d. A Possible Path Forward: Block Chain Technology

Blockchain[227] is one implementation strategy for swing pricing in the U.S. mutual fund industry. Simply described, blockchain technology facilitates a large, virtual, secure, distributed, and nearly automatic public ledger.[228] Blockchain

sets were distributed roughly 42% in domestic equity funds, 14% in international equity funds, 22% in bond funds, 14% in money market funds, and 8% in hybrid funds like ETFs and alternative funds).

225 Final Rules, *supra* note 4, at 82101–02. The SEC also said it:

> [U]nderstand[s] that certain funds with investors that primarily transact directly with the fund's principal underwriter or transfer agent, or that are primarily distributed through affiliates or broker-dealers (that could potentially provide timely flow data), and/or do not have a substantial number of investors transacting in retirement plans or insurance products could more easily obtain sufficient net flow information. In addition, larger fund complexes with the ability to more easily get net flow information from their intermediaries, including those that have established large trade notification processes, may have the leverage to negotiate operational solutions and the resources to implement swing pricing sooner for certain funds, which may result in inefficient one-off solutions rather than coordinated industry-wide operational solutions that may reduce costs for investors overall.

Id.

226 *See id.* at 82101–03.

227 *See generally* SHAWN S. AMUIAL ET AL., THE BLOCKCHAIN: A GUIDE FOR LEGAL AND BUSINESS PROFESSIONALS (2016).

228 *See* Wulf A. Kaal, *Blockchain Innovation for Private Investment Funds* 5–7 (Univ. of St. Thomas, Minn. Legal Studies, Research Paper

can deliver both speed and accuracy. Blockchain technology records peer-to-peer transactions in real time reducing (if not eliminating) the role of intermediaries.[229] It also reduces the need for operational intermediaries—a significant obstacle to swing pricing implementation discussed above—and speeds up fund flow information.[230]

Another key feature of blockchain technology is its immutability; it is designed to eliminate fraudulent transactions through decentralization and verification.[231] Multiple parties can access and contribute to a blockchain ledger, and parties must provide digital signatures to authenticate their identity.[232] To simply illustrate, each transaction creates a new block in the chain, and as transactions continue, the chain grows from 1 to 2, to 5, to 10, and so on. If multiple parties have access to the verified chain, a single party cannot alter

No.17-21, 2017), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2998033 [perma.cc/442Y-GFSJ] (describing key attributes of blockchain technology).

229 *Id*. at 5.

230 *See* AMUIAL ET AL., *supra* note 227 (arguing that blockchain "incentivizes direct peer-to-peer transactions, including compensation, between the creator and consumer, eliminating the need for intermediation. Intermediaries . . . are replaced by code, connectivity, crowd, and collaboration. Blockchain . . . creates a platform for trust through truth and transparency for parties through its immutability and use of cryptography."). *See also* Kaal, *supra* note 228, at 5 (stating that transaction costs will be reduced by the elimination of intermediaries).

231 Rik Kirkland, *How Blockchains Could Change the World: Interview with Don Tapscott,* MCKINSEY & CO. HIGH TECH (May 2016), https://www.mckinsey.com/industries/high-tech/our-insights/how-blockchains-could-change-the-world [perma.cc/533A-ZM2B].

232 Kaal, *supra* note 228, at 8 (arguing that cryptographic technology enhances the security of the blockchain by embedding information from all prior transactions through algorithm-generated unique hash values before adding the next transaction, or block. . . .). *See also id*. at 8. ("That hash value ensures the authenticity of each transaction before it is added to the block. The smallest change to the blockchain, even a single digit/value, results in a different hash value. A different hash value makes any form of manipulation immediately detectable.").

the established chain across all of the copies, making it "practically impossible to reverse, alter, or erase information in the blockchain."[233]

Leveraging blockchain technologies in mutual fund transactions would facilitate a fund closing its fund flow by the current 4:00 pm deadline with a verified and secure ledger in place.[234] A fund could reliably calculate its NAV by 6:00 pm EST, with swing adjustments, if needed. This breakthrough technology seems particularly hopeful for an industry that still relies on paper and faxed orders to some extent.[235] The current process of transaction settlement can take as long as a week because intermediaries guarantee assets and institutional pass records, and individually verify them.[236] Blockchain promises settlement of transactions "within seconds, securely and verifiably."[237]

The capital markets and investment management industries are currently working on advancements in blockchain, with the hope that future fund distribution can be made automatic and instantaneous. Nasdaq Inc., for example, is collaborating with Nordic financial services group SEB to test a small-scale mutual fund trading platform based on blockchain technology.[238] Calastone, a technology company, said in June 2017 that it had successfully transacted mutual fund trades in a test environment and believes that blockchain could rev-

233 *Id*. at 7.

234 *See e.g.*, Marco Iansiti & Karim R. Lakhani, *The Truth About Blockchain*, HARV. BUS. REV., Jan.–Feb. 2017, at 118, https://hbr.org/2017/01/the-truth-about-blockchain [perma.cc/V8EA-U4SG].

235 Attracta Mooney, *Blockchain Successfully Tested in Sale of Mutual Funds*, FIN. TIMES (June 11, 2017), https://www.ft.com/content/5927fa2c-4c73-11e7-919a-1e14ce4af89b.

236 Iansiti & Lakhani, *supra* note 234, at 6.

237 *Id*.

238 Anna Irrera, *Nasdaq, SEB to Test Blockchain for Mutual Funds*, REUTERS (Sept. 27, 2017), https://www.reuters.com/article/us-nasdaq-blockchain/nasdaq-seb-to-test-blockchain-for-mutual-funds-idUSKCN1C20LQ [perma.cc/4UUV-Q3EY].

olutionize the mutual fund industry with significant efficiencies.[239] Additionally, on August 1, 2017, new Delaware legislation authorized Delaware corporations—a jurisdictional home of a majority of Fortune 500 companies—to use blockchain technology for stock ledgers and other corporate records.[240] Early adopters of blockchain-based stock ledgers and records include private companies in Delaware,[241] and a broad range of private investment firms.[242]

Widespread blockchain adoption in issuing companies and funds is not yet realized. Adoption obstacles include data privacy for public blockchains,[243] the novelty of the field,[244] resistance due to pressure on fee structure and the elimination of intermediary roles,[245] and untested regulatory compliance. Additionally, within the mutual fund industry, a crucial step will be for large firms to convince major industry participants to use the same platform.[246] Analysis of technology adoption and infiltration performed by two Harvard Business School professors, Marco Iansiti and Karim R. Lakhani, however,

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239 Mooney, *supra* note 235, at 1.

240 81 Del. Laws Ch. 86 (2017). *See also* Jeff John Roberts, *Companies Can Put Shareholders on a Blockchain Starting Today*, FORTUNE (Aug. 1, 2017), http://fortune.com/2017/08/01/blockchain-shareholders-law/ [https://perma.cc/E9RH-YMUE].

241 Sara Merken, *Delaware Blockchain Move Drawing in Private Companies, Law Firms*, BLOOMBERG BNA (Aug. 11, 2017), https://www.bna.com/delaware-blockchain-move-n73014463104/ [https://perma.cc/A33Y-M59Z] (citing to two dozen private firms interested in blockchain stock ledgers).

242 Kaal *supra* note 228, at 19, 28 (listing 120 private investment firms utilizing blockchain and specific applications).

243 Alison Berke, *How Safe Are Blockchains? It Depends*, HARV. BUS. REV. (March 7, 2017), https://hbr.org/2017/03/how-safe-are-blockchains-it-depends [perma.cc/G57H-C37G] (describing public and private blockchain technology and noting that the financial industry relies upon private blockchains).

244 Kirkland, *supra* note 231 ("The biggest problems [with blockchain] have to do with governance. Any controversy . . . is going to revolve around these governance issues. This new community is in its infancy . . .[,] the whole world of blockchain and digital currencies is the Wild West.").

245 Kaal, *supra* note 228, at 23–25.

246 Mooney, *supra* note 235, at 2.

suggests that early and strong areas of blockchain growth will occur in localized applications within a small network of financial firms.[247] They predict early and important adoption of private blockchains in the financial industry, including the firms listed above and among others, which will drive further applications and adoptions.[248]

While not fully realized, the authors of this Article are excited about the potential for blockchain technology to address the operational hurdles to swing pricing—as well as to deliver transaction cost savings through automation, accuracy, and intermediary elimination.

2. Conceptual Challenges

This Article distinguishes conceptual challenges from operational challenges because the conceptual criticisms persist even if the mutual fund industry implemented the operational changes addressed above. Price volatility and arbitrage, imperfect equalization among mutual fund shareholders, and rising compliance costs with competing compliance priorities are all conceptual challenges to swing pricing.

a. Volatility & Arbitrage

Swing pricing may be a source of, not a solution to, volatility, at least in the short term.[249] A mutual fund opting into swing pricing is likely to experience greater price volatility (variations) when the NAV swings than when it does not.[250]

247 Iansiti & Lakhani, *supra* note 234, at 8.

248 *Id.*

249 Final Rules, *supra* note 4, at 82092. ("[A] few [commentators] opposed swing pricing outright, arguing that it may have negative effects on certain shareholders and may add to fund performance volatility.").

250 *Id.* at 82093 ("Swing pricing could increase the volatility of a fund's NAV in the short-term because NAV adjustments would occur when the fund's net purchases or net redemptions pass the fund's swing threshold. Thus, the fund's day-to-day NAV would show greater fluctuation than would be the case in the absence of swing pricing."). *See also* Dechert Comment Letter, *supra* note 201, at 24 (pointing out that price volatility may originate from "(i) the application of an incorrect swing factor to a fund's

Increased price variations might correlate with higher short-term tracking errors where the fund's return on the swung NAV deviates from a fund's benchmark return.[251] One mutual fund industry commentator cautioned:

> Swing pricing will distort the comparative performance records of different funds to reward those that apply swing pricing most aggressively. The difficult-to-quantify and variable nature of the underlying fund costs that the Swing Pricing Proposal seeks to mitigate and the forced reliance on estimates of daily net flows mean that fund transaction prices adjusted to reflect swing pricing will be subject to errors and second-guessing, exposing funds utilizing swing pricing to transaction reprocessing costs and potential regulatory sanctions and litigation.[252]

These concerns are short-sighted however, because while daily variation may increase, the price would reflect actual transaction costs making the returns more accurate. Additionally, as more funds implement swing pricing, the benchmarks will reflect the liquidity costs, and over time, produce both more accurate and consistent returns.[253]

NAV; (ii) adjusting the fund's NAV in the wrong direction; and (iii) the failure to adjust the fund's NAV when the swing threshold has been reached").

[251] Final Rules, *supra* note 4, at 82093 ("[V]olatility might increase short-term tracking error (i.e., the difference in return based on the swung NAV compared to the fund's benchmark) during the daily period of NAV adjustment, and could make a fund's short-term performance deviate from the fund's benchmark to a greater degree than if swing pricing had not been used, especially if the NAV is swung on the first or last day of a performance measurement period.").

[252] Eaton Vance Comment Letter, *supra* note 170, at 4.

[253] Final Rules, *supra* note 4, at 82093 ("[S]wing pricing may also result in reduced tracking error over time, as benchmarks typically do not take into account transaction costs associated with responding to daily transactions, and if swing pricing recoups such costs, it may result in a fund that implements swing pricing better matching its benchmark on a long-term basis.").

The ICI, representing 9352 mutual funds,[254] expressed concern that disclosures of swing pricing process and fund flow data would create new arbitrage opportunities by disclosing heretofore "material non-public information."[255] The European jurisdictions' experience with swing pricing confirms these suspicions. Historically, European funds were reticent to disclose swing pricing information.[256] Many European funds do not disclose the swing threshold—something not required under the U.S. rules—but roughly half of funds responding to a 2015 survey disclose swing pricing information upon client request.[257]

New swing pricing procedures may contribute to short-term price volatility by deterring advance notice of large trades. Large shareholders or institutional investors often provide funds advance notice of a large purchase or redemption order, as a courtesy.[258] Discouraging advance notice augments a funds' likelihood of "blind" NAV calculations. Funds foster strong relationships and communication with intermediaries and as a result are able to request advance notice of large shareholder transactions.[259] Intermediaries may provide a few days' to even a few weeks' notice of large transactions, such as when the fund is being added or removed from

254 INV. CO. INST., 2015 ANNUAL REPORT TO MEMBERS 2 (2015), https://www.ici.org/pdf/15_ici_annual.pdf [perma.cc/Z8WM-SLK8]. The association that would later become the ICI was formed in 1940 in conjunction with the sweeping federal financial reform ushered in by the 1940 Investment Company Act. *See also* INV. CO. INST, *ICI's Mission*, https://www.ici.org/about_ici/mission [perma.cc/BLD5-NPXF] (discussing ICI history further).

255 Inv. Co. Inst. Comment Letter, *supra* note 9, at 56. Holly van den Toorn notes her conversations with traders discussing the arbitrage possibilities that exist if a trader thinks that a fund's price will be swung.

256 ALFI 2015 SURVEY, *supra* note 58, at 12.

257 *Id.*

258 Inv. Co. Inst. Comment Letter, *supra* note 9, at 56. *See also* Final Rules, *supra* note 4, at 82102 n.206 (discussing the advance notice of large trades negotiated by large fund complexes with their intermediaries as a way to avoid in-kind redemptions).

259 Inv. Co. Inst. Comment Letter, *supra* note 9, at A-11.

an investment model, 401(k) plan options, or the intermediary's platform of funds available to its customers.[260] Funds are required to disclose swing pricing practices in the prospectus, thus cueing investors in to how their large transactions maybe be affected by a swung NAV.[261] Wanting to avoid this effect, large institutional shareholders may alter its courtesy disclosure practice to circumvent a fund from triggering swing pricing on anticipated trading volume, when a day's trading volume is high, but not yet over the swing threshold.

As an example, a large institutional shareholder advises a fund that it intends to redeem $10 million from the fund two weeks in advance of the trade. Such a redemption would trigger the fund's swing threshold. Notice allows the fund's portfolio managers and traders to assess carefully the potential transaction and market impact costs in the days leading up to the redemption. On the day that a shareholder places a $10 million redemption order, the fund adjusts the NAV to impose a fair representation of costs to the redeeming institutional shareholder, protecting the remaining shareholders from dilution. Under current mutual fund operations timing, a fund may swing the NAV without complete trading information. In such a scenario, advance notice to the fund may make it more likely that a fund will deem the swing threshold met and adjust the NAV. An institutional shareholder looking to game the system and avoid the allocation of transaction costs may choose *not* to provide advance notice.[262]

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[260] *Id.*

[261] Final Rules *supra* note 4, at 82107 (stating disclosure requirements).

[262] An intermediary may feel compelled to consider its clients' "best interests" and may avoid presenting the fund with enough information and time to calculate properly the swing factor in hopes that the fund cannot accurately estimate transaction and market impact costs in its favor. Holly van den Toorn noted the general confusion and concern regarding the extent of the new fiduciary duty standards and whether the new standard would impose a theoretical obligation on an intermediary to avoid triggering the NAV. *See also Retirement Conflict of Interest Final Rule*, EMP. BENEFIT SEC. ADMIN., https://www.dol.gov/agencies/ebsa/laws-and-regulations/rules-and-regulations/completed-rulemaking/1210-AB32-2 [perma.cc/P5DJ-VRSE] (providing information on the Dept. of Labor's Fiduciary Duty Rule, with an

In a paradoxical situation, participating funds may receive less advance notice of large trades and thus incur more market impact costs in meeting large, and unpredictable, redemption demands. Additionally, participating funds may be forced—in the absence of advance notice—to account for transaction costs in an "imprecise" manner.[263] Lack of proper notice and operational challenges to receiving accurate flow of information increase the likelihood that a fund will under- or over-estimate the swing factor and adjust the NAV improperly, exposing remaining shareholders to dilution—at least at the beginning. There is an important counter-argument that bears noting here. If swing pricing ultimately improves fund performance by removing the performance drag of dilution from reported returns, larger reported investment returns should incentivize advance notice to funds in the long-run.

b. Imperfect Equalization

The swing pricing rules treat all active shareholders the same—meaning that regardless of the shareholder's order size, a fund applies the same swung NAV price.[264] A shareholder redeeming or purchasing a relatively small number of mutual fund shares is paid (or pay) the same swung NAV as a shareholder with a large order. The inequity complaint arises because the active but small order shareholder is likely subsidizing some of the transaction costs generated by the active and large order shareholder.[265] Consider, for example, the retirement investor who is required, per IRS regulations, to make annual minimum distributions beginning at the age of

effective date of January 1, 2018; however, there is uncertainty about implementation due to a February 3, 2017 Executive Order signed by President Donald Trump ordering the DOL to reexamine the rule). *See* Exec. Order No. 13,772, 82 F.R. 9965 (2017).

263 Inv. Co. Inst. Comment Letter, *supra* note 9, at 57.

264 Final Rules, *supra* note 4, at 82094 ("[A]s the proposed swing pricing rules would apply a single adjusted NAV per share to all shareholder orders, regardless of order size.").

265 *Id.* at 82094 ("[S]wing pricing could thus penalize certain investors disproportionately or give other investors inappropriate "windfalls.").

70 ½.[266] For example, if a fund adjusted its NAV by five basis points to reflect transaction liquidity costs generated by unusually large trading that day, a shareholder redeeming 10 shares is paid five basis points less per share than a shareholder redeeming 10,000 shares, and who is also the likely source of the high liquidity transaction costs.[267] Regulatory design requires a tradeoff between accuracy and administrability that is evident in the swing pricing rules. There is indeed the potential for some imperfect cost allocation between active shareholders under the rules, but it is a more accurate allocation than between active and sedentary, or long-term, shareholders. Additionally, swing pricing administrator reports, mutual fund director oversight, published swing pricing policies and procedures, a consistent (and undisclosed) swing threshold, and an upper limit (two percent) of swing pricing all further safeguard fair application of the rules.[268]

Another inequity criticism highlights potential impact differences on large versus small funds. In times of liquidity stress or crisis, some mutual fund industry representatives cautioned that investors will be more likely to redeem from funds without swing pricing, which are more likely to be smaller funds, thus concentrating run risks within smaller funds.[269] They worry that swing pricing will "create incentives for investors to redeem from the funds least likely to be able to handle the stress from large amounts of redemptions. This result is both anti-competitive and—to the extent that the SEC is concerned about redemptions leading to 'fire sales'—counterproductive."[270]

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266 Qualified Pension, Profit-sharing, and Stock Bonus Plans, 26 C.F.R. § 1.401(a)(9)(C) (2017).

267 Coal. of Mutual Fund Inv'rs, Comment Letter on Swing Pricing (Jan. 18, 2016), at 8, https://www.sec.gov/comments/s7-16-15/s71615-85.pdf [perma.cc/A3BX-QLTC] (describing how the symmetry of the SEC rules disadvantage certain shareholders under swing pricing).

268 *See e.g.*, Final Rules, *supra* note 4, at 82094 (describing safeguards of fairness).

269 Dechert Comment Letter, *supra* note 201, at 22.

270 *Id.*

c. Compliance Costs & Priority

Participating swing pricing funds face significant implementation costs. The SEC estimated swing pricing implementation costs at $1.3 million to $2.25 million per fund complex.[271] These *optional* implementation costs are on top of mutual fund compliance with other new regulations passed as part of a liquidity management package. The additional liquidity rules require liquidity risk management programs, a liquidity classification of each portfolio investment, redemption in-kind policies and procedures,[272] and modernizing shareholder reporting forms.[273] Additionally the mutual fund industry must also comply with the Department of Labor's ("DOL") new definition of who is a fiduciary—a seismic policy and operational shift for the industry.[274]

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271 Swing Pricing Proposed Rules, *supra* note 4, at 62367–68. The SEC's cost estimates do not account for industry retooling to provide earlier trade and fund flow information from intermediaries to funds. *See e.g.*, Eaton Vance Comment Letter, *supra* note 170, at 5.

272 Final Liquidity Risk Rules, *supra* note 4, at 82142. Most funds would be required to comply with the liquidity risk management program requirements by December 1, 2018, and smaller funds by June 1, 2019. *Id.* at 82228.

273 SEC Report Modernization Rule, 17 C.F.R. § 200, 210, 232, 239, 240, 249, 270, 274 (2017).

274 DOL Fiduciary Rule, 29 C.F.R. § 2510.3-21(j) (2017). The new rules and subsequent uncertainty has consumed significant resources in the mutual fund industry. Holly van den Toorn notes the significant amount of time mutual fund complexes spent in advance of the rule compliance date working with intermediaries, many of which had different approaches to solving for the DOL Fiduciary Rule. Amidst the post-election uncertainty, some complexes launched a specific share class to accommodate intermediaries' compliance, but are not currently offering the special share class until the Rule's future becomes clear. She also reports that the overall mutual fund industry would prefer to see a fiduciary standard produced in conjunction with their primary regulator, the SEC, to avoid future conflicts. Anne Tucker, the author with primary academic experience, acknowledges the operational and market consolidation changes are likely to follow implementation of the fiduciary duty rule. From her perspective, the painful elements of these changes should never have been permitted in the first place. Self-interestedly promoting high-fee, low-return products—or even mediocre products—to unsophisticated clients exploits information asymmetries

Smaller mutual fund complexes that may have exhausted time and money resources on the *mandatory* rules are less likely to implement swing pricing because of the additional and *optional* regulatory compliance and cost burdens that come with the practice. In this way, the rules preference larger fund complexes with greater resources and operational efficiencies in implementing new systems.[275]

V. MUTUAL FUND LIQUIDITY: EXISTING AND CONSIDERED TOOLS TO RECOUP & REDUCE COSTS

Alternatives to swing pricing include redemption fees, in-kind redemptions, and dual pricing. As the mutual fund market grew, SEC regulations authorized various anti-dilution and other tools to promote mutual fund liquidity. U.S. mutual funds can impose redemption fees and in-kind redemptions as anti-dilution tools. A third tool—dual pricing—which is not authorized for U.S. mutual funds, is also introduced below. Each of these alternatives provides an important regulatory juxtaposition to swing pricing and contextualizes the discussion undertaken in this Article. Neither author is convinced that the existing alternatives provide a workable option for

and trust misplaced on the veneer of professionalism in the form of nice suits and glossy product brochures. High-fee, low-performance investment options create market inefficiencies, erode individual investors' retirement accounts, and contribute to a national savings shortfall. For a similar view, see Benjamin P. Edwards, *A Rules Change from Trump Means More Money for Wall Street*, WASH. POST (Feb. 3, 2017), https://www.washingtonpost.com/opinions/a-rules-change-from-trump-means-more-money-for-wall-street/2017/02/03/b6c78d3a-ea55-11e6-bf6f-301b6b443624_story.html [perma.cc/GTF6-B4GE].

275 Dechert Comment Letter, *supra* note 201, at 20 ("For example, smaller fund complexes are less likely than larger fund complexes to have adequate resources or internal processes in place to be able to support the use of swing pricing. In addition, as the timeliness and accuracy of intraday flow information to a fund depends on the intermediaries through which the fund distributes its shares, certain funds may benefit more than others to the extent they use intermediaries that have developed systems to address the operational concerns associated with swing pricing or have large numbers of direct shareholders.").

funds to effectively manage liquidity and mitigate dilution for a wide-ranging set of assets or circumstances. Funds cannot use the available tools, over the long term and on a regular basis, without encountering reputational, operational, and other risks.

A. Purchase and Redemption Fees: Overview & Challenges

Since 2005, mutual funds can impose a redemption fee, no greater than two percent of the redemption amount, in certain situations.[276] A fund retains the redemption fee in order to recoup costs related to the shareholder redemption.[277]

Purchase and redemption fees present alternative anti-dilution and cost-shifting devices for mutual funds. The fees, perceived as "simpler" for investors to understand, face investors' unfavorable perceptions and operational challenges.[278] Mutual funds currently impose redemption fees in limited scenarios such as to "combat 'market timing' as part of 'frequent trading policies.'"[279] Further, disclosure and use of a purchase or redemption fee by a fund often discourages shareholder investment.[280] Mutual fund industry representatives perceive redemption fees as an impediment to both marketing efforts and having intermediaries offer the fund on its investment

276 Swing Pricing Proposed Rule, *supra* note 4, at 62327.

277 *See* SEC, Mutual Fund Redemption Fees, Investment Company Act Release No. 26782, 70 FR 13328. 13341 (Mar. 18, 2005). The redemption fee may be no more than two percent of the value of the shares redeemed. 17 C.F.R. § 270.22c–2(a)(1)(i). Rule 22c–2 requires that each fund's board of directors (including a majority of independent directors) either (i) approve a redemption fee that in its judgment is necessary or appropriate to recoup costs the fund may incur as a result of redemptions, or to otherwise eliminate or reduce dilution of the fund's outstanding securities, or (ii) determine that imposition of a redemption fee is not necessary or appropriate. *Id.*

278 Swing Pricing First Proposal, *supra* note 4, at 62370. *See also* Final Rules, *supra* note 4, at 82126 (distinguishing redemption fees and alternatives from swing pricing). Purchase and redemption fees might also avoid fees that would avoid the NAV volatility and tracking error that they predict will occur with swing pricing.

279 BlackRock Comment Letter, *supra* note 189, at 4.

280 *Id.*

menu to clients.[281] The existence of the tool, but lack of deployment to combat liquidity and dilution concerns, mitigates its viability as a robust alternative to swing pricing.

One author challenges the SEC's claim that swing pricing would be simpler to implement over redemption fees because swing pricing can be implemented through changes to the fund's policies and procedures, whereas redemption fees require changes to the intermediaries' systems.[282] Not calculated into the SEC's position is the important role intermediaries play in making swing pricing possible.[283] If intermediaries agree to significant changes in trading cut-off times, they will necessarily be required to implement such changes within their systems, as well as undertake the arduous and unpleasant task of communicating the significant changes to their clients who purchase funds through their platforms.

B. In-Kind Redemptions: Overview & Challenges

Many funds reserve the right to utilize in-kind redemptions to facilitate the need for liquidity as a result of a significant redemption or other extraordinary circumstances.[284] A fund may send a pro-rata portion of its own portfolio securities to a redeeming shareholder instead of cash proceeds in a time of extraordinary circumstances as a way to mitigate liquidity costs to remaining shareholders.[285] The fund must not favor

281 Holly van den Toorn observed in her role in the mutual fund industry that redemption fees are viewed unfavorably by intermediaries and shareholders.

282 *See* Swing Pricing First Proposal, *supra* note 4, at 627–29 (discussing implementation barriers).

283 *See infra* Section IV.B.1.a.

284 Final Rules, *supra* note 4, at 82087 (discussing in-kind redemptions).

285 Definitions; Applicability; Rulemaking Considerations, 15 U.S.C. § 80a-2 ("'Redeemable security' means any security, other than short-term paper, under the terms of which the holder, upon its presentation to the issuer or to a person designated by the issuer, is entitled . . . to receive approximately his proportionate share of the issuer's current net assets, or the cash equivalent thereof.").

one shareholder over another by sending U.S. Treasuries, which are perceived as stable and safe investments, while it sends riskier investments to another shareholder.[286] A fund must send a pro-rata portion of its redeemable portfolio securities to eligible investors when it does so.[287] While it is uncommon to process in-kind redemptions,[288] it can be done when a fund and its remaining shareholders would be harmed significantly if it sold securities at steep discounts because of market volatility or stress.

Alternatively, funds can use redemptions in-kind as a method of tax management. If a fund holds securities that have significantly appreciated since purchase, selling the security would cause the fund to incur a realized capital gain.[289] Annually, realized capitals gains distributions are made to fund shareholders after being off-set by any capital losses the fund realized during the year.[290] Capital gains distributions are taxable income to shareholders, and particularly in a tax-advantaged fund, routine capital gains distributions would be problematic for the fund as well as for shareholders.[291]

286 Holly van den Toorn raises the cherry-picking scenarios as a possibility and notes the importance of policies and procedures to protect the pro rata portion of each security.

287 *See* Kenneth C. Fang, SEC No-Action Letter, 2005 WL 3601654 (Dec. 21, 2005) (GE Institutional Funds requests, and the SEC provides, no-action relief where GE proposes in-kind procedures including pro-rata distribution). This no-action letter is guidance for other mutual funds implementing similar in-kind transaction procedures.

288 The use of in-kind redemption is considered uncommon, but in truth, there is little transparency into the process. It is difficult to track this tool's usage because in-kind redemptions are typically processed through the NSCC with all other trading, also making it difficult to process due to high volumes of regular market trades processing at the same time. Thus, it is difficult to estimate the depth of this particular market practice.

289 Karen Domato, *'Redemptions in Kind' Become Effective for Tax Management*, WALL ST. J. (Mar. 10, 1999), http://www.wsj.com/articles/SB921028092685519084.

290 *Id.*

291 *Id.*

No tax event occurs to either party when a fund distributes portfolio securities to a shareholder.[292] This is vitally important to funds and shareholders who redeem large portions of a fund. In times of market duress, however, these potential tax benefits are eroded by the fact that the portfolio securities are trading at deeply discounted prices and funds are more likely to capture a capital loss than a gain.

Large investors may think twice before making large redemptions, or a run on a fund, if they can expect to receive securities in-kind rather than cash. In-kind redemption may encourage fund stability by discouraging exit. Redemptions in-kind can dampen the "first mover advantage" and reduce the likelihood that multiple large shareholders would all want to exit a fund in times of market stress—i.e., when the fund NAV is low.

Redemptions in-kind are commonplace for Exchange Traded Funds ("ETFs"), but not for mutual funds because of logistical challenges, shareholders' unwillingness to accept *other stock* in lieu of cash at the point of exiting the fund, and other issues.[293] Mutual funds typically utilize in-kind redemptions as a "last resort or emergency measure," and a fund's management personnel would be under strained capacity to deal with significant redemptions, possible runs on the fund, and other stressful situations.[294]

Reliance on in-kind redemptions poses reputational risks for a mutual fund, where the investment benefits from the easy diversification and conversion to cash for investors. Historically, hedge funds have been more frequent users of this redemption distribution method, but it is typically a "sign of catastrophic liquidity problems" and associated with more locked-in capital.[295] In addition to the liquidity challenge for

[292] *Id.*

[293] Swing Pricing First Proposal, *supra* note 4, at 62319–20. *See also* Final Rules, *supra* note 4, at 82087 (discussing in-kind redemptions).

[294] Swing Pricing First Proposal, *supra* note 4, at 62320.

[295] Domato, *supra* note 289. *See also, e.g.*, Managed Funds, Comment Letter on Swing Pricing (Jan. 13, 2016), at 2–3, https://www.sec.gov/comments/s7-16-15/s71615-83.pdf [perma.cc/6E37-5A8U] (citing to existing liquidity management tools for private hedge funds such as redemption

mutual fund shareholders receiving in-kind redemptions, another disadvantage is that they could receive "odd lots" of securities. [296] Odd lots, an atypical amount of stock under the standard 100-share unit,[297] may be difficult to sell at the price at which the entire lot was carried by the fund.[298] This is particularly the case in the fixed income market, where minimum delivery sizes exist, and odd lots of bonds are traded at reduced prices because of the difficulty in subsequently selling the small lots of bonds to another investor.[299] A shareholder may refuse to take the in-kind securities for this reason.[300]

C. A Considered Alternative: Dual Pricing

U.S. mutual funds cannot engage in dual pricing, sometimes referred to as ask/bid dual pricing, although it is available in European jurisdictions.[301] Dual pricing allocates investor expenses and protects against dilution. Unlike in-kind redemptions and redemption fees, the SEC has considered but never authorized dual pricing.[302] A dual-priced fund is one

rights, lock up periods, advance notice requirements of redemptions, early redemption fees, side pockets, gates, and in-kind redemptions.).

296 Holly van den Toorn made this observation in her role in the mutual fund industry.

297 POZEN, *supra* note 25, at 266.

298 Holly van den Toorn made this observation in her role in the mutual fund industry.

299 Holly van den Toorn made this observation in her role in the mutual fund industry.

300 *See e.g.*, Swing Pricing First Proposal, *supra* note 4, at 62319 (discussing in-kind redemptions). Holly van den Toorn experienced a situation in which a shareholder essentially refused to take an in-kind redemption due to the operational complexities. Smaller funds may face negotiation disadvantages in "forcing" the redemption and end up stuck between a rock and regulatory hard place. Ultimately, the fund with which she worked abandoned the in-kind redemption strategy, sold assets, and recorded the tax impact.

301 Dual pricing is applied predominantly to UCITs and AIFs in other jurisdictions. Holly van den Toorn made this observation in her role in the mutual fund industry.

302 In its rule proposal release, the SEC considered permitting dual pricing instead of swing pricing. Swing Pricing First Proposal, *supra* note 4,

that "calculates one price for subscribers, derived from underlying security offer prices and another price for redeemers, derived from underlying security bid prices and in each case, potentially the related market costs."[303]

Dual pricing conveys transaction costs to the transacting shareholders by publishing a "bid" NAV at which the fund is purchased and an "ask" NAV at which the fund is sold on a business day.[304] A "crossing" method matches purchases and sales while portfolio securities are traded and related costs are then borne by the purchasing and selling shareholders via the NAV.[305] Thus, two NAVs are published—a bid NAV for purchasing shareholders and an ask NAV for redeeming shareholders—spreading the transactional costs to shareholders who precipitate the need for trading portfolio securities.

UCITS and alternative investments funds ("AIFs") sold in markets outside of the United States primarily utilize dual pricing.[306] The SEC considered but rejected dual pricing in favor of swing pricing, citing concerns about operational challenges to implement the system as well as investor comprehension and comfort.[307]

While dual pricing may effectively externalize transactions costs, U.S. mutual funds have no current authority, or operational capacity, to engage in dual pricing. The different mutual fund market timing—when the trading day closes and the time funds have to process orders while striking the NAV—between the U.S. and European markets complicates swing pricing, as discussed above, and complicates dual pricing as well. [308] The criticisms of blind swinging apply with equal

at 62329. Note that ALFI does not specify whether it refers to a dual priced mutual fund, UCIT, or AIF.

303 ALFI 2015 SURVEY, *supra* note 58, at 7.

304 *Id.* at 9.

305 *Id.*

306 BLACKROCK, VIEWPOINT: FUND STRUCTURES AS SYSTEMIC RISK MITIGANTS 6 (2014).

307 The SEC "believe[d] [swing pricing] would be simpler to implement and for investors to understand." Swing Pricing First Proposal, *supra* note 4, at 62329.

308 *See* discussion *supra* Section III.B.

force to dual pricing.[309] The SEC, aware of the dual pricing alternative, rejected it in favor of swing pricing as a simpler and easier-to-understand option.[310] In addition, ALFI notes that dilution can still occur in a dual priced fund if the bid/offer NAVs are not a full reflection of the underlying costs of the investment or divestment.[311]

VI. CONCLUSION

This Article concludes by noting both authors' shared observations and bringing to bear their individual experiences and professional expertise to analyze the value and viability of the swing pricing rule and its components.

First, both authors acknowledge that the swing pricing rules signal a significant departure in mutual fund regulation. The limited application (and use) of the existing liquidity and dilution tools outlined in Part V demonstrate the low industry and regulatory priority previously placed on liquidity and dilution management. Swing pricing, on the other hand, is a tool that with operational changes could be used consistently by many U.S. mutual funds. Second, and most notably, swing pricing authorizes funds to alter the NAV—the single most definitive feature of open-ended funds in the United States. This is a technical, but radical, change to mutual fund regulation.

Market data and operational timing conflicts are the biggest barriers to successful swing pricing implementation. How can funds estimate the swing threshold trigger and subsequent NAV adjustment by the swing factor *before* they receive complete trading data? Significant industry practices, especially with regard to intermediaries servicing retirement accounts, will need procedural adjustments, possibly along with

309 A fund would publish its NAV before it could fully assess the impact of shareholder purchases and redemptions and apply adjustments to calculate the separate bid and ask NAVs.

310 Swing Pricing First Proposal, *supra* note 4, at 62329; *see also* Final Rules, *supra* note 4, at 82087 (citing to in-kind redemption comments).

311 ALFI 2015 SURVEY, *supra* note 58, at 8.

the financial incentives, to do so. Complete and reliable market data are prerequisites to implementing swing pricing with any degree of confidence, accuracy or efficiency, especially in light of the absence of a safe harbor for participating funds. Blockchain technology offering automated, verified, and secure ledger maintenance is one promising avenue.[312]

The voluntary nature of the swing pricing rules compounds the necessity of systemic industry change. The SEC provided the opportunity to swing the NAV, but not the path. It seems clear to both authors that the SEC is using the voluntary aspect of the rules to allow the first adopters to pave the way. First adopters are likely to be large firms with European funds in their complex and experience with the practice, who also have in-house transfer agents with proprietary systems, budgets, and the teams needed to undertake the expensive proposition. For example, large market players are the early experimenters in blockchain stock ledgers.[313] Large firms presumably have greater clout and more leverage with intermediaries than smaller firms do. This Article refers to this as the Wal-Mart effect, and it seems apt. Intermediaries must be willing to make significant changes to trade cut-off times and operational systems if any early adopter can effectively swing the NAV. Leaving the implementation path up to the mutual fund industry links regulatory success to financial incentives. The industry can solve the operational challenges, but only if it is lucrative to do so. Financial incentives may be found in blockchain technology advances that reduce, if not eliminate, the need for operational staff and inter-institutional verification of stock ledgers. Cost savings are inherent in collapsing the mutual funds and retirement financial services system. Which parties benefit from the savings—funds, investors, plan servicers, etc.—remains to be seen.

Relevant for all mutual funds, the SEC telegraphed its concerns regarding liquidity management and dilution prevention as regulatory priorities with the new rules. With the

312 See *supra* notes 227–248 and accompanying text for a discussion of blockchain.

313 *See e.g.*, Irrera, *supra* note 238 (discussing Nasdaq blockchain technology for mutual funds).

swing pricing rules, the SEC sends a clear message that funds and fund boards should be considering how to address potential dilution to shareholders' investments. Funds should take the SEC's message as a prompt to assess their current anti-dilution tools, practices, and related policies and procedures to determine whether they are sufficient in light of not only historical flows and potential emergency situations, but also the SEC's current concerns regarding fund liquidity.

An Industry Perspective on Swing Pricing

My primary perspective is that of an active industry participant, responding to regulatory pronouncements and change.[314] The Liquidity Management Program Rules—of which swing pricing is a component—impose new requirements for funds to digest and implement. The mutual fund industry also faces the much-anticipated, now-delayed DOL Fiduciary Rule. January 2018 is the designated compliance date, however an executive order by President Trump and a subsequent appeal by the Department of Labor have ushered in uncertainty and confusion around the fiduciary duty rule.[315] While federal law is being figured out, Nevada passed

[314] This Subsection was written by Holly van den Toorn, who has over eighteen years of mutual fund industry experience and is currently a Legal and Compliance Manager for a publically traded company, its wholly-owned registered investment advisors, and affiliated mutual funds.

[315] Memorandum on the Fiduciary Duty Rule, 2017 DAILY COMP. PRES. DOC. 95 (Feb. 3, 2017), https://www.whitehouse.gov/the-press-office/2017/02/03/presidential-memorandum-fiduciary-duty-rule [perma.cc/DL2X-68YH]. The Department of Labor's ("DOL") Fiduciary Rule's compliance date was reset to January 1, 2018, but President Trump signed an Executive Memorandum compelling the DOL to review the Fiduciary Rule "to determine whether it may adversely affect the ability of Americans to gain access to retirement information and financial advice." *Id.* The DOL subsequently filed a brief in a lawsuit, stating it had proposed to the Office of Management and Budget ("OMB") to delay the compliance date to July 1, 2019. Brief for Respondents at 1, Thrivent Fin. for Lutherans v. Acosta, 2017 WL 5135552 (D. Minn. Aug. 9, 2017) (No. 16-03289). The DOL officially began the eighteen-month delay in the November 29, 2017 Federal Register publication. 18-Month Extension of Transition Period and Delay of Applicability Dates; Best Interest Contract Exemption (PTE 2016-01); Class

its own version of a bill introducing a new fiduciary standard.[316]

With several significant rules imposing new compliance obligations over the next two years,[317] fund complexes and advisors must do more with less. Many in the industry are not feeling confident about meeting these obligations in the near-term. Legal and compliance teams are already stretched thin implementing report modernization, liquidity risk management programs, new liquidity policies and procedures, in addition to addressing the industry disruptions resulting from DOL's new definition of who is a fiduciary. And this is before tackling swing pricing.

In response to these regulatory changes, the industry expects significant consolidation among money managers through time-consuming mergers and acquisitions.[318] The mutual fund industry initially balked at the idea that *any* fund could be prepared to opt into swing pricing—a procedural undertaking of epic proportions. And that's before we begin to comprehend the operational complexities and ponder the feasibility of swing pricing. Perhaps the industry is not at odds with the requirements of swing pricing, but the landscape for the requirements.

As discussed above, significant changes to the structure of intermediaries receiving and forwarding trades to funds is needed in order to implement swing pricing. Two factors may

Exemption for Principal Transactions in Certain Assets Between Investment Advice Fiduciaries and Employee Benefit Plans and IRAs (PTE 2016-02); Prohibited Transaction Exemption 84-24 for Certain Transactions Involving Insurance Agents and Brokers, Pension Consultants, Insurance Companies, and Investment Company Principal Underwriters (PTE 84-24), 82 Fed. Reg. 56545 (Nov. 29, 2017) (to be codified at 29 C.F.R. pt. 2550).

316 *See* Nev. Rev. Stat. § 628A.010 (2017).

317 See discussion *supra* note 4. In fact, the ICI recently submitted a request to the new SEC Commissioner to consider delaying the compliance date by an additional year. Memorandum from ICI to ICI Members (July 20, 2017) (on file with the authors).

318 Grace Jennings-Edquist, *Complicated Fee, Sales Environment Creates Pent-up M&A Demand*, IGNITES (Apr. 27, 2017), http://ignites.com/c/1622033/189203/complicated_sales_environment_creates_pent_demand.

increase swing pricing adoptions, particularly among fund managers who do not currently utilize swing pricing in European jurisdictions. First, increased flexibility in setting the swing threshold—such as is the practice in Europe—may allow for customized threshold calculations taking into account additional NAV elements such as market impact, bid-ask spread and excluding transaction taxes. Second, the SEC should issue additional guidance before November 2018 for participating funds on the threshold calculations, preferred operational procedures, and safe harbors.

If industry operations can adjust to accommodate the timing and information needs of swing pricing, it may enjoy future success in the United States. Two related incentives should give mutual funds sufficient reason to implement swing pricing: purported enhancements to a fund's reported performance and mitigated asset dilution from unallocated transaction costs. But the *optional* proposal is an expensive way to tackle dilution at a time when demands on industry resources are significant.

Once the compliance dust settles enough for investment advisers to have a clear view of the regulatory horizon, industry attention will turn to this optional opportunity. Portfolio managers like the idea of swing pricing for its performance enhancing properties, and legal and compliance departments like swing pricing for its shareholder protections despite the complexities of setting the factor and threshold. Transfer agents and back office administrators, however, see a looming headache with compliance, and possible elimination with automating technologies.

Blockchain could be in important tool for funds, and could not only reform some antiquated operational systems, but also provide an operational solution to enable funds' implementation of swing pricing with a measure of confidence in its accuracy. While transfer agents as we know them could dissolve, opportunities exist for transfer agents to build the path for blockchain becoming an industry-wide standard for processing shareholder transactions. Mutual funds could see reduced expenses with smaller back-office staffing needed as a

result of full implementation of blockchain, and begin to return value to shareholders with swing pricing as well. While this is a time of great upheaval, it also presents as opportunity for the mutual fund industry and its shareholders.

Certainly, the SEC expects funds to bulk up anti-dilution toolboxes. Each shareholder bears the burden of liquidity management under the current reality. Alternatives exist to manage liquidity and dilution, but they are weak or impractical to be used on a consistent, on-going basis. Large firms, including those that service mutual funds, will be the early adopters of swing pricing. Undoubtedly, a united industry front will smooth the way, as long as funds work with service providers and intermediaries.

Swing pricing will be an opportunity for early adopters. Participating funds will see an uptick in fund performance. Fund inflows (new investors) follow positive performance. More importantly, sedentary shareholders will be protected from long-term dilution, which will build shareholder trust and confidence in funds that choose to adopt the practice. The SEC has offered a tool that could serve as a conciliatory olive branch to beleaguered shareholders, many of whom are retirement investors hit hard during the recent financial crisis.

An Academic Perspective on Swing Pricing

My prior research engages with retirement investors,[319] making my perspective "bottom up" looking at individuals populating the plans and the consequences of dilution. A brief primer on how retirement investors enter the markets is in order.[320] Compensation (i.e., employer matching funds), tax incentives to invest, tax penalties to withdraw, and structural

[319] *See e.g.*, Tucker, *supra* note 65 (describing locked in retirement investors); Anne M. Tucker, *The Outside Investor: Citizen Shareholders & Corporate Alienation*, 11 U. ST. THOMAS L.J. 99 (2014) (describing the legal rights and restrictions on retirement investors in the traditional corporate governance framework); Anne M. Tucker, *Retirement Revolution: Unmitigated Risks in the Defined Contribution Society*, 51 HOUSTON L. REV. 153 (2013) (describing the legal changes to the retirement experiment).

[320] This Subsection was written by Anne M. Tucker, Associate Professor of Law, Georgia State University College of Law.

incentives such as automatic enrollment strongly influence the "choice" to invest.[321] Retirement investors entering the mutual fund market through defined contribution plans and individual retirement accounts fueled rapid growth of the industry.[322] The mutual fund industry now manages $16.3 trillion assets and manages retirement investments for 54.9 million U.S. households.[323] Once invested, retirement investors face exit obstacles that make their investments sticky. In other words, they are more likely to be sedentary, staying in a fund for a long time, and recent ICI retirement investor research demonstrates this.[324]

The shifted focus in retirement planning away from pensions to self-directed defined contributions plans (i.e., 401Ks) has been described as the great experiment. In the United States, retiring employees are no longer guaranteed an income[325] in retirement, but instead are guaranteed access to the assets that they saved and now manage. Robert Merton described the U.S. retirement experiment in the following colorful terms:

> [I]t's a real stretch to ask people to acquire sufficient financial expertise to manage all the investment steps needed to get to their pension goals. That's a challenge even for professionals. You'd no more require employees to make those kinds of decisions than an automaker would dump a pile of car parts and a technical manual in the buyer's driveway with a note that

321 *See* Tucker, *supra* note 65, at 168–69.

322 INV. CO. INST., *supra* note 1, at 130; *see also* Holden, *supra* note 3, at 2 (describing defined contribution plan asset trends from 2007–2016).

323 ICI FACTBOOK, *supra* note 1, at 10; *see also* Holden, *supra* note 3, at 2.

324 *See* Holden, *supra* note 3 and accompanying text.

325 Pensions were never universal and the headline-making failure of steel companies and pensions in the 1970s contributed to the shift to individual savings vehicles. *Retirement Revolution*, *supra* note 319, at 163–167.

> says, 'Here's what you need to put the car together. If it doesn't work, that's your problem.'[326]

In this experiment, to extend the analogy, there are many uncontrolled variables such as how much people save, how well they invest it, and how long they live that make retirement policy and market regulation complex and indefinite. Transaction cost dilution, however, is a *controllable* variable. The U.S. retirement experiment needs every available tool in its arsenal to promote individual and systemic financial stability. The SEC's swing pricing rules present a path for funds to control at least this one variable.

As my co-author ably describes, the SEC's path is partial, incomplete, and fraught with operational challenges that are significant, scary, and will require individuals within the mutual fund industry to spend tedious hours solving. No one wants to do this, and no one wants to ask their colleagues to do this. European funds' robust experience with swing pricing should be a salve to U.S. mutual fund industry concerns. European market timing differences aside, it is evidence of a workable and profitable system. Some U.S. funds have operations in Europe and therefore have experience with these issues.

The voluntary nature of the SEC rules and the costs associated with operational changes to accommodate swing pricing practices means that large firms will be the swing pricing pioneers. Large firms will lead the way, and enhanced fund performance (returns without an offset for large transaction costs) should lure in others. The SEC's voluntary approach appears calculated to leverage the best of market influences—money incentives and competition—to make the necessary

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326 Robert C. Merton, *The Crisis in Retirement Planning*, HARV. BUS. REV., July–Aug. 2014, https://hbr.org/2014/07/the-crisis-in-retirement-planning [perma.cc/6GZS-WCLQ]. Robert Merton's bio describes him as a recipient of the 1997 Alfred Nobel Memorial Prize in Economic Sciences and a School of Management Distinguished Professor of Finance at MIT Sloan School of Management. He is also the resident scientist at Dimensional Fund Advisors, a Texas-based global asset management firm, and University Professor Emeritus at Harvard University.

structural changes to timing and reporting practices to facilitate swing pricing.

Another word about operations before concluding with a focus on retirement investors: Structural impediments to swing pricing such as incomplete information, trading transactions bleeding into the evening hours, and the role of intermediaries reflect an industry that has outgrown its original procedural capacity and intent. Swing pricing has not caused the procedural impediments highlighted in this Article; rather the new practice merely highlights these existing ailments. Swing pricing illustrates the ad hoc and piecemeal development of industry practices and procedures needed to accommodate rapid growth and fundamental changes to the investor landscape from individual investors to retirement investors through qualified plans. Operational changes to accommodate swing pricing may better reflect the size and investor makeup of the mutual fund industry. Perhaps the resulting procedural changes will be an improvement for mutual funds resulting in practices better tailored to serve the current reality of who invests in mutual funds and how they enter the markets. Private blockchains between transacting institutions offer a promising solution for the timing and liability hurdles we carefully explored above. Perhaps even more exciting for those with an eye out for retirement investors is the potential cost savings from operational reduction in mutual fund transactions promised by blockchain technology.

Finally, a last word about retirement investors. Retirement policy, tax incentives, and defined contribution plan attributes funnel retirement investors to mutual funds and make it difficult for them to leave. A market design that dilutes sedentary shareholder assets due to unallocated transaction costs generated by large trades (and presumably large shareholders) erodes that trust, jeopardizes individual financial stability, and, to be unacademic, is unfair.

On This We Can Agree

The SEC's swing pricing rules present a half solution to shareholder dilution and create more implementation problems than the rules solve. Funds must volunteer to assume

the regulatory and operational challenges presented by the rules. Perhaps this is by design. A partial administrative approach requires a market-led solution born of mutual fund industry and intermediary participation and buy in. For an industry symbolized by a bull[327] and which has brought financial innovation and savings capacity to the masses, swing pricing obstacles are not insurmountable. Mutual funds have powerful incentives—financial gain and competition with other funds—to confront the challenges ahead. With the advent of blockchain technology, mutual funds now have powerful tools to overcome operational challenges and modernize transactions practices, regardless of whether funds implement swing pricing.

327 For a discussion of the Wall Street bull, or charging bull, see CHARGING BULL, http://chargingbull.com/chargingbull.html [perma.cc/G8LL-P7BM].

APPENDIX

Federal Legislation & Agency Rules Referenced in Article

Federal Legislation

The 1933 Securities Act, 15 U.S.C.A. § 77a
The 1934 Securities Exchange Act, 15 U.S.C.A. § 78a
The Investment Company Act of 1940, 15 U.S.C.A. § 80a-51
    See § 80a-2 for a definition of "value" of securities
    See § 80a-16 for discussion of board of directors' election & duties
The Investment Advisers Act of 1940, 15 U.S.C.A. § 80b-20

SEC Rules

Mutual Fund Governance, 17 C.F.R. § 270.0-1
Net Asset Value Calculations, 17 C.F.R. § 270.2a-4, 2a-7, 18f-3d
Money Market Funds, 17 C.F.R. § 270.2a-7
    Pricing and Redeeming Shares
    Board of Directors written procedures
Reporting Obligations, 17 C.F.R. § 270.8b-5
Rule 22
    Pricing regulations, 17 C.F.R. § 270.22c
    Market timing, 17 C.F.R. § 270.22c-2
    Swing pricing, 17 C.F.R. § 270.22c-1
    Liquidity Risk Management Programs, 17 C.F.R. § 270.22e–4
Compliance Procedures & Fund Board of Directors, 17 C.F.R. § 270.38a-1

Other Agency Rules

IRS Required Distributions 26 § C.F.R. 1.401(a)(9)-1
DOL Fiduciary Duty, 29 § C.F.R. 2510.3-1