The Law and Economics of Soft Dollars:

A Review of the Literature and Evidence from MiFID II

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Abstract

For decades, the bundling of research services into commissions that paid for the execution of securities trades has been the focus of both policy discussion and academic debate. The practice whereby asset management firms make use of investor funds to cover the costs of research, known as "soft dollar" payments in the United States, resembles a form of kickback or self-dealing. The payments allow asset managers to use investor funds to subsidize the cost of the asset managers' own research efforts even though those managers charge investors a separate and explicit management fee for advisory services.

Why do soft dollars exist? Over the years, defenders of the practice have argued that soft dollars mitigate principal-agent problems between the investment manager and the broker, improve fund performance, and provide a public good in terms of the increased production of research on public companies. This Article evaluates these theoretical law-and-economics arguments through the lens of empirical academic research done in the past as well as an emerging new body of empirical studies exploring the impact of MiFID II, a European Union Directive that severely restricted the use of soft dollar payments in European capital markets as of January 2018. The weight of empirical evidence—including recent evidence coming out of Europe and our own empirical analysis presented in this Article—suggests that the arguments in favor of soft dollars are not robust. In particular, MiFID II's unbundling of commissions appears to have, on balance, improved European market efficiency by eliminating redundancy and producing information that is of greater value to investors.

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Introduction

The bundling of research services into commissions that paid for the execution of securities trades has been the focus of both policy discussion and academic debate for decades.[1] Specifically, the practice whereby asset management firms make use of investor funds to cover the costs of research, known as "soft dollar" payments in the United States, resembles a form of kickback or self-dealing in that the payments allow asset managers to use investor funds to subsidize the cost of the asset managers' own research expenses.[2] On the other hand, the production of information on the value of securities arguably promotes the development of capital markets and might be understood as a public good, benefiting both investors and the economy more generally.[3] These competing perspectives on bundled commissions have, over the decades, produced a standoff between investor advocates in favor of unbundling and financial industry interests committed to retaining a familiar, albeit opaque, business practice.

In January 2018, the European Union (E.U.) unbundled securities commissions for large swaths of the European capital markets with the implementation of an E.U. directive known as MiFID II.[4] This unbundling has had a dramatic impact on the cost and production of research in European markets. The implementation of MiFID II also has had a significant impact on the global financial services industry, including asset managers and investment banks doing business in both E.U. and U.S. markets. Just prior to the adoption of MiFID II, industry representatives scrambled to obtain relief from the U.S. Securities and Exchange Commission (SEC) to accommodate compliance with two different sets of legal requirements, and, on November 4, 2019, the SEC extended that relief through July

[1] Scholarship on soft dollars from the 1980s and early 1990s include, for example, Lee B. Burgunder & Karl O. Hartmann, *Soft Dollars and Section 23(e) of the Securities Exchange Act of 1934: A 1985 Perspective*, 24 AM. BUS. L.J. 139 (1986); Donald J. Myers, *Directed Brokerage and "Soft Dollars" Under ERISA: New Concerns for Plan Fiduciaries*, 42 BUS. LAW. 553 (1987); Robert J. Moran & Cathy G. O'Kelly, *Soft Dollars and Other Traps for the Investment Adviser: An Analysis of Brokerage Placement Practices*, 1 DEPAUL BUS. L.J. 45 (1989); Thomas L. Fraser, *Time to Toughen Up on Soft Dollar Commissions*, 11 INT'L FIN. L. REV. 22 (1992).

[2] According to the U.S. Securities and Exchange Commission, soft dollar practices are defined as "arrangements under which products or services other than execution of securities transactions are obtained by an adviser from or through a broker-dealer in exchange for the direction by the adviser of client brokerage transactions to the broker-dealer." The Office of Compliance, Inspections and Examinations, *Inspection Report on the Soft Dollar Practices of Broker-Dealers, Investment Advisers and Mutual Funds* (September 22, 1998), https://www.sec.gov/news/studies/softdolr.htm.

[3] *See* Part II, *infra*, for an in-depth discussion of the alleged benefits of soft dollar practices. In general, proponents of soft dollars argue that such practices can mitigate a principal-agent problem, improve fund performance, and provide a public good in the form of greater research output.

[4] According to the European Securities and Markets Authority, the original framework—Markets in Financial Instruments Directive (MiFID)—has been in effect across the European Union since November 2007. The goal was to create a single market for investment services and harmonize investor protections. In October 2011, the European Commission adopted a legislative proposal to revise MiFID by including, for example, new reporting requirements and new rules on trading activities. MiFID II came into effect on January 3, 2018. *See* ESMA MiFID II Q&A, https://www.esma.europa.eu/policy-rules/mifid-ii-and-mifir.

3, 2023.[5] Notwithstanding these accommodations, MiFID II already has had a material impact on global capital markets.[6] A number of global asset managers have chosen unbundled commissions on a worldwide basis, and a handful of domestic U.S. asset managers have followed suit,[7] bringing themselves in line with what might be perceived to the emerging best practices in the area.

Beyond its temporary relief to accommodate industry compliance with conflicting requirements, the SEC has so far taken a wait-and-see attitude with respect to its own regulations regarding soft dollar payments. While some have argued that the SEC should conform with MiFID II unbundling requirements,[8] others—particularly representatives of the financial services industry—have cautioned against such a move,[9] pointing to concerns that MiFID II may have hampered the efficiency of European capital markets especially for small- and medium-size enterprises. There is also some question as to whether the European Union will retain the unbundling provisions of MiFID II once the United Kingdom (U.K.) no longer plays a role in the deliberations following Brexit.[10]

In parallel to the practical and policy challenges that MiFID II poses, there has emerged a fascinating theoretical debate over the *social value* of bundled commissions.[11] The dominant academic perspective on bundled commissions and soft dollar payments is that these practices constitute an agency problem between

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[5] *SEC Announces Extension of Temporary Measure to Facilitate Cross-Border Implementation of the European Union's MiFID II's Research Provisions*, Press Release (November 4, 2019) (extending the no-action letter from October 26, 2017, which was set to expire on July 3, 2020), https://www.sec.gov/news/press-release/2019-229.

[6] *See* Part III, *infra*, for a comprehensive survey of the empirical analysis conducted by the industry, academic researchers, and government organizations on the impact of MiFID II on capital markets.

[7] *See, e.g.*, Richard Henderson, *T. Rowe Price Latest Fund Manager to Cover Research Costs Globally*, FINANCIAL TIMES (July 16, 2019) ("T. Rowe Price, one of the world's largest asset managers, has become the latest—and largest—fund manager to cover research costs globally in response to sweeping changes to the investment research business. . . . The move is the latest push in an overhaul to the $15bn investment research business prompted by the MiFID II rules, which came into force last year in Europe.").

[8] As an example, Morningstar analysts advocated for eliminating soft dollar practices in the early 2000s and is still advocating for their removal. *See, e.g.*, Russel Kinnel, *Soft Dollars: Hidden Fund Costs Exposed at Last*, Morningstar (January 26, 2004) ("It's time to end the practice of nickel-and-diming fund investors), https://www.morningstar.com/articles/102837/soft-dollars-hidden-fund-costs-exposed-at-last; Aron Szapiro, *It's Time for Better Soft-Dollar Disclosure* (April 25, 2019) ("New regulations in the European Union present an opportunity for the SEC to revisit and clarify soft-dollar regulations in the U.S."), https://www.morningstar.com/articles/924367/its-time-for-better-soft-dollar-disclosure.

[9] *See, e.g.*, Alison William and Sarah Jane Mahmud, *MiFID II: Financial Industry's Disruption on a Global Scale*, BLOOMBERG INTELLIGENCE (January 23, 2018) ("Small- and medium-sized companies risk reduced research coverage, which could have a negative impact on liquidity."), https://www.bloomberg.com/professional/blog/mifid-ii-financial-industrys-disruption-global-scale/.

[10] *See* Howell E. Jackson & Jeffery Y. Zhang, *"Nobody is Proud of Soft Dollars": The Impact of MiFID II on U.S. Financial Markets*, JOURNAL ON FINANCIAL REGULATION (forthcoming).

[11] *See* Part II.B, *infra*, for a detailed presentation and discussion of this view. Part III.A, *infra*, presents new empirical analysis that uses data from post-MiFID II implementation. The latest evidence suggests that this claim is unlikely to be true.

asset managers and investors whereby the securities industry exploits information asymmetries to extract excess rents with inefficient pricing arrangements. A minority view, however, claims that these arrangements are, in fact, efficient and may also improve the quality of capital markets by producing information to an extent that would not be obtained in the absence of these arrangements. Specifically, without bundled commissions, investors would spend less than is socially optimal to discover information on certain firms, particularly small- and medium-sized firms. This decline in valuable research would, in turn, reduce overall market efficiency. Thus, some argue that soft dollars provide a public good by subsidizing analyst research.

Prior empirical studies of the matter exist but have been limited, in part because good datasets about unbundled commissions have not generally been available to independent researchers. With MiFID II, however, a natural experiment has been created and a number of academic studies have been undertaken since 2018 to explore the impact of reforms on European markets. These studies have demonstrated that MiFID II has lowered the aggregate level of analyst coverage with respect to large companies—through reduced redundancy—but not with respect to small- and medium-sized companies. Moreover, the studies show that MiFID II has increased the quality and impact of analyst coverage. Our own empirical analysis on the evolution of bid-ask spreads and price synchronicity strongly supports these findings.[12] Thus, it is unlikely that the implementation of MiFID II resulted in reduced social welfare via a negative capital market effect on small- and medium-sized companies.

The rest of this Article is structured as follows. Part I provides a summary of soft dollars in the United States, highlighting popular practices and offering a few high-level market statistics. Part II lays out the theoretical economic justifications for the existence of soft dollars debated in the academic literature over the past couple of decades: that they mitigate a principal-agent problem and improve fund performance. Part II also presents the more recent argument that soft dollars provide a public good through increased coverage of small- and medium-sized firms. We evaluate the merits of these arguments using empirical analysis wherever possible. Most of the empirical analysis referenced in Part II was conducted prior to MiFID II and concentrate on fund performance, which means the analysis provides only an indirect insight into the public good dimension. In Part III, however, we leverage the recent empirical research on MiFID II, which speaks forcefully to the public good argument. We also contribute to this line of research with original analysis of bid-ask spreads and price synchronicity, and we present our overall assessment of empirical work coming out of European markets: that MiFID II has improved market efficiency significantly by eliminating redundancy and producing information that is of greater value to investors.

[12] *See* Part III.B and III.C, *infra*, for a description of our empirical analysis and the corresponding results.

Part I. Primer on Soft Dollars

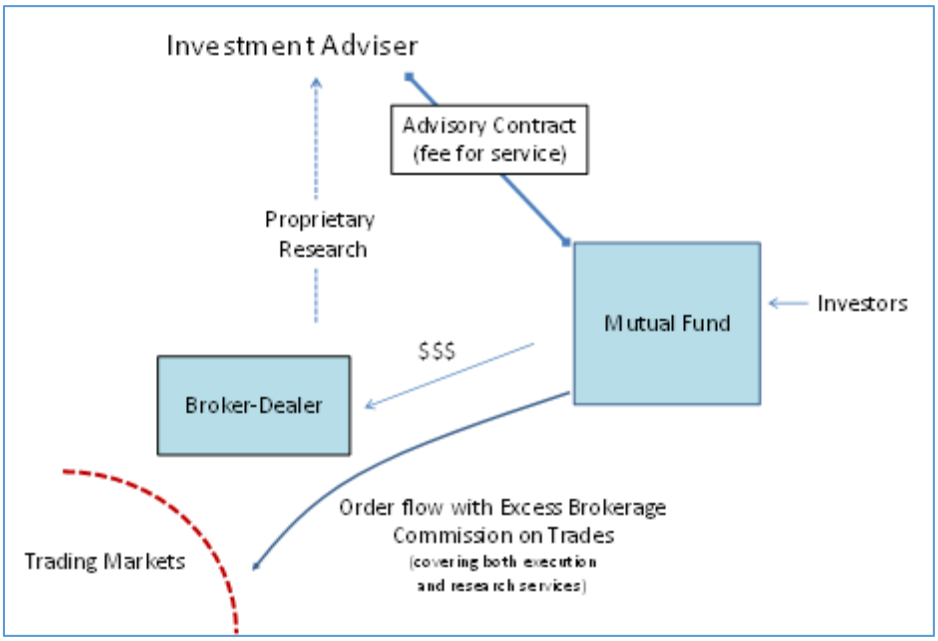
In the United States, and traditionally in many other securities markets around the world, asset managers are permitted to pay higher commissions on their clients' securities trades than would be required for pure execution services. In exchange for these excess commissions, asset managers can obtain various forms of research and ancillary services. Excess commissions used in this manner are often called soft dollar payments, or simply "soft dollars," in the United States. The term is intended to distinguish these payments from "hard dollar" payments for research services, which would come out of the investment advisers' own pocket and thereby diminish the firms' operating margins.[13] Part I begins with a brief discussion of why these payments are widely viewed as problematic among academic commentators, as well as disinterested industry experts. Part I also provides an overview of their economic significance in U.S. capital markets today.

The basic business model of many investment advisers is to charge an advisory fee for the management of client funds. The most common vehicle for holding client funds would be a mutual fund.[14] The investment advisers' operating margin is the difference between its advisory fee and its operating costs. The investment adviser can improve its operating margins by shifting costs from hard dollar payments for research and ancillary services into soft dollar payments, which are financed out of client funds through the payment of excess brokerage commissions on portfolio securities owned, at least indirectly, by clients. For example, if a T. Rowe Price mutual fund pays excess commissions to a broker-dealer like Goldman or UBS, then T. Rowe Price itself, as the fund's adviser, can reduce its own research costs and make use of proprietary research supplied by Goldman or UBS for soft dollars. The investment adviser's operating margins are thereby increased and costs are shifted over to the adviser's mutual fund clients who incur the costs as a result of lower net returns on their portfolios, diminished by higher commissions on brokerage transactions. Figure 1 illustrates these basic relationships.

[13] There are also mixed-use items that have research and non-research components in which the investment adviser has to allocate the cost between soft and hard dollars. The 1998 SEC report provides on such example: "One large fund adviser purchased dedicated telephone cables linking research and trading departments in the U.S., Tokyo and London. The adviser designated the product as mixed-use, paying approximately $120,000 in soft dollars and $32,000 in hard dollars for the cable." *See* SEC, *supra* note 2.

[14] To be concrete, examples of mutual fund companies include BlackRock, Vanguard, Charles Schwab, Fidelity, State Street, and T. Rowe Price.

Figure 1: Soft Dollar Payments for Proprietary Research



The key point to recognize is that, in today's trading markets, with many options for obtaining pure execution services, the investment adviser can often make the same trades with commissions by forgoing soft dollar credits and seeking only execution services. Therefore, soft dollar payments reflect a quite straightforward agency problem, where the investment adviser as agent for the investor is tempted to take actions that conflict with the interests of investors, but that benefit the investment advisers.

A. Incentives

More subtle, but equally important, are incentives on the part of securities firms, like Goldman and UBS, to favor trading arrangements that include soft dollar payments. Note that soft dollar payments entail the use of "bundled" commissions, that is, commission charges that cover both execution and research services. While securities firms will often negotiate an allocation for these components—say, 2 cents a share for execution and 2 cents a share for soft dollars—that division generally will not be transparently reported to the investing public. As a result, commission costs are not as carefully monitored as would be the case where execution costs and research costs are priced separately. Opaque pricing of this sort affords securities firms the opportunity to increase the profitability of their trading desks and diminishes their incentive to move away from bundled pricing. Plus, of course, these securities firms compete for order flow from investment advisers (like Fidelity and T. Rowe Price) and have little incentive to interfere with soft dollar practices that helps those firms enhance their own profitability.[15]

[15] In addition, historically, there has been a concern on the part of securities firms that acceptance of hard dollars would require them to register their research arms as investment advisers, which would impose compliance costs.

Notably, the market structure in which soft dollar payments have flourished shows the difficulties that investment advisers face in trying to eliminate these practices. One might imagine that an investment adviser seeking to enhance its own reputation might commit to its investors to forgo soft dollar payments and pledge to purchase all research with adviser-financed hard dollars. In theory, this might seem a viable strategy, especially if investors had some sense of the problematic aspects of soft dollar payments. However, an investment adviser pursuing this strategy would encounter several substantial problems.

First, in order to maintain its current levels of profitability, the investment adviser would need to increase its explicit management fees charged to its clients. In the case of mutual funds, there are legal impediments (in the form of shareholder approval requirements) for such price increases. Equally important, expense ratios are a highly salient factor upon which investors choose (and services like Morningstar rate) investment companies. An investment adviser would risk immediate and negative market reactions were it unilaterally to move away from soft dollar subsidies of research costs and shift towards a more transparent pricing model. In addition, the investment adviser might risk losing access to valuable proprietary research from leading securities firms, and possibly be denied access to the best execution services especially for more complicated trades.[16] As noted above, securities firms also benefit from bundled commissions, and there is clear evidence that these securities resist investment adviser efforts to defect from industry practices.[17]

B. Common Examples

Yet another point to be made about modern soft dollar practices is that their use is not limited to traditional forms of proprietary research, such as sell-side analyst reports on specific companies. Market data—for example, Bloomberg feeds—also can be financed through soft dollars as well as more generalized educational programs such as conferences and seminars. The SEC has attempted to restrain the scope of permissible research services from time to time, but the definition is still capacious, and includes some counterintuitive services. An important example here is corporate access. One way that investment advisers can use their CSA balances or other soft dollar privileges is to purchase the right to speak with corporate executives. The charges for such visits are said to run in the

[16] Again, broker-dealers historically have not wanted to accept hard dollars, even if an adviser would be willing to pay them.

[17] In the 1990s, Fidelity Investments announced that it was going to move towards unbundled commissions on its portfolio transactions. *See* Eric D. Roiter, *Letter to Jonathan G. Katz, Secretary, U.S. Securities and Exchange Commission* (2005) (on file with authors). Shortly thereafter, the firm retreated from the initiative—apparently because of push-back of leading securities firms—and continued to utilize substantial soft dollar payments for the next decade. As recounted below, in discussing U.S. market reactions to MiFID II, sell-side firms in the past few years have continued to oppose buy-side requests, especially among smaller institutional investors, seeking unbundled pricing as the sort that MiFID II affords European institutional investors.

neighborhood of several thousand dollars or even more per meeting.[18] In effect, public companies grant securities firms the authority to monetize corporate access by requiring soft dollar payments from investment analysts in order to meet with company officials. By serving as gatekeepers for corporate access, sell-side firms can inhibit asset managers from moving away from soft dollar payments unilaterally.

A final, and contested, service associated with soft dollar payments is IPO allocations. Although FINRA regulations currently prevent securities firms from imposing explicit charges for IPO allocations—hence, CSA records contain no explicit charges associated with IPO allocations—there is substantial empirical evidence in both academic and industry statements suggesting that IPO allocations are correlated with higher levels of order flow to securities firms that serve as underwriters.

C. Industry Trends

While public disclosures on soft dollar payments are scarce at the level of mutual funds or investment advisers, there is relatively good aggregate data at the industry level, largely produced by firms such as Greenwich Associates that generate market intelligence for investment managers and their consultants. For example, Greenwich Associates show that while the overall trend in total commissions in this period has been slightly downward, declining from $10.9 billion in 2008 to $9.8 billion in 2015, the share of commissions allocated to soft dollars has remained fairly constant (from $5.7 billion in 2008 to $5.9 billion in 2015), implying that the share of soft dollars during that period rose from 52.3 percent in 2008 to 60.2 percent in 2015.[19] Greenwich Associates also offer a picture of the allocation of soft dollar resources, with estimates for a broad industry grouping as well as for a subsample composed of larger institutional investors. These allocations reveal corporate access to be among the largest uses of soft dollars in 2015, comprising roughly a quarter of all soft dollar payments. After traditional analyst services, conferences and seminars also seem to be substantial (at roughly 14 percent) with data services less than 5 percent.[20]

In sum, the amount of equity brokerage commissions allocated to soft dollars is substantial, averaging close to $6 billion a year and now accounting for more than 60 percent of total commissions in recent years. As execution costs continue to decline through the proliferation of automated trading systems, the proportion of commissions utilized for soft dollar payments is likely to increase even further.

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[18] *See* Martin Bengtzen, *Private Investor Meetings in Public Firms: The Case for Increasing Transparency*, 22 FORDHAM JOURNAL OF CORPORATE & FINANCIAL LAW 33 (2017).

[19] *See* Greenwich Associates, *Business as Usual? Eying Fundamental Change in Payment for Research* (2015). The data presented in this Part is drawn from a timeframe several years before 2018, which is when MiFID II went into effect. Later in the Article, we discuss more current data, documenting the extent to which European developments have already begun to influence business practices in the United States.

[20] *See id.*

Part II. Evaluating the Economic Justifications for Soft Dollars

The history surrounding soft dollar practices in the United States is well documented in the economics literature. For instance, Blume notes that commissions were fixed above competitive levels in the 1950s, which created a need for brokers to compete for clients by providing additional services to justify the above-market premiums.[21] One such service was, and remains, research. Given the origin of this practice, one may reasonably ask why offering this additional service is still so prevalent in today's world of competitive markets. There are three main justifications for the continued existence of soft dollar practices: (i) They solve a principal-agent problem between the investor manager and the broker; (ii) they improve fund performance; and (iii) they provide a public good in terms of analyst research output.[22]

Part II begins by addressing the argument in favor of soft dollars as a solution to an information asymmetry discussed in the academic literature, albeit mostly by one author. We refute this argument by demonstrating its incoherence in light of the nature of the underlying problem and institutional structure. The agency problem arises from the assumption that the investment manager does not know the quality of trade executions *ex ante* and can only ascertain that quality after having experience with the good. The theory is that using soft dollars mitigates the information asymmetry because soft dollar usage assures good behavior on the part of the broker-dealer until performance information is revealed. Our analysis, however, makes clear that payment without verification does not solve information asymmetry. The entire point of the "experience good" analogy is that the consumer can validate the quality of the good after experiencing it. In the context of soft dollars, investment advisers cannot verify the quality of broker trades *ex post* by paying any amount of soft dollars. They can only verify with the assistance of third parties. Therefore, one would be mistaken to view soft-dollar usage as a credible method to solve this agency problem.

Second, we consider a more general claim that the bundling of commissions—for reasons that are not always well-specified—creates value for shareholders. The implication is that investors receive more from research financed through soft dollars than they receive from research financed through direct cash payments with hard dollars (*i.e.*, financed by transparent fees paid to investment managers). This could be true as a result of the obtained research and information. Or, soft dollars could provide lower advisory fees because the cost of research and other additional services that otherwise would be part of the total expense ratio is part of the brokerage commissions. This enhanced performance argument does not

[21] *See* Marshall Blume, *Soft Dollars and the Brokerage Industry*, 49 FINANCIAL ANALYSTS JOURNAL 36 (1993).

[22] In the subsequent discussion, most of the empirical literature used to evaluate the first two justifications were written in the decades prior to the implementation of MiFID II. The post-MiFID II empirical analysis plays a substantial role in the evaluation of the third justification.

hold weight empirically. The empirical studies discussed in detail in this Part suggest that soft dollar practices do not improve risk-adjusted returns, on average.

Third, and most relevant to today's policy and academic debates, some argue that soft dollars provide a public good through increased analyst research. Thus, even if soft dollars do not help investors who finance them, soft dollars may still be socially valuable because they generate a public good. The argument goes that, without bundled commissions, investors would spend less than is socially optimal to discover information on certain firms, particularly small- and medium-sized firms. This decline in valuable research would, in turn, reduce overall market efficiency.[23] The subsequent discussion points out that this public-good argument in support of soft dollars faces significant hurdles. First, one would have to demonstrate that transparency of pricing leads to the suboptimal production of research. Second, one has to show there is no better way to promote more optimal levels of research than through soft dollars. Prior to the implementation of MiFID II, it was difficult to empirically evaluate the first piece—whether unbundling would lead to the suboptimal production of research. Only indirect evidence was available, which is summarized at the end of this this Part. However, the post-MiFID II data presented in the next Part are capable of directly addressing the issue. Suffice it to say, the market has not suffered from a suboptimal production of information on small- and medium-sized firms after unbundling.

A. Do Soft Dollars Mitigate a Principal-Agent Problem?

There is a distinct theoretical justification of soft dollars that warrants attention: the view that soft dollars *mitigate* a principal-agent problem between the investment manager and the broker-dealer hired for trade executions. Horan and Johnsen write that: "soft dollar bundling effectively reduces the agency problems that plague portfolio managers and their executing brokers. One critical incentive problem is the difficulty a manager has assessing quality in a noisy market; that is, securities execution is an experience good."[24] The underlying idea behind this

[23] At this point, some readers may be thinking of a similar argument: analogizing the bundling of research services into commissions to the bundling of cable TV channels. The argument is that, without bundling, customers wouldn't have access to as many cable TV channels. However, we observe that the comparison is not convincing for the following reasons. First, bundling in the traditional model involves a supplier bundling products and selling directly to the customer; in the case of soft dollars, the broker-dealer is bundling and selling that to the investment advisor. The investor (*i.e.*, the customer) is paying an unknown cost. Second, as referenced previously, the vast majority of soft dollars are not allocated to research. In other words, the cable company is bundling items that mostly have nothing to do with TV channels. Third, as discussed later, the empirical analysis shows that unbundling has not led to a significant decrease in research coverage. Said differently, the number of cable providers may have decreased but we still have access to roughly the same number of TV channels. Finally, just to be clear, we are not advocating for a ban on bundled commissions; we are advocating for increased transparency.

[24] Stephen M. Horan & Bruce D. Johnsen, *Can Third-Party Payments Benefit the Principal? The Case of Soft Dollar Brokerage*, 28 INTERNATIONAL REVIEW OF LAW AND ECONOMICS 56 (2008). This argument has been made repeatedly by Johnsen in prior works. *See, e.g.*, Bruce D. Johnsen, *Using Bond Trades to Pay for Third-Party Research*, GEORGE MASON LAW & ECONOMICS RESEARCH PAPER No. 10-33 (2010); Bruce D. Johnsen, *Integrative Social Contract Theory and Institutional Brokerage Commission Rebates*, GEORGE MASON LAW & ECONOMICS RESEARCH PAPER No. 10-11 (2010); Bruce D. Johnsen, *Directed Brokerage, Conflicts of Interest, and Transaction Cost Economics*, GEORGE

"experience good" analogy is that the consumer does not know its quality *ex ante*. The consumer can only find out the quality after experiencing the good.[25] Common examples include restaurants, wine, health care, cosmetic products, and so forth.

The following analysis aims to show the reader that purchasing trade execution using soft dollars does not fit in their framework of experience goods. Consider the following diagram of parties involved in a soft-dollars transaction:

Investor —(1)— Investment Adviser —(2)— Broker-Dealer

The investor invests in a portfolio managed by the investment adviser. This is relationship (1) in the above diagram. The investment adviser hires the broker-dealer to execute trades, which corresponds to relationship (2). Based on first principles, there are two principal-agent relationships in this system: The investor is the principal when buying a service from the investment adviser; and the investment adviser is the principal when buying trading services from the broker-dealer. Horan and Johnsen argue that soft dollars can mitigate the information asymmetry present in relationship (2). In other words, soft-dollar usage assures good behavior on the part of the broker-dealer until performance information is revealed.

To evaluate the strength of this theory, one must first inquire into the premise of their argument. We do not believe that their assumption fits modern capital markets and trading practices. Asset managers have extensive sources of information on the execution quality of brokerage houses through the development of transaction cost analytics, which are particularly pervasive in equity markets where soft dollar payments are made.[26] Trading desks for asset managers routinely review the performance of brokers, and portfolio managers are intensely focused on the execution quality of large trades, practically in real time. Brokers are routinely evaluated for their execution quality and face prompt market discipline if their performance falls behind peers. In other words, trade execution is not an experience good.

In addition, the structure of trading markets described by Horan and Johnsen does not match current execution practices. There has been substantial movement away from high-touch trading in equity markets over the past few decades, and now a majority of equity trades are handled through algorithmic platforms or crossing

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MASON LAW & ECONOMICS RESEARCH PAPER No. 08-24 (2008); Bruce D. Johnsen, *The SEC's 2006 Soft Dollar Guidance: Law and Economics*, GEORGE MASON LAW & ECONOMICS RESEARCH PAPER No. 08-25 (2008). Citing the work of Horan & Johnsen, Mahoney accepts as plausible the argument that soft dollars may decrease agency costs between the manager and the broker. *See* Paul G. Mahoney, *Soft Dollars, Hard Choices: Reconciling U.S. and EU Policies on Sell-Side Research*, 75 BUSINESS LAWYER 2173 (2020). As discussed in this Part, we contend that assumptions underlying this principal-agent theory do not hold in practice. In addition, we provide a much more thorough review of the literature, referencing over ten articles that indirectly touch upon or directly address soft dollars. In comparison, the summary of prior work by Mahoney covers only three papers from this literature.

[25] *See* Phillip Nelson, *Information and Consumer Behavior*, 78 JOURNAL OF POLITICAL ECONOMY 311 (1970).

[26] For additional information on why the premise of Horan and Johnsen's argument does not match up with facts on the ground, *see* Jackson & Zhang, *supra* note 10.

networks. Finally, the distribution of asset manager trades across a large number of brokerage houses described by Horan and Johnsen is no longer accurate, at least for major asset managers, which tend to route their orders through a handful of brokers or platforms. These brokers and platforms are all monitored carefully to ensure best execution through transaction cost analytics.

In the alternative, assume for the sake of argument that the premise of the Horan and Johnsen argument holds. That is, assume these third-party vendors are unfaithful in their performance of execution services and do not provide information at sufficiently frequent time intervals. The information asymmetry point still fails on theoretical grounds because having the buyer of a product pay more for that product will not, all else equal, improve the quality of the product. Consider the following thought experiment. Suppose investors cannot see the return on their funds. Suppose further the advisers tell the investors: "You have to pay 2x in order to find a high-quality investment adviser like us, whereas you would normally pay 1x. But once you pay the 2x, you will receive 1x back in the form of a college tuition fund for your children." How exactly does that ensure the investment adviser is high quality? All else equal, the low-quality advisers can similarly say: "Pay us 2x and get 1x back." The investor would never know. (This is why third-party verification is essential to solving this problem, in theory and in practice.)

Analogously, investment advisers cannot confirm that their trades were properly executed by the broker-dealers. The broker-dealers can tell the advisers: "You'll have to pay 2x in order to find a high-quality broker-dealer like us, whereas you would normally pay 1x. But once you pay the 2x, you will receive 1x back in the form of research." Again, this scheme does nothing to alleviate the information asymmetry problem. Fidelity cannot tell whether each trade conducted by JPMorgan is properly executed or poorly executed solely by paying JPMorgan more money. This is true irrespective of the price paid by Fidelity for each trade. Even if Fidelity pays 6 cents per trade instead of 3 cents, JPMorgan could still cheat Fidelity. In fact, all the "low-quality" dealers could play the same game. The problem exists independent of the payment scheme because there is no quality verification.

In sum, payment without verification does not solve information asymmetry. The point of the "experience good" analogy is that the consumer can validate the quality of the good after experiencing it. In this context, however, investment advisers cannot verify the quality of broker trades *ex post* by paying any amount of soft dollars. They can only verify with the assistance of third parties. Therefore, one would be mistaken to view soft-dollar usage as a sufficient, credible method to solve this agency problem.

B. Do Soft Dollars Improve Fund Performance?

We next evaluate the argument that soft dollars benefit investors because soft dollar services provide higher risk-adjusted returns on their portfolios. This could be true as a result of the obtained research and information. Or, soft dollars could provide lower advisory fees because the cost of research and other additional services that otherwise would be part of the total expense ratio is part of the

brokerage commissions. The empirical analysis, on balance, does not suggest that soft dollar practices improve fund performance.

Note that it is difficult to empirically evaluate this hypothesis because researchers do not have a good line of sight into the amount of research funded with soft dollars at the fund level either at the individual fund level or in the aggregate.[27] To the extent that one relies on total bundled commissions from individual firms or funds to estimate soft dollar effects, improved returns might be due to better execution services as opposed to research payments. Moreover, as recounted earlier, any improved returns may be coming from sources of tainted alpha (*e.g.*, disguised IPO allocations or corporate access that allows for privileged but not unlawful access to insider information). Finally, as a practical matter, a fair share of soft dollar expenditures is for items (*e.g.*, market data or conference fees) where it is not at all obvious that payment with soft dollars would be better than payment with hard dollars, especially considering the additional transaction and agency costs associated with soft dollar arrangements.

1. Indirect Empirical Analysis

A couple of recent articles, while not directly addressing soft dollar practices, could be read to support the hypothesis that soft dollar practices improve fund performance. For example, Bengtzen argues that the current regulatory infrastructure—specifically Regulation Fair Disclosure—cannot fully prevent the purchase of tainted alpha.[28] Corporate managers can give valuable information to favored investors at a low expected cost to themselves. Thus, soft dollars could theoretically improve returns via increased corporate access.

In a somewhat similar vein, Jenkinson, Jones, and Suntheim show that banks give preferential treatment in IPO allocations to investors from whom they generate higher revenues, including brokerage commissions.[29] The authors take advantage of the fact that all banks operating in the U.K. were required to provide information on IPOs managed from their U.K. offices between January 2010 and May 2015. Moreover, the banks had to provide information on the revenues they made each year from their investor clients. Using a sample of 372 "books" from 19 banks on 220 IPOs, the authors find evidence that investor revenues have a significant impact on IPO allocations. Top quartile investors, by revenue generation, receive allocations relative to the amount they bid that are around 60 percent higher than those received by investors who are not revenue-generating clients of the book-runner. Importantly, "[t]he relationship between investor revenues and IPO allocations is not simply an artifact of some unobserved investor or investor-bank effect that involves information production. Consequently, [the authors'] results show that high revenues *per se* play a significant role in driving IPO allocations and

[27] Nor is there visibility into which investments are purchased on the basis of external research funded by soft dollars versus other inputs (*e.g.*, the manager's own research).

[28] *See* Bengtzen, *supra* note 18.

[29] *See* Tim Jenkinson, Howard Jones & Felix Suntheim, *Quid Pro Quo? What Factors Influence IPO Allocations to Investors?*, SSRN WORKING PAPER (2017).

provide support for the quid pro quo hypothesis."[30] Therefore, soft dollars could potentially improve fund performance through paying for more favorable IPO allocations.

The problem with drawing a causal link between these two studies and the performance impact of soft dollars is twofold. First, soft dollars are spent on more than gaining greater corporate access and obtaining better IPO allocations. For example, expenditures are also made for research analyst reports and market data, among other things. Second, and more importantly, receiving a special deal on corporate access or a special deal on IPO allocations is exactly that: a special deal. There is only a finite amount of value quid-pro-quo deals to hand out as rewards to high-paying clients, and the process of distributing is based on individual relationships. Only the largest players—the clients viewed most favorably by the banks—will receive those unique opportunities to benefit in a quid-pro-quo fashion. The rest of the funds—the funds paying an average amount in commissions—will not receive favorable deals to the same extent because they are not viewed as the most valuable clients. Therefore, improving performance through these quid-pro-quo channels are unlikely to show up on average.

2. Direct Empirical Analysis

The direct empirical analysis, on balance, does not suggest that soft dollar practices improve fund performance. Haslem reviews recent studies and concludes the studies show that shareholder assets are wasted through soft dollar arrangements.[31] There is no increase in risk-adjusted fund performance or lower advisory fees. It is important to repeat that the state of empirical research in this area is not airtight because researchers face data limitations. With only one exception, the articles discussed below do not use actual data on soft dollars because of the lack of reporting by funds on their usage of soft dollars.[32] Researchers are therefore forced to use empirical methods to devise proxies for soft dollars. Researchers also have access to different slices of the fund data universe because of proprietary access to different fund databases. Moreover, their empirical investigations span different time periods; for instance, some researchers use fund data from only a single quarter while others look at several years. In sum, these articles do not use the same measure for soft dollars, do not use the same set of mutual fund data, and do not investigate the same time durations. With these caveats in mind, the weight of the evidence, including the sole article that uses actual data on soft dollars, suggests that soft dollars do not increase risk-adjusted fund performance.

Studies Supporting the Proposition that Soft Dollars Increase Costs. Conrad et al. use proprietary data provided by the Plexus Group to analyze the volume and

[30] *Id.*

[31] John A. Haslem, *Mutual Fund "Soft-Dollar" Arrangements: Analysis and Findings*, 19 THE JOURNAL OF WEALTH MANAGEMENT 101 (2016).

[32] In the ideal world, researchers could look at a bundled commission and divide it up into payments for research, payments for corporate access, payments for IPO allocation, etc. In the United States, we remain far from this ideal because, in most cases, researchers cannot split the bundled commission into payment for pure execution cost and payment for everything else.

cost of orders given by institutional investors to soft-dollar brokers.[33] Their dataset covers $260 billion in equity trades by 38 institutions in the fourth quarter of 1994, the first quarter of 1995, the first quarter of 1996 and the second quarter of 1996; the dataset distinguishes between trades sent to soft dollar brokers and those sent to other types of brokers. After controlling for differences in order characteristics, the authors find that soft dollar brokers execute smaller orders in larger market value stocks. Allowing for differences in order characteristics, they also estimate the incremental implicit cost of soft-dollar execution at 29 (24) basis points for buyer-(seller-) initiated orders. For large orders, incremental implicit costs are 41 (30) basis points for buys (sells). However, they document substantial variability in these estimates, and note that research services provided by soft-dollar brokers may at least partially offset these costs, though they have no evidence to definitively make that conclusion. Like numerous authors before and since, they understand that "[t]he paucity of data on soft-dollar payments is responsible for the lack of systematic evidence on the magnitude and impact of these payments."[34]

Studies Supporting the Proposition that Soft Dollars Improve Performance. Horan and Johnsen, whose theoretical claims were discussed earlier, present contrary analysis, suggesting that soft-dollar research provides a benefit to investors.[35] The authors argue that by paying the manager's research bill up-front, the broker posts a quality-assuring performance bond that efficiently subsidizes the manager's investment research. Using a dataset provided by the Mobius Group that covers 1,038 portfolios during a single quarter—namely, the first quarter of 1997—the authors find that the use of soft dollars is positively related to risk-adjusted performance. Like many of the empirical soft-dollar studies, this one does not identify money managers' receipt of bundled research directly, either through soft dollar arrangements or traditional institutional brokerage arrangements. Instead, the authors construct a soft-dollar proxy by assuming that bundling is proportional to "Premium Commissions per Managed Dollar (PCMD)," which is calculated as the average premium commission rate times annual turnover expressed as a percentage of portfolio value.[36]

Livingston and Zhou also show that premium brokerage commissions—that is, premium soft dollars plus pure execution costs—are positively associated with fund performance.[37] Using proprietary data from almost 2,000 funds spanning 2001 to 2012, the authors construct a measure called "commission per dollar traded." They note that previous studies on this topic use commission per dollar of assets, which they argue is an imprecise measure of the real value provided by commissions

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[33] *See* Jennifer S. Conrad, Kevin M. Johnson & Sunil Wahal, *Institutional Trading and Soft Dollars*, 56 THE JOURNAL OF FINANCE 397 (2001).

[34] *Id.*

[35] *See* Horan & Johnsen, *supra* note 24.

[36] *Id.*

[37] *See* Miles Livingston & Lei Zhou, *Brokerage* Commissions *and Mutual Fund Performance*, 38 JOURNAL OF FINANCIAL RESEARCH 283 (2015).

because it is driven by both the commission rate and the total amount of trading. Commission per dollar traded, on the other hand, adjusts for the level of trading activity. They demonstrate that, as expected, brokerage commission per dollar of assets has no effect on fund performance, but commission per dollar traded has a positive impact. Importantly, their study fails to disentangle the efficacy of different types of services provided by brokers. The authors cannot show whether the improved performance is due to better execution or to alternative services provided via soft dollars. It could very well be the case that the soft dollars component yields no significant impact on performance—or even a negative impact—as is suggested by the next set of studies.[38]

Studies Supporting the Proposition that Soft Dollars Do Not Improve Performance. Most empirical studies paint a gloomy picture of soft dollars. In fact, empirical studies showing less-than-favorable outcomes for soft dollars have existed for over two decades. Authors like Livingston and O'Neal recognized that soft dollar arrangements could lead to an agency conflict between fund managers and fund investors.[39] After contacting 175 fund companies representing over 300 equity mutual funds, the authors received a prospectus, a current annual report, and the statement of additional information from 240 funds. The fund data span the years 1989 to 1993. The authors calculate average brokerage commissions on a per-trade basis and compare these with commissions available for execution-only transactions. They find that the funds' expense ratios are positively correlated with commissions per trade, which is inconsistent with the hypothesis that mutual fund managers who pay soft dollars for research yield corresponding reductions in management fees.

Edelen et al. analyze the relationship between transparency of commissions and fund performance.[40] By transparency, the authors refer to the fact that fund managers can either expense their payments, which is relatively transparent, or bundle them with brokerage commissions like soft dollars, which is relatively opaque. The authors perform their empirical analysis using data from Morningstar as well as expense and brokerage commission data from N-SAR Semi-Annual Report filings with the Securities and Exchange Commission. The sample runs from January 1996 through June 2009 and contains a robust 179,798 fund-month observations. Importantly, fund disclosure does not itemize commission payments, so the authors create a sophisticated procedure to estimate bundled payments. In a large sample, commissions can be statistically decomposed into components

[38] Mahoney, *supra* note 24, argues that these two articles by Horan and Johnsen and by Livingston and Zhou are consistent with the theory that managers use bundled commissions to spur broker effort. However, the shortcomings described in the main text suggest that such an interpretation might not be robust.

[39] *See* Miles Livingston & Edward S. O'Neal, *Mutual Fund Brokerage Commissions*, 19 JOURNAL OF FINANCIAL RESEARCH 273 (1996).

[40] *See* Roger M. Edelen, Richard B. Evans & Gregory B. Kadlec, *Disclosure and Agency Conflict: Evidence from Mutual Fund Commission Bundling*, 103 JOURNAL OF FINANCIAL ECONOMICS 308 (2012).

reflecting payment for trade execution and (bundled) payments for other services by regressing the total commission payment on fund characteristics that affect trade-execution costs. The residual, or excess, commission from this regression model is the authors' proxy for bundled payments for other services. The authors conclude that the return impact of opaque payments is significantly more negative than that of transparent payments.[41]

Erzurumlu and Kotomin use actual data on soft dollars to measure the impact of soft dollars on fund performance.[42] It is worth emphasizing that this is the first study to use such data as opposed to indirect estimates of soft dollars. The information about soft dollar commissions, total brokerage commissions, and board members is collected from the funds' SAIs. The rest of the data is collected from the funds' N-SARs. The authors operate under the premise that purchasing additional services with soft dollars can result in one of two benefits to the fund's shareholders: (i) higher risk-adjusted returns on their portfolios as a result of the obtained research and information, or (ii) lower advisory fees because the cost of research and other additional services that otherwise would be part of the total expense ratio is part of the brokerage commissions. Not consistently achieving at least one of these benefits indicates that the soft dollar arrangements, on average, lead to a reduction in the shareholders' wealth. The authors utilize soft dollar and total brokerage commission data to create a survivorship bias-free sample of 391 actively managed US-based equity mutual funds from 1999 through 2003. The authors find that higher soft dollar and total brokerage commissions are, unfortunately, associated with higher advisory fees but not with higher risk-adjusted fund returns. These findings suggest that mutual fund shareholders do not benefit, on average, from the research and the information supplied by third parties such as brokers.

Additionally, Erzurumlu and Kotomin investigate the link between governance and soft dollars. The authors find that boards with higher median tenures of directors are associated with lower soft dollar commissions and turnover. This implies that shareholders might benefit from the experience of the directors who have more familiarity with the fund. Notably, the authors also show (i) a positive correlation between more highly compensated boards and higher soft dollar fees, and (ii) a positive correlation between boards with higher proportions of directors with finance backgrounds and higher advisory fees, soft dollar commissions, and total brokerage commissions, as well as higher turnover costs. Based on this finding, the authors conjecture that a higher proportion of directors with finance backgrounds might exacerbate agency conflicts.

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[41] Mahoney, *supra* note 24, observes that the finding by Edelen et al. does not contradict the argument that bundling *research* and brokerage improves returns, but rather shows that investors could benefit from greater transparency in bundling arrangements. The next article we discuss, by Erzurumlu and Kotomin, would suggest otherwise.

[42] *See* Yaman Ö. Erzurumlu & Vladimir Kotomin, *Mutual Funds' Soft Dollar Arrangements: Determinants, Impact on Shareholder Wealth, and Relation to Governance*, 50 JOURNAL OF FINANCIAL SERVICES RESEARCH 95 (2016).

Recently, Froberg and Halling examine the impact of unbundling in Sweden, which required unbundling in 2016, prior to the MiFID II implementation date in early 2018.[43] The authors hand-collected data from hundreds of actively managed equity funds in Sweden with a local investment focus between 2013 and 2018. They also hand-collected commissions information for hundreds of actively managed equity funds in the U.S. for the same time period. Through a difference-in-difference analysis, with the U.S. funds acting as the control group, the authors conclude that the regulation did not make a difference: Neither total expense ratios nor fund performance changed after unbundling. Of course, the lack of a statistically significant deviation in trend suggests that soft dollars also were not directly beneficial.

In sum, our analysis is consistent with Haslem's review of the literature: that "shareholder assets [are] wasted through use of soft dollar arrangements."[44] There is no strong evidence to show an increase in risk-adjusted fund performance or lower advisory fees. Of course, our conclusion is derived by considering the empirical analysis *on balance*, because researchers have faced data limitations and have not uniformly derived the same results.[45]

C. Do Soft Dollars Provide a Public Good?

Although the bundling of commissions neither solves principal-agent problems nor yields a performance boost, they may provide a public good that enhances social welfare. At a high level, the idea is based on the premise that soft dollars are partially used to fund useful analyst reports, which both benefit the investment managers that make use of those reports but also have a broader social benefit in terms of improving the informational efficiency of capital markets and lowering the cost of capital. The unbundling of commissions could lead to a lower amount of funding for those reports. With fewer analyst reports, there could be a loss of information about certain companies, most concerning small- and medium-sized companies. If that were indeed the case, then the unbundling of commissions could make capital markets less efficient and lead to a social welfare loss. This public-good argument in support of soft dollars faces significant hurdles.

First, what we know about how soft dollars are actually spent strongly suggests that only a fraction goes toward the kind of research that has plausible public benefits. Recall that Greenwich Associates show a sizeable portion of soft dollar payments is spent on gaining corporate access and attending conferences and seminars.[46]

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[43] *See* Emelie Froberg & Michael Halling, *The Unbundling of Mutual Funds' Trading and Research Commissions: Have Investors Benefitted?*, SSRN WORKING PAPER (2021).

[44] Haslem, *supra* note 31.

[45] In addition, given the obvious agency costs from soft dollar arrangements, it is fair to place the burden on proponents of soft dollars to demonstrate clear benefits to investors in the absence of some other compelling evidence.

[46] *See* Greenwich Associates, *supra* note 19. Of course, one could argue that the use of soft dollars for corporate access and conferences isn't necessarily inconsistent with the public good argument. There

In addition, to be plausible, this argument rests on two empirical propositions. The first is that, in the absence of bundled commissions, investment managers would not use their own funds to purchase this socially valuable research and pass along the costs to investors; or would purchase this research at a sub-optimal level; or pay for research selectively, leading to a dearth of research for certain issuers. That is, investors must not value this kind of research if its costs were transparent. Secondly, and related, this argument implies that someone in the financial services industry (presumably sell side firms) would nevertheless spend their own money on this socially valuable research even though none of their customers, by hypothesis, values the expenditure. That implies sell side firms must be conducting this socially valuable research out of altruism and not for commercial reasons. To articulate this implication is to refute it as implausible.

Finally, as a matter of public policy, even if some element of this hypothesis survives scrutiny, there remains a question of whether the current soft dollars apparatus is the best way to promote research as opposed to more direct mechanisms of subsidizing research on appropriately targeted firms in small- and medium-sized enterprises by, for example, waiving or reducing securities registration fees.

Having articulated the theory and its main counterarguments, we proceed to summarize the indirect evidence that was available prior to MiFID II. In the next Part, we significantly expand upon the analysis using direct evidence post-MiFID II.

Merkley et al. investigate the importance of sell-side equity analysts as a collective industry and find that changes in the number of analysts covering an industry negatively impact capital markets through worse forecast quality.[47] Drawing from over 12 million analyst reports between 1990 and 2010, the authors argue that declines in the number of analysts covering an industry leads to higher forecast errors and greater optimism bias. Specifically, a one-unit decline in the number of analysts in an industry results in a 1.0 percent increase in aggregate absolute forecast error and a 1.4 percent increase in aggregate optimism bias. This evidence suggests that fewer sell-side analyst staff, either due to tighter government restrictions or downsizing by large investment banks, can have negative externalities for market participants.

In addition, Pope et al. analyze the impact on sell-side analysts in Sweden after three of the country's largest asset managers suddenly decided to unbundle commissions in early 2015.[48] The three asset managers accounted for half of the

might there be a public good in having brokers arrange these types of meetings between investment managers and issuers.

[47] *See* Kenneth Merkley, Roni Michaely & Joseph Pacelli, *Does the Scope of the Sell-Side Analyst Industry Matter? An Examination of Bias, Accuracy, and Information Content of Analyst Reports*, 72 THE JOURNAL OF FINANCE 1285 (2017).

[48] *See* Peter F. Pope, Ane M. Tamayo & Yang H. Wang, *The Impact of Separating Research Payments from Dealing Commissions: Evidence from Sweden*, Working Paper (2019), https://www.nhh.no/globalassets/departments/accounting-auditing-and-law/seminar-papers/jmp-yangwang.pdf.

AUM of the Swedish asset management market. By examining over 1,500 analysts—including over 200 Swedish analysts—from 2013 to 2016, the authors find that unbundling is associated with a reduction in analysts' coverage lists, with a greater reduction for firms with lower institutional ownership and with lower market value. Interestingly, these changes also are associated with an overall important in analysts' research quality, as measured by earnings forecast ability.

This indirect evidence, however, does not satisfy the burden of proof on the first requirement. Again, there is little evidence to support the claim that sell-side firms use the vehicle of bundled commissions to invest significantly in research output, as opposed to spending the money on corporate access, IPO allocations, and conferences.[49] There is even less evidence to suggest that sell-side firms use bundled commissions to invest significantly in research on easy-to-miss, small- or medium-sized firms. Those firms are the ones for which private investors, of their own accord, may not pay as much to learn about given fully transparent costs. The available data shows that soft dollar expenditures go to purchases that do not fall into this category. Greenwich Associates report that only 11 percent of soft-dollar fees were spent on individual company studies and stock-specific ideas or recommendations in the first quarter of 2015; the figure was a mere 8 percent in the first quarter of 2014.[50] In the first quarter of 2015, the other soft dollars were allocated to expenditures like: direct access to companies' management (24 percent), analyst service (21 percent), research conferences and industry seminars (14 percent), sales (11 percent), economic analysis and portfolio strategy advice (7 percent), data services (6 percent), industry studies (3 percent) and other (3 percent). While this does not disprove the public-good hypothesis, it does suggest that the transparency of pricing will probably not lead to substantial, suboptimal production of research.

To overcome the second hurdle, one has to show there is no better way to promote more optimal levels of research than through soft dollars. This is likely insurmountable. Even if bundled commissions do generate some amount of public good, hidden charges on retail investors is not the appropriate way to finance that public good.

Edelen et al. show: (i) mutual fund expenditures are less efficient when paid using opaque commission bundling rather than transparent expensing, and yet (ii) investor flows are more positively related to bundled distribution payments despite larger negative impacts on performance.[51] This significant agency cost is summed up by a quote by Haslem: "soft dollars [is] when you use other people's money to buy something for yourself. A hard dollar payment is when you take it out of your

[49] Also, there is no evidence that an increase in soft dollar spending in the aggregate would necessarily lead to a greater number of firms and analysts covering each issuer, as opposed to compensating existing analysts more generously.

[50] *See* Greenwich Associates, *supra* note 19.

[51] *See* Edelen et al., *supra* note 40.

own pocket."[52] Mutual fund advisers can bypass expensing research in management fees when using soft dollars, and brokers on the receiving end are not required to deliver the lowest cost or highest quality of trade execution. Thus, use of soft dollars allows fund advisers and brokers to potentially benefit at the expense of the investor.

This social cost is relevant because it subtracts from the potential social benefit of public-good research. It is a well-established fact in economics that the optimal production of a good occurs when, generally speaking, marginal cost equals marginal benefit. The production of a public good is no different. Thus, a proponent of soft-dollar practices cannot point solely to the production of research as a public good (and even this is *directly* refuted in the next Part using data following the implementation of MiFID II). Furthermore, there is no mechanism to ensure that soft dollars are used to promote *valuable* research as opposed to research of marginal value.[53] Therefore, it is better to have a direct subsidy for research that is financed transparently through general revenues or through a broad-based levy on trading.

[52] John A. Haslem, *Issues in Mutual Fund Soft-Dollar Trades*, 2 THE JOURNAL OF INDEX INVESTING 76 (2011).

[53] *Brokers Should Bin the Bundles of Research Notes*, FINANCIAL TIMES (Feb. 3, 2016), https://www.ft.com/content/871f77f6-ca75-11e5-be0b-b7ece4e953a0.

Part III. MiFID II Case Study

Part III continues our analysis of the public good argument by focusing on the implementation of MiFID II as a case study. The specific issue is whether MiFID II unbundling has had a detrimental impact on capital markets in general and most particularly on the market's ability to price and support small- and medium-size enterprises. Again, this is the principal argument that critics of MiFID II have pushed forward. It also is the consideration that concerns senior SEC officials as well as European authorities who are exploring the possibility of relaxing MiFID II, at least with respect to SMEs.[54]

Before examining this growing body of empirical evidence, it is important to pause and discuss the logical chain of steps specific to MiFID II that would have to underlie such a claim of a substantial reduction in informational public goods. To begin with, MiFID II does not regulate the amount of money that asset managers spend on reserve searches. It merely requires that asset managers internalize those costs into their management fees or explicitly charge those costs to asset owners in the form of an RPA.[55] In either case, the cost of those services is passed on to asset owners in an explicit and salient way. To the extent that those costs add value to asset owners, asset owners would presumably be happy to bear those costs just as they bear other costs critical to the management of their funds, such as the hiring of experienced portfolio managers and maintenance of the extensive administrative structure necessary to operate a modern asset management firm. The unbundling commissions will only detrimentally reduce the production of research services if asset owners will not be willing to pay for those services. Moreover, efficient capital markets also will not occur if alternative investment vehicles, such as hedge funds and private equity, do not enter the space and invest in research dollars to gain returns from inefficient market prices.

In addition, the decline in public goods arguments rests on rather heroic assumptions about the incentives of sell-side firms. If asset owners, and therefore asset managers, do not value and want to pay for SME research, it is unclear what incentives sell-side firms have in expending their resources on research services that none of its customers want to purchase. Imagine, for a moment, that you were in an annual budgeting session at one of these major sell-side firms, and the question is put on the table of whether excess commission dollars should be dedicated to SME

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[54] *See* European Securities and Markets Authority, *MiFID II Review Report* (March 25, 2021) ("All but two respondents expressed the view that the unbundling rules in MiFID II represent a major hurdle for the production of research on SME issuers. According to the respondents, the unbundling rules have harmed the already constrained SME research disproportionately. The respondents considered that SME issuers should be exempted from unbundling rules. The suggested threshold for a company to be exempted from unbundling rules was heterogenous among respondents. Several respondents mentioned a market capitalization of 1bn as an appropriate requirement."), https://www.esma.europa.eu/press-news/esma-news/esma-publishes-final-report-sme-growth-markets.

[55] Asset managers could establish a ring-fenced Research Payment Account (RPA) to cover research costs. The RPA can be funded from client resources, but the charge must be clearly disclosed to clients in advance and on a periodic basis.

research that no customer values or funneled into the bonus pool for executive compensation. Perhaps we have an uncharitable understanding of the financial services industry, but we have a hard time envisioning how such a discussion of this sort leads to sell-side investment into unwanted research.

A. New Empirical Analysis

Numerous reports and studies have emerged during the past couple of years, attempting to capture the impact of MiFID II on market performance and analyst coverage. This is not a straightforward task, which is why the estimates seem so fragmented when viewed quickly. To make the task even more difficult, researchers attempting to examine the situation in 2020 also must invent creative ways to disentangle the market impact of the COVID-19 pandemic from the market impact of MiFID II. Currently, none of the industry reports or academic articles utilizes data from 2020. The empirical analyses all stop in 2019.[56]

It's not surprising that, when estimating the impact of MiFID II's unbundling requirement on fund performance and analyst coverage, a key modeling decision is the time horizon used for the analysis. Studies focused primarily on fund performance in 2018 or 2019 versus 2017 yield stark conclusions regarding the impact of unbundling on performance, namely, MiFID II has severely disadvantaged European funds relative to U.S. funds. When the period of comparison is extended back to the late 1990s, however, or even back to 2014 or 2015, we see that the impact of MiFID II has not been as significant as feared. With this in mind, we proceed by reviewing, in turn, industry analysis, academic analysis, and public sector analysis.

1. Industry Research

Recent industry studies utilize a significant cross-section of firms but are more limited along the time dimension. For example, with a sample of 4,674 small companies, 751 medium companies, and 681 large companies, a recent Bloomberg analysis concludes that MiFID II has had an impact on small and midsize companies.[57] Specifically, within the EMEA market—that is, the Europe, the Middle East, and Africa market—small-cap coverage fell 23 percent since 2017, to an average of 3.89 analysts per stock. In comparison, the research coverage of both mid-cap and large-cap stocks fell only 11 percent since 2017. Similarly, a study by Evercore ISI also finds a significant MiFID II impact, using a sample of 3,363 equity mutual funds with more than $100 million in assets under management.[58] The analysis suggests that U.S. funds thoroughly outperformed their European counterparts in 2018. In fact, the margin of victory by U.S. "winners" was, on average, a staggering 250 basis points.[59]

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[56] To be consistency, we also conduct our own original empirical analysis through year-end 2019. *See* Part IV.B, *infra*.

[57] Bloomberg, *MiFID II: Investment Research Topic Primer* (2019) (on file with authors).

[58] *See* Glenn Schorr, Kaimon Chung, John Dunn & Eric Young, *The Most Self-Serving Research Note Ever?*, EVERCORE ISI (2019).

[59] This discrepancy seems unbelievable. If the value of sell-side bundled research were anywhere near the levels suggested by this study, then buy-side firms would undoubtedly be willing to pay for such

Other industry studies provide similar supporting evidence. Oxera released a brief report on the reduction in research coverage of SMEs.[60] The report first provides an overview of the environment facing SMEs and the role of equity research. It then references the findings of Fang et al.,[61] the FCA survey,[62] and other industry surveys that show a reduction in the number of analysts covering European SMEs.

In May 2020, Evercore ISI released an update on the impact of MiFID II through 2019, arguing that 2019 represented another year of lower spending on external research, corresponding to significant European fund underperformance.[63] Examining over 5,000 funds across 12 equity categories, the authors state that U.S. funds thoroughly outperformed their European counterparts. The margin of victory by U.S. winners was 265 basis points, even higher than the U.S.-European fund performance differential in 2018.[64]

2. Academic Research

Recent academic studies also compare the post-MiFID II statistics to those of the years prior to implementation. These studies attribute an impact to MiFID II, but not one that is as substantial as reported by the industry studies. A trio of recent academic studies, summarized below, suggest that while MiFID II has decreased the aggregate amount of information gathered, particularly on large firms, the remaining coverage is of higher quality. This would suggest that, on balance, MiFID II has improved market efficiency by eliminating redundancy and producing information that is of greater value to investors.

This overall conclusion is, of course, at odds with the industry consensus. One way to square the industry analysis and the academic analysis is to observe that MiFID II was adopted in a disruptive manner, which caused a large amount of dislocation in the sell-side research community. (The aggregate impact to the sell-side research community is acknowledged by all parties.) Industry surveys tend to pick up that particular reaction, which does not necessarily correlate with actual market effects, whereas the academic studies focus on the actual market impact. Thus, to the extent that policymakers wish to make adjustments based on market impact, they should rely more heavily on the findings presented in the academic studies.

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research with hard dollars and their clients willing to shoulder any increase in asset manager fees to support such research services.

[60] *Unbundling: What's the Impact on Equity Research?*, OXERA (2019).

[61] *Infra* note 68.

[62] *Infra* note 73.

[63] *See* Glenn Schorr John Dunn, Kaimon Chung & Eric Young, *Another Year of Unintended Consequences*, EVERCORE ISI (2020).

[64] Yet again, we observe that, were the value of sell-side bundled research near the levels suggested in this Evercore ISI analysis, then buy-side firms would be willing to pay for such research with hard dollars.

Using quarterly Computstat data of firms that exceed $10 million in total assets, Lang, Pinto, and Sul show that analyst coverage of EU firms dropped relative to U.S. firms, thereby decreasing the aggregate amount of available information.[65] This finding is in line with expectations, as academic research has argued that the previous state of the world had excess analyst coverage. The authors show that the reduction in analyst coverage was greatest for firms that were larger, older, less volatile, and had greater coverage to begin with, "with no evidence of a reduction for small firms."[66] Remaining analysts now add more value on the margin, which is further supported by the authors' showing that analyst forecasts become more accurate, are more likely to include recommendations, and are accompanied by larger stock price reactions.

Similarly, by analyzing over 21,000 firm-year observations spanning 2014 to 2018, Guo and Mota show that MiFID II unbundling resulted in fewer research analysts covering large firms, with no decrease in coverage on small- or mid-cap firms.[67] Importantly, the reduction in coverage quantity was accompanied by an increase in coverage quality, as inaccurate analysts dropped out and better analysts stayed in. This supports the narrative that while the overall quantity of information has decreased, the remaining information is of higher quality.

Fang, Hope, Huang, and Moldovan show that the overall number of sell-side analysts decreased following the implementation of MiFID II.[68] Comparing a "treated" sample of over 11,000 European firm-year observations with a "control" group of over 11,000 U.S. and over 2,500 Canadian firm-year observations from 2015 to February 2019, the authors find that analysts of lower quality dropped their coverage of European firms. Remaining analysts provide greater value on the margin, as their recommendations have greater information content and more impact on the market. The authors also find a substitution away from sell-side analysts to buy-side analysts. Importantly, unlike the two academic studies discussed above, Fang et al. find that smaller firms—specifically those without an equity or debt offering in a three-year window and those with low trading volume—are more likely to suffer coverage losses, all else equal. This finding lends support to the assertion that SMEs are likely to be disproportionately affected by unbundling.

Relatedly, using broker-firm trading volume data at a daily frequency from 2014 to 2019, Liu and Yezegel investigate whether MiFID II achieved its objectives.[69] The authors show that E.U. analysts were no longer bringing

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[65] *See* Mark H. Lang, Jedson Pinto & Edward Sul, *MiFID II Unbundling and Sell-Side Analyst Research*, SSRN WORKING PAPER (2019).

[66] *Id.*

[67] *See* Yifeng Guo & Lira Mota, *Should Information be Sold Separately? Evidence from MiFID II*, SSRN WORKING PAPER (2019).

[68] *See* Bingxu Fang Ole-Kristian Hope, Zhongwei Huang & Rucsandra Moldovan, *The Effects of MiFID II on Sell-Side Analysts, Buy-Side Analysts, and Firms*, SSRN WORKING PAPER (2020).

[69] *See* Zheng Liu & Ari Yezegel, *Was MiFID II Effective in Unbundling Execution and Research Services?*, SSRN WORKING PAPER (2020).

incremental trading volume for their employers by issuing recommendation revisions. Moreover, the authors find that the E.U. analysts' recommendation revisions still provided the same returns (*i.e.*, are still informative). Thus, the authors conclude: "These results, collectively, suggest that MiFID II was effective in separating research and execution services and leveling the playing field without significantly hurting the quality of sell-side equity research."[70]

We next zoom out of the time period immediately before and after the implementation of MiFID II. The importance of having a longer time series is seen clearly in the article written by Haig, who constructed his own dataset that includes all companies which have been present in the FTSE All Share index since 1996.[71] The number of U.K. firms that have coverage from exactly one analyst has been remarkably consistent since 2010. The same can be said about firms with one to three analysts, one to five analysts, and more than 10 analysts; however, the latter time series has been slightly trending downward since 2010. Additionally, the number of U.K. firms with greater than 20 analysts or greater than 25 analysts has been sharply trending downward since 2012. While the number of U.S. firms with greater than 20 analysts or greater than 25 analysts also has been trending downward, the negative slope is not as significant as that of the U.K. counterpart. The time series evidence presented by Haig is largely consistent with the evidence presented by the other academic studies, particularly related to aggregate coverage levels and the coverage of large firms. They also provide a perspective that strongly suggests there are macro factors at work over a longer period of time, ones that are unrelated to MiFID II's unbundling requirement.

Our own empirical analysis, presented in detail later, is in line with these recent academic studies. Specifically, we analyze the impact of MiFID II implementation on the bid-ask spreads and price synchronicity of SMEs in the U.K. and European markets.[72] For example, we compare the daily bid-ask spreads of 30 of the largest companies in the FTSE 100 Index to those of the 30 largest companies in the FTSE Small Cap Index, from January 2010 through December 2019. Over this decade, we find little deviation from trend around the MiFID II implementation date. The price synchronicity analysis leads to the same conclusion. In sum, our analysis is consistent with the view that implementation of MiFID II has not been associated with a negative capital market effect on SMEs.

3. Public Sector Research

Last, but not least, we review the official sector's analysis. The U.K. Financial Conduct Authority (FCA) analyzed market developments between July 2018 and March 2019, using a survey of 40 buy-side firms, and 10 firm visits across

[70] *Id.*

[71] *See* Alistair Haig, *An Early Assessment of the Informational Environment for Equity Investors Since the Announcement of New Rules on Paying for Research* (2019) (on file with authors).

[72] These metrics are well-known proxies for market functioning. If the implementation of MiFID II distorted the market in any way, we would expect to see significant changes in these metrics before and after the implementation date. We do not.

the buy-side and sell-side.[73] The FCA also met five independent research providers and engaged with corporate issuers. The FCA presented several important findings, a few of which are presented below.

First, research budgets are shrinking. The FCA's survey found a material reduction of around 20 percent to 30 percent in the budgets that firms set for externally produced equity research. The FCA attributed this decline to a few factors: (i) buy-side firms are paying less for research by having a more targeted approach to procurement and increased efficiency in the way they use research; (ii) competition is driving down costs for written research; and (iii) most firms are adopting formal processes to set their research budgets, thereby improving cost discipline.

Second, buy-side firms report that they are still getting the research they need, despite the lower budgets. This lends additional evidence to the argument that the amount of analyst research prior to MiFID II was sub-optimally high. The FCA argues that this implies most savings reflect greater competition and market efficiencies. Indeed, only a few firms suggested they had seen a reduction in research on SMEs. Finally, the FCA's internal analysis shows limited change in single-stock analyst coverage levels for smaller-cap listed U.K. companies since MiFID II was implemented. Trading volumes or spreads for U.K. Alternative Investment Market listed companies, which can indicate reduced liquidity or investor demand, also do not appear to be affected, according to the FCA.

The Autorité des Marchés Financiers (AMF) also conducted a survey of industry participants, noting the longstanding issue of poor coverage of SMEs in French markets.[74] Between September and October 2019, AMF interviewed 41 financial sector participants on their perceived impact of MiFID II on markets in 2018. Survey participants "almost unanimously mentioned negative effects of MiFID II on financial research."[75] Specifically, the AMF report states that, in the French market, there was a decline in the coverage of companies with market capitalization between €150 million and €500 million. However, medium-sized enterprises—namely, those with market capitalization between €500 million and €1 billion—actually experienced a slight increase in coverage (specifically, coverage by at least two analysts). On net, the AMF study concludes that, "[i]n 2018, the changes seem relatively insignificant" but MiFID II is expected to have a larger impact in 2019.[76]

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[73] *See* U.K. Financial Conduct Authority, *Implementing MiFID II – Multi-Firm Review of Research Unbundling Reforms* (2019).

[74] *See* AMF, *Reviving Research in the Wake of MiFID II: Observations, Issues, and Recommendations* (2020).

[75] *Id.*

[76] *Id.*

The European Securities and Markets Authority (ESMA) recently released its analysis on MiFID II research unbundling.[77] The ESMA study analyzes 8,000 listed companies that were headquartered in the 27 E.U. countries and the United Kingdom between January 2006 and December 2019, and does not find a significant harmful impact following MiFID II's implementation. Specifically, MiFID II has not resulted in a significant decline in the number of analysts producing earnings-per-share estimates (*i.e.*, research intensity); recent increases in the number of companies no longer being covered by research analysts (*i.e.*, research coverage) appear to be a continuation of a long-term trend; and the authors point out that the number of companies losing coverage has been steadily increasing since 2012, perhaps due to "Big Data" technological developments and the rise in passive investment strategies.

The quality of research has been improving in recent years. While the median of the earnings-per-share annual surprise has remained stable, the 90th and 10th percentiles have narrowed since 2014, suggesting that the improvement in research quality also is part of a long-term trend. The authors offer two explanations. The first is that remaining analysts are of higher quality and therefore produce more accurate forecasts. The second is simply that markets have experienced low volatility since 2012, thereby creating favorable conditions for forecasting.

Importantly, the study concludes that SMEs do not appear to be disproportionately affected in terms of research intensity, research coverage, and research quality. ESMA's findings are entirely consistent with the analysis presented in this Part.

All in all, it would be convenient to conclude that the industry studies are biased toward one interpretation whereas the non-industry studies are biased toward the opposite interpretation. A less cynical view, one demonstrated by the recent academic studies, is that the estimated impact of MiFID II depends on the research methodology, the sample size used for analysis, as well as the time horizon. There is little doubt that MiFID II was adopted in a disruptive manner, which dramatically impacted the sell-side research community. Industry surveys consistently support this claim, and the academic research concurs. Policymakers should factor this into their decision-making process, but should not stop there, especially with more comprehensive analysis available.

In light of the ongoing market turmoil caused by the unprecedented COVID-19 pandemic, the European Union is planning to roll back its MiFID II restrictions on SMEs.[78] The European Union would allow payments to be re-bundled for research on companies that do not exceed a market capitalization threshold of €1 billion (approximately $1.15 billion) over a 12-month period. In discussing its policy options, the Commission staff working document cites to the Oxera brief

[77] *See* Adrien Amzallag, Claudia Guagliano & Valentina Lo Passo, *MiFID II Research Unbundling – First Evidence*, ESMA Report on Trends, Risks, and Vulnerability (2020).

[78] *See* European Commission, *EU Capital Markets Recovery Package*, Commission Staff Working Document (2020).

report, discussed previously, and an op-ed by Global Trading,[79] which argues independent research providers are the biggest losers from the unbundling of research in Europe under MiFID II, according to survey research. The staff working document does not weigh the totality of the evidence highlighted in this Part, and certainly does not assess the rigorous econometric analyses.

10. While MiFID II has lowered the aggregate level of analyst coverage as expected, especially as it relates to coverage of large companies, it also would be fair to conclude that MiFID II has increased the quality of analyst coverage. On balance, MiFID II's unbundling of commissions has improved European market efficiency by eliminating redundancy and producing information that is of greater value to investors.

B. Bid-Ask Spreads Post MiFID II Implementation

11. To complement the empirical analysis summarized above, we investigate whether bid-ask spreads and price synchronicity measures show noticeable deviations from their previous trends following the implementation of MiFID II.[80] As these are two common proxies for market functioning, any significant deviations from their trends immediately following the implementation of MiFID II in January 2018 would likely imply a market distortion that could be attributed to MiFID II.[81] We do not, however, observe any such deviations from trend. This supports the assertion that, while MiFID II caused a sizeable dislocation in the sell-side research community, it likely did not have the same measurable impact on actual market functioning.

12. We begin with an analysis of bid-ask spreads. The following compares the bid-ask spreads of large and small companies, before and after the implementation of MiFID II in January 2018. We first assembled a dataset of the daily bid and ask data of 30 of the largest companies, by market capitalization, in the FTSE 100 Index as well as the daily bid and ask data of 30 of the largest companies, by market capitalization, in the FTSE Small Cap Index. Table 1 in the Appendix shows the Bloomberg stock tickers of the companies used in our FTSE sample.

13. Second, we calculated the daily bid-ask spread for each of the FTSE companies. This means that, for each trading day, we had 30 bid-ask spreads for the

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[79] *See* Global Trading, *Independent Research Providers Will Lose Most Under MiFID* (2020), https://www.fixglobal.com/home/independent-research-providers-will-lose-most-under-mifid/.

[80] For background information on market liquidity and bid-ask spreads, *see* Douglas J. Elliott, *Market Liquidity: A Primer*, BROOKINGS (June 2015), https://www.brookings.edu/wp-content/uploads/2016/07/market-liquidity.pdf. For background information on price synchronicity, *see* Randall Morck, Bernard Yeung & Wayne Yu, *The Information Content of Stock Markets: Why Do Emerging Markets Have Synchronous Stock Price Movements*, 58 JOURNAL OF FINANCIAL ECONOMICS 215 (2000); Kalok Chan & Allaudeen Hameed, *Stock Price Synchronicity and Analyst Coverage in Emerging Markets*, 80 JOURNAL OF FINANCIAL ECONOMICS 115 (2006) (explaining that synchronous stock price movements suggest less firm-specific information is produced).

[81] For example, one would expect bid-ask spreads to be higher for securities issued by SMEs if the market did not have sufficiently robust coverage of SMEs. With less information on SMEs, potential buyers and sellers would have a wider range of priors, and the market for securities issued by SMEs would be less liquid. Of note, the ESMA study also presents evidence of bid-ask spreads and concludes that MiFID II did not have a differential impact on the bid-ask spreads of SMEs versus large firms.

FTSE 100 companies and 30 bid-ask spreads for the FTSE Small Cap companies. Third, for each trading day, we calculated the *median* bid-ask spread of the FTSE 100 companies and the median bid-ask spread of the FTSE Small Cap companies. Because of the noise of the daily series, we then smoothed the daily median series by using a monthly rolling average. The results are presented in Figures 2 and 3 below. The daily time series runs from January 2010 through December 2019.

Figure 2: Median Bid-Ask Spread the FTSE 100 Companies

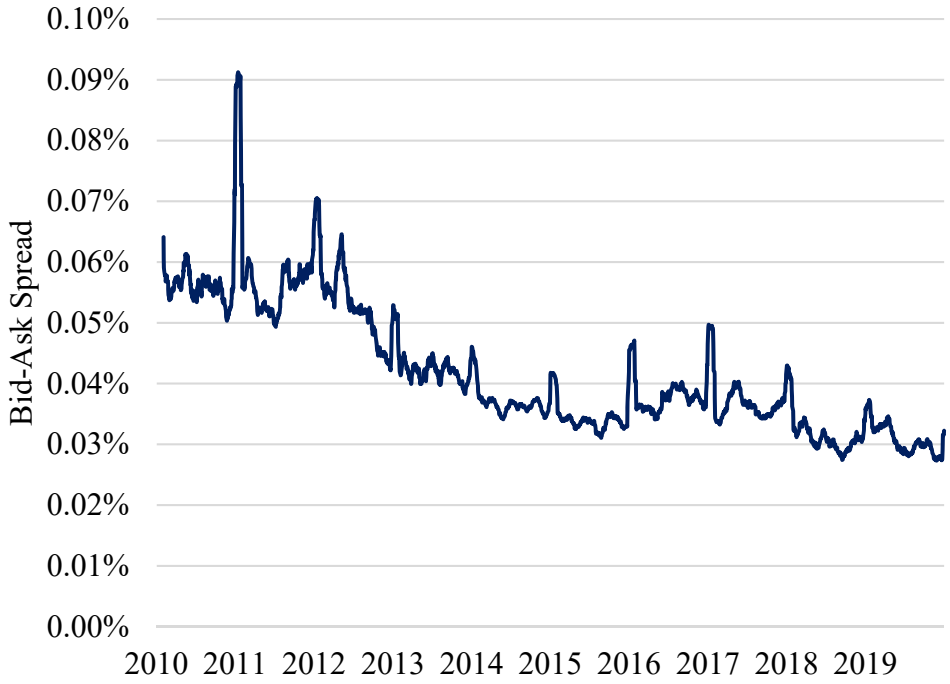
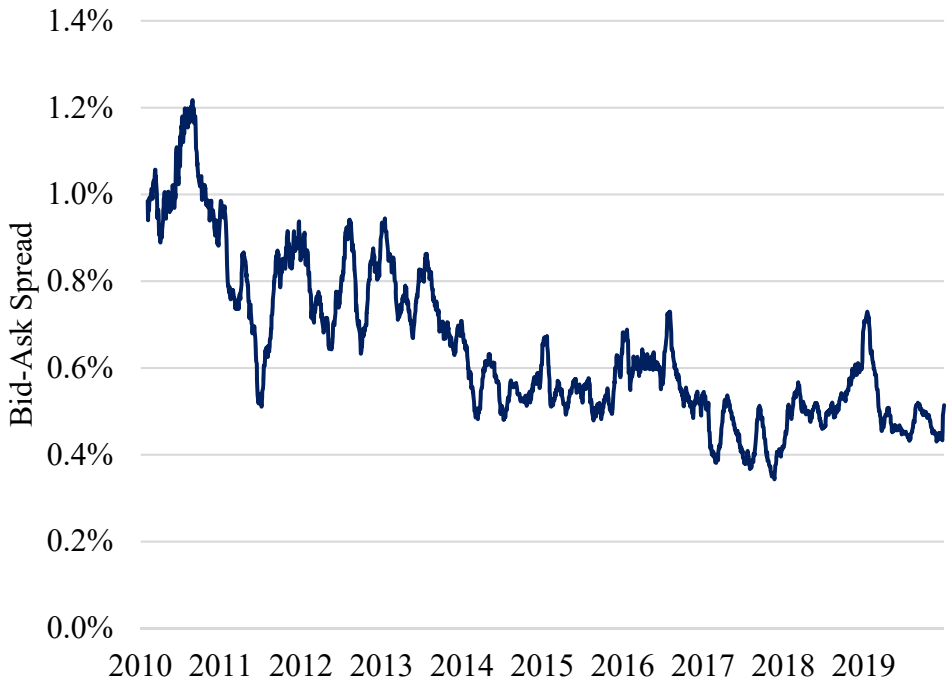


Figure 3: Median Bid-Ask Spread of the FTSE Small Cap Companies

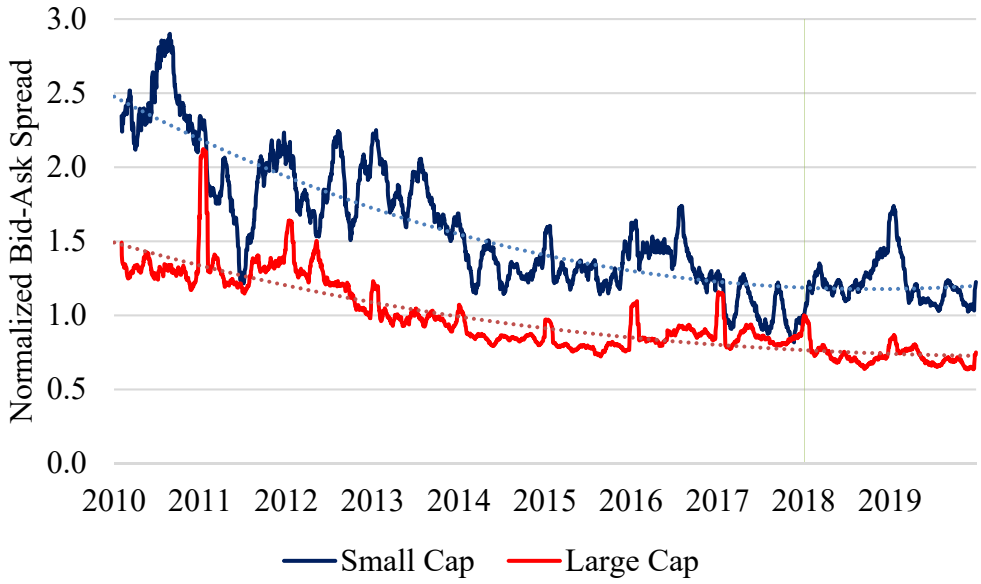


A few observations are worth pointing out. First, and not surprisingly, the median bid-ask spread of the FTSE 100 companies is much lower than the median bid-ask spread of the FTSE Small Cap companies, roughly 0.03 percent versus 0.4 percent. The median bid-ask spread of the FTSE 100 companies appears to have decreased slightly in January 2018. The median bid-ask spread of the FTSE Small Cap companies decreased significantly in January 2017; that was one year before the implementation of MiFID II. The median bid-ask spread of the FTSE Small Cap companies rose in late-2018 and early-2019, fell in mid-2019, and remains below its average since 2014.

In Figure 4 below, we normalize the two series to January 2, 2018—the day before MiFID II went into effect. This means that the two time series equal "1.0" on January 2, 2018. We see that the median bid-ask spreads have remained roughly on the same trend since 2014 or 2015. In other words, we see no significant deviations from trend—hence, no significant deterioration in market functioning—following the implementation of MiFID II for either group.[82]

Recall that the European Union is reconsidering its MiFID II restrictions on SMEs. The European Union would allow payments to be re-bundled for research on companies worth less than €1 billion. Our findings in this Part, and the weight of the academic studies summarized previously, do not support this proposed rollback. Every single firm in our FTSE Small Cap sample has a market capitalization of under €1 billion, and it does not appear that MiFID II has impeded their performance in the capital markets. Their bid-ask spreads did not change significantly post-unbundling. Market liquidity remains on trended through year-end 2019.

Figure 4: Normalized Median Bid-Ask Spread

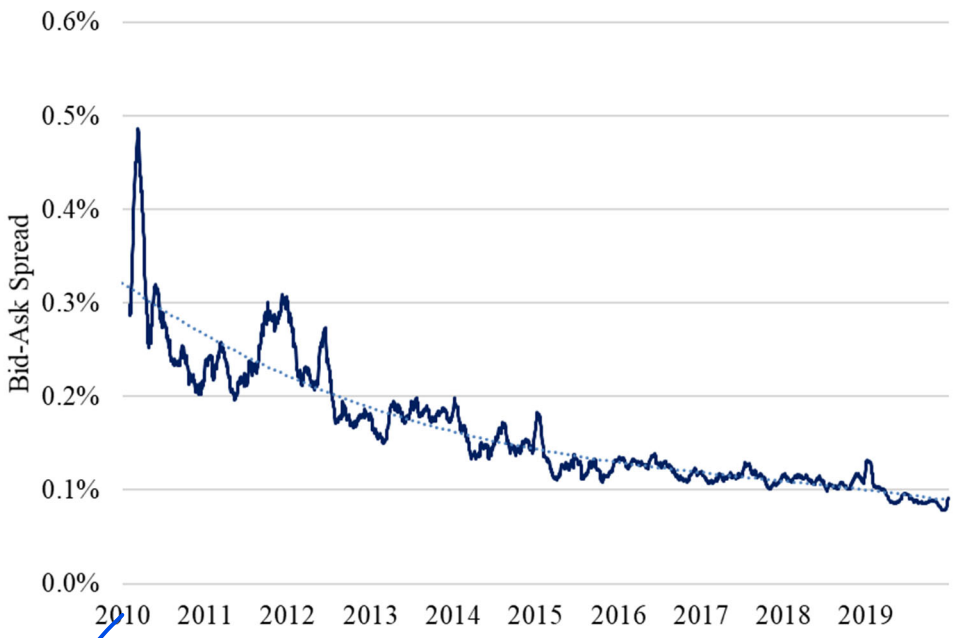


[82] Of course, our data stop at the end of 2019 like the other studies cited in this Article, so we cannot be sure that our empirical findings still hold during the ongoing economic crisis stemming from the COVID-19 pandemic.

Next, we conduct the same experiment, but replacing "FTSE 100" with "Euro Stoxx 50" and replacing "FTSE Small Cap" with "Stoxx Europe Small 200." The new sample is shown in Table 2 in the Appendix.

The bid-ask spreads for the Euro Stoxx 50 and the FTSE 100 are quite similar. However, the bid-ask trends for the Stoxx Europe Small 200 and the FTSE Small Cap are not close, most likely because the former contains larger firms than the latter. The median bid-ask spread of the former hovers around 0.1 percent whereas the median bid-ask spread of the latter hovers around 0.4 percent. Nevertheless, one sees no significant change in the steady downward trend following the implementation of MiFID II.

Figure 5: Median Bid-Ask Spread of the Stoxx Europe Small 200 Companies



C. Price Synchronicity Post MiFID II Implementation

In addition to examining bid-ask spreads, we compare the share price synchronicity of companies in the FTSE 100 versus that of companies in the FTSE Small Cap, and of companies in the Euro Stoxx 50 versus that of companies in the Stoxx Europe Small 200. The analysis utilizes data of 30 of the largest companies in each of the samples. A simple version of share price synchronicity can be derived by running the following regression and obtaining the R^2:

$$r_{i,t} = \alpha + \beta r_{m,t} + \varepsilon_{i,t}$$

In this econometric specification, $r_{i,t}$ is the return of stock i on trading day t (*e.g.*, the return of HSBC on January 3, 2018) and $r_{m,t}$ is the return of market index m on trading day t (*e.g.*, the return of the FTSE 100 Index on January 3, 2018). We run this regression using daily data within a particular calendar year. We use the FTSE 100 Index return for the FTSE 100 companies in the sample, and we use the FTSE

Small Cap Index return for the FTSE Small Cap companies in the sample. Table 1 below presents the results.

Table 1: FTSE Price Synchronicity

Calendar Year	FTSE 100 R^2	FTSE Small Cap R^2
2010	0.3874	0.1340
2011	0.4858	0.1858
2012	0.3543	0.1087
2013	0.3420	0.0971
2014	0.2775	0.1227
2015	0.4049	0.1229
2016	0.3034	0.1498
2017	0.1846	0.0520
2018	0.2863	0.1157
2019	0.2548	0.0874

The story told by the price synchronicity measure is similar to the story told by the bid-ask spreads. Within both the FTSE 100 sample and the FTSE Small Cap sample, there appears to be a significant drop in 2017, a full year before MiFID II's implementation, followed by a rebound in 2018 and a slight decline in 2019. Notably, these measures are very much consistent with their recent averages since 2014. Not surprisingly, the results are similar for the Euro sample, as shown in Table 2 below. There were significant declines in both the Euro Stoxx 50 sample and the Stoxx Europe Small 200 sample in 2017, a full year before MiFID II, followed by a rebound in 2018. This analysis supports the argument that MiFID II has not caused a significant disruption in the markets when viewed over the course of a decade.

Table 2: Euro Price Synchronicity

Calendar Year	Euro Stoxx 50 R^2	Stoxx Europe Small 200 R^2
2010	0.5528	0.2709
2011	0.5719	0.4284
2012	0.4769	0.2450
2013	0.4555	0.1682
2014	0.5098	0.1873
2015	0.6405	0.2808
2016	0.5631	0.2826
2017	0.3540	0.1226
2018	0.4010	0.2165
2019	0.3955	0.1762

Conclusion

While the debate over MiFID II and the intensity of opposing views on the directive can be confusing, the economics of MiFID II's unbundling of commissions are, in certain respects, straightforward and unsurprising. To begin with, the directive's prohibition on the opaque use of client funds to pay for research services changed the relative pricing of sell-side research services as compared to other kinds of research. Previously, asset managers in Europe and the United States had been paying for sell-side research services with what was effectively a different currency with a lower value than hard dollars. Asset owners were much less sensitive to charges imposed through excessive commissions as compared with explicit management fees. Under MiFID II, the price of sell-side research services effectively increased as they were either moved to collect hard dollar payments from asset managers or transferred into RPA accounts where the cost of payment became immediately salient to asset owners. As with other markets, when the price of a good increases one would expect to see a decline in the amount purchased. And that is exactly what happened in European capital markets: less sell-side research is being provided, analysts on the sell-side are being laid off, and the price charged for sell-side research, now levied in real currency, has come down and quite dramatically in some cases.

In addition, the use of substitutes for sell-side research, which become comparatively cheaper under MiFID II, has increased. This substitution effect can be seen on both sides of the Atlantic in the increase in buy-size research spending, the movement of products, such as corporate access to other distribution channels not financed through excess commissions, and the emergence of new forms of research substitutes, such as alternative data, which typically are charged to IT budgets and paid for with hard dollars. While much of the coverage of MiFID II focuses on the decline in the provision of sell-side research, this decline has been offset at least to some degree with other research alternatives not captured in payments made for sell-side research.

In sum, to a considerable degree the observed phenomena in U.S. and European capital markets have followed a fairly predictable path once MiFID II raised the effective price of sell side research. The only genuinely surprising feature of the process has been from the fact that an overwhelming majority of European asset managers chose to implement MiFID II through cost internalization. As mentioned above, the cause of this response is unclear, and may simply have been the product of first mover decisions and path dependence once a "best practice" appeared to have emerged.

The profit margins of asset managers, especially with the movement toward passive investment vehicles and pricing pressure over the past decade, have narrowed. To the extent that MiFID II imposed further downward pressure on firm profitability, one can appreciate the immediate uproar over MiFID II in certain circles and the subsequent, unexpectedly abrupt changes in research spending practices, especially among smaller asset managers. That effect, however, might best be understood as a transitory phenomenon, as the level of management fees adjusts

over time to ensure long-run sustainability for the asset management industry, coupled perhaps with some degree of firm consolidation as smaller firms seek to achieve greater economies of scale. It is also conceivable that the relatively intricate compliance mechanisms imposed to police the anti-inducement principle may have added to transition costs and exacerbated market reactions. The extent to which these transition effects ameliorate over time is a matter for further analysis, but the softening of rhetoric two years plus from January 2018 suggests that some of the kinks in the European system are being worked out, albeit perhaps not in time to prevent some adjustments in MiFID II at the E.U. level in the aftermath of Brexit.

Appendix

Table 1: Tickers of Companies Used in Sample

FTSE 100	FTSE Small Cap
RDSA	HYVE
HSBA	MGNS
BP	LWI
GSK	FORT
AZN	IEM
DGE	CHG
BATS	BIFF
RIO	SONG
ULVR	OTB
GLEN	AVON
RB	SAIN
LLOY	NCC
PRU	SLS
VOD	BBH
BHP	MRCH
REL	DFS
RBS	JLEN
NG	JESC
AAL	LIO
BARC	XPP
CPG	EWI
LSE	MUT
CCL	NBPE
TSCO	SAGA
CRH	ATT
EXPN	SPI
STAN	CSH
ABF	VEC
BT.A	HLCL
LGEN	TFIF

Table 2: Tickers of Companies Used in Sample

Euro Stoxx 50	Stoxx Europe Small 200
MC FP	PUM GY
SAP GY	ARGX BB
OR FP	PST IM
FP FP	CPR IM
ABI BB	NIBEB SS
AIR FP	METSO FH
SAN FP	PROX BB
SIE GY	IMCD NA
ALV GY	PSPN SW
ITX SM	SK FP
ASML NA	BARN SW
VOW GY	BOL FP
DTE GY	EKTAB SS
SAN SM	FABG SS
KER FP	REC IM
BAS GY	BALDB SS
DAI GY	VACB SW
BNP FP	MF FP
ENEL IM	SIM DC
CS FP	BION SW
SU FP	PRX NA
ENI IM	ASM NA
BN FP	MOR GY
MUV2 GY	KESKOA FH
BMW GY	ORNBV FH
PHIA NA	AMUN FP
INGA NA	AFX GY
AI FP	HELN SW
ISP IM	KGX GY
ORA FP	HUH1V FH