VIEWPOINT

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Index Investing and Common Ownership Theories

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In this *ViewPoint*

Index funds, referring to both index-based mutual funds and exchange traded funds (ETFs),[1] have become a powerful force for the democratization of investment. Since the first index funds were launched in the 1970s, their growth, particularly during the last decade, has made such funds and index investing more generally a cornerstone of investment practice. They have made broadly diversified index portfolios accessible to even the smallest investor, serving to help reduce complexity, lower costs, and provide a degree of protection against overexposure to the risk of individual stocks. In short, individuals and institutions alike have gained the ability to participate in the fortunes of a market in a single transaction.

Index investing makes use of the wide range of market indexes that can be tracked as performance benchmarks.[2] Index strategies are used in many investment vehicles, including mutual funds, ETFs, and separately managed accounts. Index investing has been adopted by investors of all kinds. Many large institutional investors, including pension funds and sovereign wealth funds, track indexes, whether in-house or by using the services of an asset manager. Global regulatory initiatives to increase transparency in investment products, services and costs have helped spur the use of these products among financial advisers. As a result, both institutions and individuals have broad access to index strategies, and many integrate these into their overall investment portfolios.

Despite the significant benefits of index funds, recent academic literature in the legal area has put forth certain policy proposals that would fundamentally challenge their value proposition for investors.[3] These policy proposals are based on economics literature that purports to link index funds to the rise of common ownership, and the rise of common ownership to higher consumer costs in particular industries, namely, the airline and banking industries.[4] In this discourse, owners that hold shares of several companies in an industry, including asset managers acting on their behalf, are referred to as common owners.[5] At present, a robust academic debate exists regarding whether and what type of impact common owners may have on particular economic outcomes, such as consumer prices and executive compensation.[6] Recent literature has cast doubt on the methodology and fundamental assumptions that served as the basis of the papers that assert a relationship between increased common ownership and consumer costs.[7]

In this *ViewPoint*, we hope to inform this debate with a practical perspective regarding the realities of the asset management business. Before any significant policy proposals in this area are considered, we believe that it is extremely important to consider the unintended consequences of such proposals and potential harm that could result for institutional and individual investors alike. This is especially important given that some of the policy proposals are premature and rely on research that is preliminary.[8] These policies would greatly undermine the ability of investors to use a host of investment strategies, particularly index investing. Further, while much of the discussion has focused on index investing, which would indeed be disproportionately impacted by the policy proposals, the theories on common ownership would logically apply to all assets managed by asset managers, and the remedies would impact diversified investment strategies, whether based on active or index management.

Key Observations

1. **Index funds, referring to both index mutual funds and ETFs, offer a level of access to diversified portfolios that was once available only to large, sophisticated investors.**
   - Strong adoption by institutional investors, such as pension funds, has been followed by uptake by individual investors.
   - Drivers have included the utility of the product – its low cost, transparency, operational simplicity, and diversification – as well as global regulatory trends.
2. **Some recent academic literature on common ownership has sought to link asset managers, who are also significant index investment managers, with negative outcomes for consumers. They recommend policy proposals that would harm ordinary investors.**
   - The economics literature purporting to link index funds and higher prices is based on fragile evidence and fundamental misconceptions, and it does not provide a plausible causal explanation of how common ownership can lead to higher prices.
   - More recent literature questions the methods and conclusions of earlier papers.
3. **Policy changes suggested in some legal academic papers would fundamentally change the investment landscape to the detriment of asset owners and the global capital markets.**
   - One of the suggestions would limit the voting ability of asset managers; this would be harmful to the asset owners and would be directly opposed to regulatory efforts to ensure asset owners and asset managers exercise their corporate governance and voting rights.
   - A second suggestion would limit asset managers to holding stock in one company per sector or being restricted to a percentage limit in a sector; this would undermine the basic tenets of diversification and risk management. Imposing these limits would be harmful to the interests of the pension funds and other investors in these portfolios.
   - Such policy changes would have a highly disruptive effect on the functioning of capital markets in channeling capital to companies and eliminate the tremendous benefit to asset owners that index funds have brought in the past four decades.
   - Given the preliminary state of research in this area, these policy proposals are, at best, premature.

In this *ViewPoint*, we outline the potential benefits of index investing and the resulting growth of this style of management. We then describe the limitations of some of the research literature, including misconceptions regarding index investing and shareholder engagement, and the absence of a plausible causal theory for some of the statistical relationships that have been suggested. We begin by exploring the adoption of index investing, first by institutional investors and subsequently by advisers and individuals, and the regulatory initiatives that are fueling adoption of index products by individuals. We then examine the theories underlying some of the economics research and explain why they fail to reflect the realities of the asset management business. We conclude by describing why the policy recommendations proposed by some of these scholars would take away many of the benefits that index investing is meant to provide investors and would greatly harm the average investor.

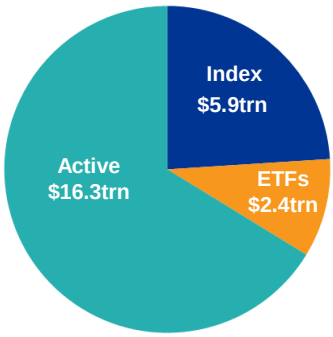
Index investing

Since its creation in the mid-1970s, index investing has gained widespread popularity and adoption, as individuals and institutions alike benefitted from the ability to participate in a whole market in one trade. The providers of index funds are fiduciary asset managers, bound to act in the best interest of their asset-owner clients, who may include pension funds, foundations, endowments, insurers, sovereign wealth funds, and the millions of individuals saving for retirement, education and other financial goals.

We estimate that equity investments through index vehicles, including ETFs, represent approximately 34% of global equity assets under management by external managers .[9]

Externally managed assets (those not managed by a company for themselves) constitute approximately 36% of

Exhibit 1: Global equity assets under external management: $24.6trn USD



Source: BlackRock estimates based on McKinsey, Markit, Bloomberg, Simfund and Broadridge data. Data is as of Year End 2015.

listed equity assets globally.[10] Data to estimate the same breakdown on internally managed portfolios is unavailable.

Index construction

A closer look at index investing starts with the market index that it will seek to track. Index providers such as Morgan Stanley Capital International (MSCI), Standard & Poor's (S&P), Dow Jones and Financial Times Stock Exchange (FTSE), publish thousands of different indexes, covering a wide variety of countries, regions, industries, asset classes, and themes. These are commonly used for everything from gauging market behavior, sensitivity to news flows, performance measurement, and asset allocation. The weighting of a single security in an index – and consequently in a portfolio tracking the index – may be based on market capitalization, or another index methodology (see Exhibit 2). In contrast to active equity investment, which seeks to outperform a market index through active stock selection using a variety of strategies, index investing seeks to track the performance of an index as closely as possible. This represents an alternative value proposition, and many asset owners, or managers acting on their behalf, employ a blend of both active and index strategies for different purposes. Between active stock selection and index investing, a middle ground is emerging with a new group of indexes that introduce a degree of bias towards a specific factor.

Diversity of indexes and investment approaches

Today, index investing is a diverse and competitive field. Depending on the index, asset owners may be able to choose from a variety of ways to invest, from index mutual funds, ETFs, and separately managed accounts, to certificates, baskets of individual securities, futures, and swaps. Institutional investors may also choose whether to replicate indexes internally, by managing their own investment portfolios, or to employ an external manager via segregated mandates or funds. In each case, the goal is to match the risk and return characteristics of the index.

In Exhibit 3 we show some examples of popular market indexes, which, even in this short list, highlight the variety available. Each index may be tracked by a large number of investment vehicles.

Fund structure fundamentals: Funds, asset owners, and asset managers

At its most basic, a fund is a collection of securities. Fund assets (that is, the securities in which the fund invests) are held separately from the balance sheet of the fund's investment manager – usually by a third party custodian bank. Fund investors (that is, the asset owners investing their capital) own a proportional share of that fund, and the

Exhibit 2: Index methodologies

Market capitalization weighted	By far the most common type of equity index, securities are weighted according to market capitalization, that is, the market value of outstanding shares. Simply put, larger companies represent a larger portion of the index, and therefore a larger proportion of investment from index funds. Well-known equity indexes weighted by market capitalization include: S&P 500, FTSE 100, DAX, Hang Seng, and the Tokyo Stock Price (TOPIX).
Price weighted	A price weighted index is constructed using an equal number of shares for each index constituent. This methodology is less common. A well-known example is the Dow Jones Industrial Average.
Equal weighted	In this case, the index includes all securities weighted equally, but requires regular rebalancing to maintain. Between rebalances, the weight of a stock will move in line with its relative performance. Equal weighted indexes introduce a bias against larger companies in favor of smaller companies.
Fundamental	Fundamental indexes give greater weight to stocks based on fundamental metrics such as company earnings or sales.
Factor	Factor indexes give greater weight to stocks according to specific factors, such as value, volatility, momentum, dividend yield, and/or size.

Source: BlackRock

Exhibit 3: Most popular single country/regional indexes (by amount of index assets benchmarked to it)

Region	Index
EMEA	SIX Swiss Performance Index
	Financial Times Stock Exchange (FTSE) All-Share
	Morgan Stanley Capital International (MSCI) Europe
	Financial Times Stock Exchange (FTSE) 350
	Morgan Stanley Capital International (MSCI) EMU
	Euro STOXX 50
US	Standard & Poor's (S&P) 500
	Center for Research in Security Prices (CRSP) US Total Market
	Standard & Poor's (S&P) MidCap 400
	CRSP US Mid Cap
	CRSP US Small Cap
	MSCI US REIT
APAC	Nihon Keizai Shimbun (Nikkei) 225
	Tokyo Stock Price (TOPIX) Index
	Hang Seng (HSI)
	CSI 300
	S&P/ASX 300
	KRX KOSPI 200 Korea

Source: Morningstar, as at end of December 2016. The popularity of the equity index is calculated on the basis of the index fund (index mutual funds and ETFs) assets tracking those indexes in each of the three selected regions, in USD.

value of those shares changes based on the rise and fall in value of the securities in which the fund invests. Therefore, the structure of a fund, whether active or index, exchange traded or not, enables smaller investors to buy a slice of a diversified pool of securities, rather than needing to buy potentially hundreds or thousands of individual stocks themselves to achieve the same degree of diversification. The asset owners invested in funds are far from homogenous, and range from individuals, to pension funds, to insurers, to banks, to charities and sovereign wealth funds, to name just a few. Each have their own unique set of objectives, constraints and convictions.

A global asset manager may manage thousands of separate accounts and funds, both active and index-based, with a variety of styles and client mandates. Asset managers are bound to act in each case according to the terms of the mandate described either in the offering document of the fund (such as the fund prospectus) or in investment management agreements they enter into directly with clients. In order to provide a wide array of investment services to such diverse types of clients, different funds and accounts may be managed according to different investment strategies by different portfolio management teams within the same asset management firm. These portfolio managers have a separate fiduciary duty to investors in each of the funds and accounts they manage, and may have different views and expectations regarding the stocks in which they invest on behalf of those investors.

We note that despite this diversity of asset owners and objectives – even among the clients of a single asset manager – **regulatory reporting regimes around the world require that asset managers report shares managed on an aggregated basis, above certain thresholds.** Regulatory reporting of shareholdings, sometimes known as threshold reporting, therefore does not represent a record of the economic beneficiaries of the securities. We expand on this on page 7, when we consider the data being utilized for research.

Attractiveness of index investing

The growth of index investing has been spurred by the dual drivers of product utility and regulatory trends. The defining characteristics of index funds are the market-wide diversification, cost efficiency, transparency, and operational simplicity that they offer. Their popularity is due to the flexibility these investment building blocks offer to both individuals and institutional investors.

Diversification

Diversification is both a fundamental principle of investment risk management and a key feature of index investing. The indexes that index funds track are typically made up of a broad set of individual securities, ranging in number from tens to thousands. This diversification can substantially reduce the impact arising from the risk of a single stock – the

Modern Portfolio Theory

In early 1950s, Harry Markowitz, then a University of Chicago PhD student, codified one of the enduring principles of investing: the value of diversification. Since then, the role of diversification in managing portfolio risk and return has been recognized by regulators, asset owners, and asset managers.

In 1990, Markowitz, and fellow economists Merton Miller and William Sharpe, were jointly awarded the Nobel prize in economic sciences, for their pioneering work in the theory of financial economics.[11] The ability to mitigate risk by spreading assets across sectors, industries, and companies is widely considered a foundational component of smart investing.

idiosyncratic risk inherent in an individual security – while maintaining access to market performance. Because the risk and return drivers of an index portfolio are based on a pre-defined set of rules, they are, in relative terms, easy to model and mitigate.

Cost efficiency and scale

On average, index fund costs are lower than that of actively managed funds.[12] This largely results from implementing a rules-based investing strategy. By definition, index funds generally have lower turnover since the stocks are traded almost exclusively to track the performance of the underlying index as closely as possible. Scalability also may reduce costs where costs can be spread across a large investor base. Scale is also necessary to make some products (e.g., single-country emerging market index funds) economically viable.

Transparency

Based on a pre-defined set of index rules, index investing provides transparency to asset owners in at least two meaningful ways: first, the underlying holdings of index funds are rules-based; and second, transaction costs associated with implementing an index strategy are easy to identify. Consequently, cost transparency is high for index funds.

Operational simplicity

Index funds are operationally simple to use, whether for an individual investing in a mutual fund via a fund platform or in ETFs through a brokerage account, or a sophisticated investor. Using an index fund to track an index vastly reduces the number of individual securities trades from potentially hundreds or thousands, to just one trade. Because the number of individual securities trades needed to replicate an index is substantially lower, this reduces operational complexity and transaction risk. This is particularly true for broad indexes with many constituents, such as the S&P 500 or Russell 2000.

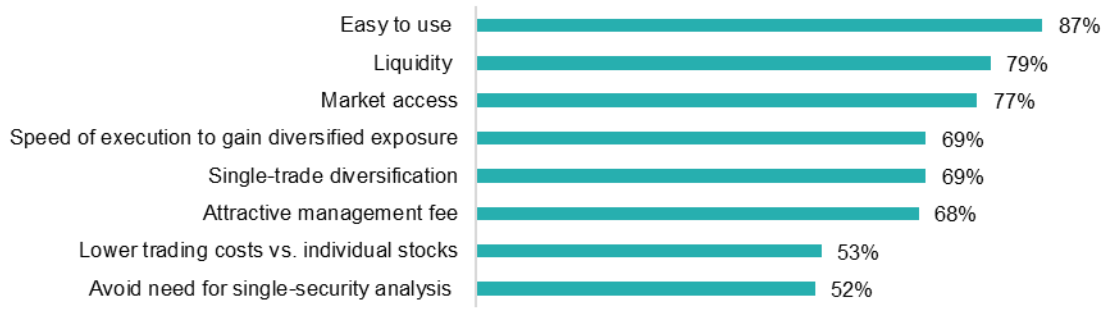
Reasons for using equity ETFs

As shown in Exhibit 4, The Greenwich Associates 2015 Global Exchange Traded Funds Study illustrates that institutional investors surveyed use equity ETFs due to their ease of use, liquidity and market access, and speed of one-trade diversification.

Early adoption by pension funds

The early adopters of index investing were institutional investors, with pension funds leading the way. Today, a large number of defined benefit plans and sovereign wealth funds use index investing as a core portion of their portfolios as they manage their risk budgets across their portfolios. In addition, many large defined contribution plans have incorporated index strategies into their offerings. For various reasons, these asset owners have opted to implement their index investing strategies using different approaches in terms of the indexes selected and the range of investment strategies being offered. The Thrift Savings Plan (TSP) in the U.S.[13] and the National Employment Savings Trust (NEST) in the UK[14] are just two examples of defined contribution plans that are offering index strategies to individual participants. The TSP was initially established in 1987 and the NEST began in 2012. Today, each of these plans has millions of individual participants invested in index strategies. At the end of 2015, the TSP had approximately 4.8 million participants, and a total of $458 billion in AUM.[15] The TSP offers five individual investment funds, and five lifecycle funds that invest in a mix of the individual funds. Of the five individual funds that comprise the building blocks, one invests in short-term US Treasury securities, one tracks the Bloomberg Barclays US Aggregate Bond Index, and the remaining three track stock indexes.[16] As of September 2016, NEST managed £1.5bn,[17] and the allocation to index funds was 51.2%.[18] Indexes tracked include the FTSE All World Developed Index, the HSBC Economic Scale Emerging Markets Index, and the MSCI Emerging Markets Custom Environmental, Social, and Governance (ESG) Index, among others.[19]

Exhibit 4: Top reasons for using equity ETFs



Note: Based on 230 responses. Source: Greenwich Associates 2015 Global Exchange-Traded Funds Study

Exhibit 5: Global regulatory initiatives focused on fees *(list not exhaustive)*

UK	2013	Retail Distribution Review
Australia	2013	Future of Financial Advice
Netherlands	2014	Netherlands Retail Distribution Review
US	2016	US Department of Labor Fiduciary Rule
EU	2018	Markets in Financial Instruments Directive II
Switzerland	2018	Federal Financial Services Act
UK	Ongoing	UK DWP/FCA cost disclosure standards for pension schemes
Canada, India, South Africa	Various	Canada, India, South Africa also implementing national Retail Distribution Review-style regimes

Global regulatory tailwinds to index investing

Over the past few years, regulatory initiatives around the world (see Exhibit 5) have increased focus on the transparency of fees associated with investment products, from distribution costs to advisory fees to administrative expenses. This has resulted in some jurisdictions removing fund commissions from retail financial advice charging structures and a move to fee-based advice. The shift to fee-based structures risks excluding smaller retail investors, potentially creating an advice gap.[20] One of the solutions suggested to fill this gap is the use of digital advice services, also known as robo advisers.[21] These services often use index strategies in their portfolio building blocks, which would further the trend towards index investing.

Theories of Common Ownership

Now that we have provided a framework for understanding the role of index investing, we turn to the recent literature on common ownership and index investing. As we expand on later in this *ViewPoint*, regulatory reporting of shareholdings (often known as threshold reporting) does not reflect the ownership of shares by asset owners. Instead, threshold reporting reflects the aggregation of holdings across all distinct investment vehicles, including mutual funds, ETFs, hedge funds, and separate accounts. Based on this reporting, two strains of research have arisen, economics and legal, with some of the legal papers suggesting policy remedies. Some of the economics literature seeks to find a link between consumer prices and common ownership. Some of the legal literature argues that common ownership has antitrust implications, and proposes policy reforms. Much of this literature is predicated on misconceptions about asset management and index investing.

Specifically, some recent literature in economics has examined whether common ownership can harm consumers, for example, by resulting in higher prices in a specific sector.[22] This research literature is preliminary,[23] and is in the process of being scrutinized by other academics, and recent papers question the methodology and conclusions. While some of the papers assert statistical findings, they do not provide a plausible causal link between common ownership and higher prices for consumers. In fact, the examination of whether or not there is a link between common ownership, the growth of index funds, and market competition dynamics, is at a very early stage.

Despite these significant limitations, purported findings on consumer prices have been used in some legal literature as a basis for recommending dramatic shifts in policy relating to index funds and asset managers, both index and active.[24] The extrapolation of policy proposals from this line of thinking is, in our view, highly premature, and the proposals are potentially harmful to the interests of investors, both large and small. In this section, we review the economics literature and in the following section we assess some of the policy proposals in the legal literature.

Economics literature

We discuss seven economics papers on this subject in this section. These papers have sought to examine whether a relationship between common ownership and economic outcomes, including consumer prices and executive compensation, exists.[25] The first two papers we describe explore the relationship between common ownership and consumer prices:

- **Azar et al. Airline Paper**: This paper asserts that increases in common ownership coincided with airline seat ticket prices rising from anywhere between three and seven percent, during the 2001 to 2014 period.[26]
- **Azar et al. Banking Paper**: This paper claims to find that greater common ownership, as proxied by inclusion of a stock in an index, led to higher fees and lower interest rates for individual deposit accounts between 2004 and 2013.[27]

More recent literature has brought into question the methodology utilized in the Azar et al. Airline Paper and the Azar et al. Banking Paper.

- **Rock and Rubinfeld Paper:** This paper questions the methodologies used in the papers that have found a statistically significant relationship between common ownership and prices. The authors conclude that the methodology applied in such papers was designed for situations where large acquisitions result in a change in control of a company (also known as cross-ownership), and that this methodology is inappropriate when applied

more generally to institutional ownership (referred to as common ownership).[28]

- **O'Brien & Waehrer Paper**: This paper questions the methodology of the Azar et al. Airline Paper and the Azar et al. Banking Paper by analyzing the use of the measure of concentration utilized in studying the airline and banking industries.[29] It finds that the key explanatory variable in this research depends on the same underlying factors as those that drive consumer prices. This factor makes it likely that the estimates found in the Azar et al. Airline Paper and the Azar et al. Banking Paper are suggesting a relationship between price and common ownership when none may exist.[30]
  - This paper further asserts that the theory underlying common ownership is often ascribed to theoretical models of cross-ownership. The Azar et al. Airline Paper utilizes the earlier work on cross-ownership and, in doing so, extrapolates from a situation where a firm owns stock in a competitor to the case where a non-competitor investor owns stock in competing firms.
  - This paper contends that the extension of this methodology in this way is quite tenuous and furthermore ignores the variety of types of institutional owners across product markets.
- **Gramlich and Grundl Banking Paper**: This paper utilizes a distinct methodology to measure the effect of common ownership. Preliminarily, the authors conclude that the Azar et al. Banking Paper results are not robust and that statistical evidence of common ownership impacting competition is mixed.
  - The authors also note that more research is needed before any conclusions about the effect of common ownership on competition in any industry may be drawn.[31]

Two further papers have explored the relationship between common ownership and executive compensation, using different methodologies and coming to opposite conclusions:

- **Antón et al. Compensation Paper**: This paper postulates that common ownership deters company managers from competing aggressively with rivals. This, they say, is evidenced by executive compensation practices.[32]
- **Kwon Compensation Paper**: Conversely, this paper, also covering executive compensation, finds that common ownership increases the incentives to compete, by sensitizing executives to their performance relative to rivals.[33]

As discussed in the O'Brien & Waehrer Paper, a deeper examination of the arguments of this preliminary research is required to determine its relevance.[34] We believe that the statistical relationships found in several of these papers have been interpreted to tell causal stories that have not been demonstrated and lack real-world plausibility. The current literature utilizes different methodologies (yielding sometimes opposite results), and it is likely that future papers will continue to debate the best methodology for examining the effects, if any, of common ownership. We recognize that there is a robust debate around these issues and caution that it is too early to draw conclusions from these papers, much less propose remedies for unsubstantiated harms.

Data sources: Regulatory reporting of shareholdings does not represent economic ownership

While we will leave the statistical methodologies to be debated by academics, we believe that it is important to examine the theories of the papers in the context of the reality of the asset management business. We note that some of the economics papers use data filed for the purposes of regulatory reporting of shareholdings under various national securities laws to identify common owners of companies. This data is, however, fundamentally unsuitable for identifying economic ownership, as asset

Transparency, threshold reporting and the agency model of asset management: How asset managers report the investments of their asset-owner clients

Around the world, financial regulatory authorities require that substantial shareholdings of listed companies (usually above a threshold of about 5%) be reported. This data is usually reported to the national regulator and made widely available via market-data vendors or online data portals, such as the EDGAR system in the US. The literature asserting a relationship between common ownership and consumer prices relies on such SEC data reported filings made under Section 13 of the Exchange Act.

Threshold reporting regulations have very specific rules concerning what constitutes a "holder" of a share for reporting purposes. Depending on the jurisdiction, the calculation may place the emphasis on control of voting rights attaching to shares, or the ability of an entity to dispose of the relevant shares.

Given these rules, there is no way to distinguish in these reports between shareholders who retain the economic benefit of these holdings, and entities (such as asset managers) who merely invest those holdings on behalf of third party clients and funds. This means that regulatory reporting of shareholdings does not represent a record of the true economic owner of the securities.

managers are not the owners of the assets they manage, but rather act as agents on behalf of multiple clients. The box on page 7 explains the process of regulatory reporting of shareholdings, often referred to as threshold reporting, and it is easy to see how the ownership of stocks can be conflated with management by a particular asset manager. Data, however, is not the same as information. Consequently, overreliance on this easily-available but limited data-source is leading to fundamental misconceptions about ownership, and thereby misinforming recent debate.

Causal mechanisms proposed

Some of the economics papers do not provide evidence of a causal mechanism for how common ownership could lead to higher prices.[35] They hypothesize that several potential mechanisms could exist. We address each of these in turn.

1. **Shareholder engagement**

   First, they discuss engagement by asset managers with portfolio companies, and whether such discussions are focused around not competing.[36]

   This does not reflect an accurate understanding of engagement and undermines the significant benefits it provides to individual investors.

2. **Executive compensation**

   Second, they argue that portfolio company managers themselves are disincentivized to compete with rival firms by their compensation packages, on which asset managers vote.[37]

   This theory does not take into account the reality of how executive pay is set, which has very little involvement by asset managers.

3. **Preventing activist shareholders from driving competition**

   Third, they argue that index investment managers prevent activist campaigns from succeeding in making firms more competitive.[38]

   This theory is not born out by the data and assumes that activist shareholders are more beneficial than index managers – a theory with which respected commentators have disagreed.

4. **Failure to encourage competition**

   Fourth, they argue that the mere presence of asset managers as common owners and the awareness of company management of the shares managed by common owners makes companies less likely to compete than if managers were not permitted to hold rival companies within their client portfolios.[39]

   This theory is implausible and fails to recognize the true incentives and business model of asset managers.

1. Shareholder engagement

The literature on common ownership demonstrates misconceptions regarding shareholder engagement. The perceptions regarding engagement in some of this literature reflects a stark contrast with the increasing benefits of corporate engagement recognized by commentators and policy makers globally.

Shareholder engagement encompasses a spectrum of activities, ranging from isolated conversations about a significant issue requiring a shareholder vote to ongoing discussions with boards and management about critical issues relating to a firm's governance, such as board composition and sustainability. It is intended to represent the interests of asset owners, who have the ultimate right to vote their shares for or against management.

As an initial matter, the theory that engagement and voting serve as a mechanism to "soften competition" has no basis because asset managers do not have the opportunity to vote on competitive strategy, as has been shown by research into public voting records.[40] Asset managers engage and exercise voting rights on behalf of asset owners. Many asset managers act neither as specifically activist nor passive shareholders in their approach towards engagement. As the recent paper by Matthew J. Mallow and Jasmin Sethi entitled "Engagement: The Missing Middle Approach in the Bebchuk–Strine Debate"[41] explains in greater detail, most traditional asset managers engage in a middle approach between activism and alignment with management. These asset managers act as fiduciaries to their clients and provide an investor perspective to boards for the purpose of enhancing the long term economic performance of the companies whose shares they hold on behalf of asset owners.

The use of engagement is even more vital for index investment managers because index funds will remain invested in a stock for as long as it is included in a given index as required by the strategy on which they have agreed with asset owners. This is in contrast to an active fund that can sell a stock if its manager loses confidence in a company's future. That is why it is of particular importance for index investment managers, acting as fiduciaries to their clients, to engage with companies on issues of corporate governance and vote against management when that engagement fails. Engagement is a way to influence and monitor firms on best corporate governance practices in advance of using the ultimate sanction – voting against particular proposals or directors – and consequently engagement and voting go hand-in-hand in carrying out an asset manager's responsibilities.

Regulators, asset managers, and independent commentators have recognized the value of corporate engagement on a host of issues, including ESG factors,

Best Practices for Corporate Engagement by Asset Managers

In the UK, asset managers are encouraged to become signatories to the Financial Reporting Council's UK Stewardship Code. Those who voluntarily sign this code agree to engage with company boards and management.[45] The Code is comprised of seven principles of effective stewardship by investors and requires signatories to disclose how they will comply with these principles. It recognizes that "for investors, stewardship is more than just voting. Activities may include monitoring and engaging with companies on matters such as strategy, performance, risk, capital structure, and corporate governance, including culture and remuneration. Engagement is purposeful dialogue with companies on these matters as well as on issues that are the immediate subject of votes at general meetings."[46] Similar stewardship codes exist in Japan and the Netherlands to which most asset managers have agreed.

Japan's Stewardship Code, also comprised of seven principles, requires institutional investors to "have a clear policy on voting and disclosure of voting activity. The policy on voting should not be compromised only of a mechanical checklist; it should be designed to contribute to the sustainable growth of investee companies."[47] It also states that "institutional investors should have in-depth knowledge of the investee companies and their business environment and skills and resources needed to appropriately engage with the companies and make proper judgements in fulfilling their stewardship activities."[48]

In the Netherlands, the Eumedion Best Practices for Engaged Share-Ownership states that "participants monitor their Dutch investee companies," and "have clear policies with regard to the exercise of their shareholders' rights . . . reporting at least once per year on the implementation of their policies.[49] In addition, the guidelines state that "participants take aspects relating to environmental and social policy and to governance into account in their policies on the exercise of their shareholder rights, which may include entering into dialogue with listed companies and other engagement activities."[50]

In January 2017, the Investor Stewardship Group (ISG), a collective of some of the largest U.S. and international institutional investors and global asset managers, launched the Framework for US Stewardship and Governance (Framework), which will go into effect in January 2018.[51] The Framework represents a voluntary set of basic standards of investment stewardship and corporate governance for US institutional investor and boardroom conduct, and is the first US market code of stewardship and governance. The founding members of the ISG are a diverse group of 16 US and international institutional investors that in aggregate invest over $17 trillion in the US equity markets. The ISG is led by each member's senior corporate governance team.[52] Signatories to these stewardship guidelines include Dutch investment manager PGGM Investments, the California State Teachers' Retirement System, the Florida State Board of Administration, as well as a number of external asset managers.[53]

and have encouraged it. Corporate engagement complements the fiduciary duties that asset managers in the US, UK, Japan, and a number of other jurisdictions owe to their asset-owner clients. In the US, the Department of Labor's (DoL) position is that "the fiduciary act of managing plan assets which are shares of corporate stocks includes decisions on the voting of proxies and other exercises of shareholder rights."[42] Guidance from the DoL has also recognized that "fiduciaries may engage in other shareholder activities intended to monitor or influence corporate management where the responsible fiduciary concludes that there is a reasonable expectation that such monitoring or communication with management. . .is likely to enhance the value of the plan's investment in the corporation, after taking into account the costs involved."[43] The DoL's view is that "proxies should be voted as part of the process of managing the plan's investment in company stock unless a responsible plan fiduciary determined that the time and costs associated with voting proxies with respect to certain types of proposals or issuers may not be in the plan's best interest."[44]

In addition to these stewardship codes, a number of managers have committed to the United Nations Principles for Responsible Investment (PRI), since their establishment in 2006.[54] These principles include "engaging asset owners on ESG issues and providing appropriate disclosure on ESG issues to investors."[55]

Given all of the benefits of engagement and voting by asset managers, and the regulatory regimes already actively encouraging it, we believe that any policy limiting such ability is harmful to investors. In the assessment of policy proposals on page 12, we expand on the benefits of engagement to savers, which are not taken into account by those who propose to eliminate the voting and engagement ability of asset managers.

Say on Pay

The terminology can vary by market, but Say-on-Pay is the generic expression referring to the ability of shareholders to vote on the compensation or remuneration of executives. The vote can be advisory or binding, as well as prospective or retrospective. It can be a vote on a specific plan or the overall policy in place that may have several components, such as most commonly fixed salary, annual bonus, and long-term performance awards. The regulatory regime determines the significance of Say-on-Pay voting.

In the US, the Dodd Frank Wall Street Reform and Consumer Protection Act gave shareholders a non-binding vote on the compensation paid to named executive officers. The frequency of the vote varies from every one to three years, as advised by a separate frequency vote by shareholders every six years.

In the UK, shareholders have a binding vote every three years (and every time changes are made) on the policy that will determine the remuneration of directors, as well as a consultative or non-binding annual vote on the remuneration report, which explains the payments made in the most recent financial year. The vote on the report is retrospective, and in that sense similar to US Say-on-Pay practices. The UK Department of Business, Energy and Industrial Strategy (BEIS) is currently reviewing options to strengthen oversight of executive pay as part of its broader review on UK corporate governance reform.[56]

In Switzerland, boards are required to submit a binding vote on the "budget," i.e., the maximum cap permissible for aggregate executive pay, prospectively one year ahead. Boards continue to retain flexibility over whether to provide shareholders with advisory votes on their retrospective compensation report.

2. Executive compensation

One of the economics papers asserts that common ownership disincentivizes portfolio company managers to compete with rival firms by emphasizing absolute rather than relative performance in managers' compensation packages,[57] which asset managers supposedly affect through Say-on-Pay proposals.

The methodology of this paper has raised a number of questions and critiques in follow-up literature.[58] In particular, another recent working paper has cast doubt on these findings, concluding the opposite: that relative performance evaluation is "positively associated with common ownership. Executive compensation is therefore unlikely to be the mechanism between common ownership and less competitive outcomes in product markets."[59] These two papers use significantly different methodologies to arrive at their results, even choosing different definitions of the relevant industry by which to measure performance when examining compensation data. The fact that two papers studying the same concept could arrive at opposite results reinforces the conclusion that this research is in a very early stage and is not ready to serve as the basis for sweeping policy proposals.

Importantly, asset managers vote on executive pay when regulation requires that votes be held on this issue. Since they are given the opportunity to vote it is their fiduciary duty to do so. Their votes are often guided by general remuneration principles that are not industry or issuer-specific, and have nothing to do with the types of goals identified by some of the economist authors. For instance, BlackRock follows global principles for remuneration,[60] as well as market-specific guidelines that reflect distinct regional expectations and practices.[61] Some of the global principles include the following:

(i) Guidelines around the disclosure of incentive plans and our expectations around engagement, preferably with independent members of the compensation committee, where concerns are identified or where we seek to better understand a company's approach to executive compensation;

(ii) Preference for incentive plans that are tied to strategy and measures of long term performance; and

(iii) Guidelines around disclosures required when compensation plans deviate from market practices.[62]

Similar guidelines and principles are followed by other asset managers.[63]

Further, asset managers do not have the opportunity to fine-tune compensation to drive incentives in the way that the Antón et al. Compensation Paper suggests. Compensation packages are created by management, and shareholders simply vote to approve or disapprove; they do not generally get involved with the structuring of compensation packages. Moreover, a number of other factors that influence executive compensation have not been accounted for by the authors of the Antón et al. Compensation Paper. Practical experience in the industry indicates that a trend towards greater disclosure of pay – both in its value and structure – has led to more information for boards, shareholders, and executives themselves. Such information makes it difficult for any firm to deviate in its pay package from its peer group of firms, simply based on market trends and information available to the boards and executives themselves. For example, board remuneration committees are required to publicly explain compensation decisions, which is often done

by including reference to a peer group of companies. There is therefore ever more information available to all parties that influence executive compensation – the board, compensation consultants and yes – executives themselves. Additionally, these papers ignore the effect of proxy advisory firms, such as Glass Lewis and Institutional Shareholder Services Inc. (ISS), and compensation consultants on executive pay.[64] With these proxy advisors using proprietary models to evaluate incentive plans, companies are under pressure to use performance measures that are not specific to the company. Finally, as with the airlines and banking industries, the area of executive pay is in a transformative phase that likely impacts the result of any study: during the last 15 years, the nature of executive pay has been shifting towards a greater focus on market-based compensation, making it more complex and subject to greater uncertainty.[65]

Taking account of all of these factors is likely difficult for researchers, but necessary in order to understand the drivers of executive compensation holistically. Performance hurdles are frequently triggered years after shares are granted – with plans paying out different amounts than previously referenced values.[66] This fact combined with the emphasis on long-term incentive plans[67] makes it increasingly difficult for investors to ascertain actual payments and can allow for pay participants being rewarded for market returns regardless of company-specific performance. Further research is needed in this area to understand the impacts of all of these factors on executive compensation.

3. Preventing activist shareholders from driving competition

Another proposed causal mechanism to explain the purported link between common ownership and consumer prices is that index investment managers actively hinder activist shareholder campaigns.[68] The theory posits that, if index investment managers truly are concerned with individual companies' competitiveness, then they should always support activist investors. This argument is wrong for at least two reasons.

Firstly, this supposes that activist shareholders and non-activist shareholders, such as asset managers, should have the same interests in mind, which is not always the case. Voting is conducted on a case-by-case basis, subject to certain guiding principles, and voting against activist investors does not evidence more than a difference of opinion on the matter presented. The performance track records of activist investors are mixed; many have experienced big wins but many have generated large losses. Generally, activists have a shorter term view than index investment managers.[69]

Secondly, it is simply incorrect that index investment managers routinely hinder activist campaigns. Data indicates that asset managers, including BlackRock, Vanguard, and State Street do vote with activists some of the time and certainly do not routinely vote against activists. From July 1, 2014 to June 30, 2015:

- BlackRock voted with activists 39% of the time and with management 33% of the time;
- Vanguard supported activists 17% of the time and management 72% of the time; and
- State Street supported activists 27% of the time and management 53% of the time.[70]

4. Failure to encourage competition

Finally, we find the fourth suggested mechanism – that the mere presence of index investment managers, as common owners, discourages competition – to be vague and implausible. The authors hypothesize that the fact alone that company managers know that a portion of their shareholders may be similar to those of a rival company provides an incentive to avoid taking market share away from rivals.[71]

The theory that an asset manager that "owns" (as defined by the authors) shares of rival companies is economically incentivized to have those companies not take market share away from each other is fundamentally flawed. Asset managers often offer a variety of investment products, using both index and active strategies, and, as discussed earlier in this paper, each portfolio is managed according to a separate investment mandate. As a result, ascribing a single view on a particular security to an asset manager is not supported by the reality of the business and we do not see why boards would be likely to assume such a uniform view. For instance, an index portfolio manager in San Francisco may be required to hold Delta Airlines because it is in the index that the fund is tracking. A fundamental portfolio manager in the UK might want to take a position in American Airlines because this portfolio manager has a favorable opinion of the company based on traditional investment research. Another portfolio manager in New York City might want to hedge a position in an oil company by shorting both airline stocks. All of these portfolio managers – potentially within a single firm – may have different expectations of the economic prospects of these two airline companies; yet, under threshold reporting all of these holdings will simply be aggregated without delineation.

Applying this theory to index investment managers alone would not show any incentive for "soft competition." As has been pointed out by a recent paper critiquing this literature, the incentives of index investment managers is to compete over cost, tracking error, and customer service, and none of these goals would be furthered through promoting soft

competition.[72] This is because every extra dollar consumers pay on airlines is money that they cannot spend on other discretionary items, such as meals out, recreation or clothing. Further, airline travel, like many other goods, is an input cost for other industries in the asset manager portfolio.[73] For instance, the revenue of the airline industry was approximately $188 billion in 2015, of which more than 40% went to other industries.[74] This means that increasing airline prices directly hurts other stocks in the portfolio of the typical large manager, undermining this theory around the incentives to not promote competition.

Asset managers are incentivized to provide returns to their clients. Their clients are invested in a host of strategies, including ones that involve investment in competitors in the same industry as well as strategies in which they are not. To assume that asset managers and companies all have an implicit understanding that competition should not occur between rivals is unrealistic and is certainly unsubstantiated. Further, this theory assumes that company management would ignore the interests of the significant stake of their non-common owner shareholders and choose to align themselves with the interests of common owners instead. Even for industries that have been singled out by some of the authors writing about common ownership, the percentage owned (based on threshold reporting) by BlackRock, State Street, Vanguard, and Fidelity *combined* is less than 21%, leaving the interests of nearly 80% of the shareholder base (and often more) unaccounted for in this literature.[75] The literature does not explain why such a significant stake of shareholders would be ignored by management.

In short, no plausible causal story has been provided that reflect the realities of asset managers operate, and explains the findings of these papers. They have nonetheless been adopted as the foundation for policy proposals in some of the legal literature, which we examine next.

Assessment of policy proposals

On the heels of some of the economics papers discussed previously, two further papers have been written in the legal and policy area.[76] Accepting the theories and findings of these economics papers, the authors have advanced theories regarding the potential harms of common ownership, and address these with specific policy proposals, particularly impacting index funds.

These proposals include:

(i) Preventing managers of index portfolios from voting shares or engaging with companies;

(ii) Limiting investment to one company per industry; and

(iii) Limiting ownership by a manager to 1% in a concentrated industry and adjusting annually to meet this limitation.

Each of these proposals would fundamentally change investing to the detriment of investors and the real economy. These proposals disproportionately focus on index funds while confusing threshold reporting across all portfolios managed by an asset manager with ownership of stock. We address each of these policy proposals in turn.

Shareholder engagement by asset managers gives individual investors a voice

Engagement via voting is a means for long-term investors, whose money is managed by asset managers as fiduciaries, to have a voice in corporate governance. Indeed, respected commentators, such as Leo Strine, Chief Justice of the Delaware Supreme Court, have emphasized the importance of voting, with pointed criticism towards index investment managers not being sufficiently proactive with respect to engagement and voting.[77] Economic experts have urged companies to facilitate engagement with institutional investors, including asset managers, as a means of enhancing long-term performance.[78] Economists have found that engagement by index investment managers, which are defined to include those who manage index funds, leads to positive governance outcomes, such as greater board independence.[79] Individual investors face a collective action problem in having their voice, often a long-term voice, heard. Engagement provides that voice and voting provides a mechanism for accountability when that voice is not heard. As expressed by a large government pension fund, “voting is one of the most important tools at our disposal for exercising our ownership rights. It presents an important formal opportunity to express views, influence companies and show support for the board – or hold it to account.”[80] The fund further expressed that “active ownership is to pave the way for long-term profitable business practices and safeguard the fund's investments.”[81]

Commentators and policy makers have also encouraged asset managers to engage with companies on a variety of issues, including long term performance[82] and on ESG factors.[83] Some have gone as far as to state that “the current level of monitoring of investee companies and engagement by institutional investors and asset managers is often inadequate and too focused on short-term returns, which may lead to suboptimal corporate governance and performance of listed companies.”[84]

Apart from the differing views on whether limiting engagement (through voting or meetings) makes good policy sense, any such rule may have unintended harmful consequences. For instance, such a rule would give greater influence to activist investors. Taking the vote away from asset managers or making their vote essentially

meaningless would give more power to activists and short-term concerns.[85] Activists do not generally have the concerns of ordinary, long-term savers in mind. To take away the ability of asset managers to vote for clients is to take the vote away from those asset owners who may not have the time or expertise to exercise the vote if given to them directly. In short, taking the voting ability of index investment managers away would primarily prevent the interests of savers and other ordinary shareholders from being effectively represented with company management.

For all of these reasons, we believe that any proposal that limits or eliminates the voting ability of asset managers harms the clients of these managers, which includes pension funds and individuals.

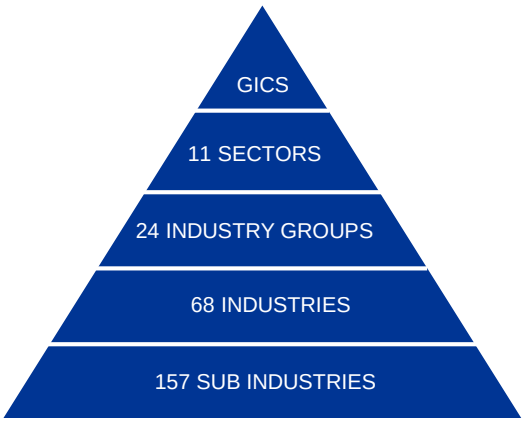
Diversification within an industry is critical to investment results

Two papers in the legal and policy area recommend limiting asset managers to investing in one company per industry.[86] Another policy proposal along the same lines is to set a percentage limit on the investment by an asset manager in one concentrated industry or company in a concentrated industry.[87] The limit that has been suggested is as low as one percent.[88] The suggestion that has been made is to impose no limit on managers whose assets under management do not exceed one percent of a company in a concentrated industry, but then impose a one-company limit per concentrated industry on those managers who exceed a one-percent limit.[89] Any of these limits would be applied to asset managers based on threshold reporting under the authors' proposals. Such policy changes would significantly inhibit the strategies of pension funds, institutional accounts, retirement plans, and individual accounts, which use asset managers' services to help deliver their long-term investment objectives. They would also flaunt principles of diversification encouraged in regulations, which have long recognized index investing as a valid means of diversifying at a low cost.

From a practical perspective, these types of limits would be nearly impossible to implement. For starters, investment limits by industry would be very difficult to define. One of the most widely used industry classifications is the Global Industry Classification Standard (GICS). Exhibit 6 illustrates the multi-layered composition of GICS, and a more detailed description can be found in the Appendix.[90] This is just one potential classification system. We include this as a frame of reference when considering the implications of these policy proposals.

Under either proposal, many investors would no longer be able to replicate an index, particularly those whose accounts

Exhibit 6: Global Industry Classification Standard



In 1999, MSCI and S&P Global developed GICS, seeking to offer an efficient investment tool to capture the breadth, depth, and evolution of industry sectors.

GICS is a four-tiered, hierarchical industry classification system. It consists of 11 sectors, 24 industry groups, 68 industries and 157 sub-industries.

Companies are classified quantitatively and qualitatively. Each company is assigned a single GICS classification at the sub-industry level according to its principal business activity. MSCI, S&P, and Dow Jones use revenues as a key factor in determining a firm's principal business activity.

Source: MSCI, GICS, What We Offer, as at March 2017

are managed by larger index investment managers, who are able to provide such funds at a low cost. Instead, the portfolio manager would be expected to select one company in the industry or limit ownership to one percent across companies in an industry, exercising views regarding company performance prospects much like an actively managed portfolio does today. Consider as an example that ABC Pension fund wishes to retain Asset Manager X to manage its accounts, and that Asset Manager X manages sufficient assets in aggregate to trigger the one company per concentrated industry limit.[91] In this case, ABC Pension must decide if it can accept the loss of diversification by continuing to keep its separate account with X, and limit itself to investing in only one company per industry. If ABC Pension seeks to gain true diversification by, for instance, seeking exposure across companies in any sector, ABC Pension must look for a second manager – Asset Manager Y – to provide the missing exposure for part of its account.

Given that thousands of investible indexes exist, and any one company could be included in hundreds, or even thousands, of indexes, the potential impact on available

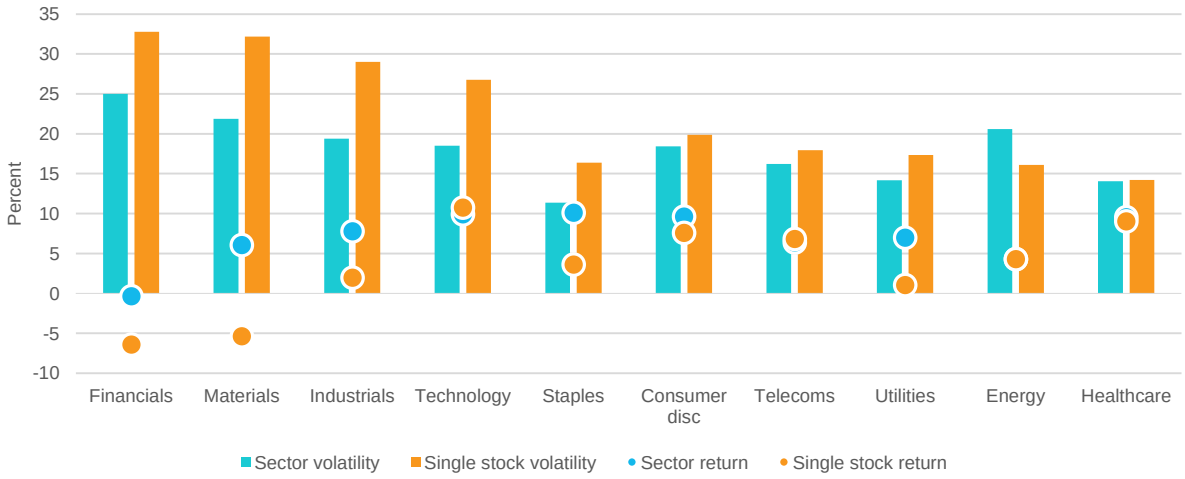
strategies for ABC Pension is difficult to fathom. Inevitably, even if ABC Pension wants to do something very straightforward – such as invest in both Apple and Microsoft – its asset manager fiduciary would have to ration investment opportunities across clientele if it is running up against the percentage or absolute investment limit. Inevitably, cost, operational complexity, and transaction inefficiency will result for ABC Pension. Further, two managers may not be enough. In a sign of the impracticality of this policy proposal, it is unclear how many managers ABC Pension would need to hire as a result of such limits being imposed, or how ABC Pension would be able to track the limitations. As expressed recently by several academic authors, this proposal "would destroy the index fund business model, an extraordinarily successful product for investors that has provided a valuable and low cost means to save for retirement."[92]

Finally, and most importantly, these limits greatly reduce asset managers' ability to diversify client and fund portfolios, thereby increasing risk and decreasing returns in those portfolios. One of the most disturbing aspects of these policy proposals is the authors' suggestion that diversification across industries would be sufficient to meet investor diversification needs.[93] Basic portfolio theory acknowledges that industry risk is not the same as idiosyncratic company risk. Investment results can differ significantly depending on which company is held within an industry.

Exhibit 7 highlights the wide range of stock returns in various sectors. The premise of an index fund is that it needs to own all of the companies in the index it tracks in order to match the risk and return characteristics of that index.[94] As illustrated in Exhibit 7, there can be a significant difference in outcomes of investing in a diversified portfolio of stocks in an industry over picking a single stock to represent the industry.

Using the construct of the policy proposals, asset owners would be forced to decide which fund manager might select the highest performing company in each sector, just as they do for active funds. This at once undermines the concept of index investing and raises critical questions such as how a manager would select one company per industry. Could all asset managers choose the same company per industry, reducing both the flow of capital to other companies, and the diversification opportunities available to investors? How would a manager choose which company to hold, when it manages thousands of different accounts, each with different investment objectives, goals, and restrictions? The solution would create winners and losers within each asset manager's client base, and would reoccur every time a merger increased the concentration of an industry. In addition, such limits would, of course, go a long way towards eradicating index investing strategies and index funds, causing many fund managers to revisit fund registration statements, investment policies, and potentially liquidate some funds altogether.

Exhibit 7: Annualized return and volatility, 2007-2016



Source: Thomson Reuters. The volatility is an annualized average over the last ten years, from 2007 through 2016. The largest single stock was selected at the end of each year beginning with 2006 and continuing until 2015 to identify the largest company by market capitalization in each industry sector of the S&P 500 as classified under the GICS. This allowed for the company to change during the period, e.g., in the financial sector, Citigroup was the largest company during 2007 and Bank of America was the largest during 2008. Annual returns for the 2007-2016 period are shown in the Appendix.

Past performance is not a guide to current or future performance.

Conclusion

Index investing is a critical tool for asset owners to access financial markets and invest in real economy companies. Index funds play an important role in investor portfolios – for pensions, insurance companies, and individual savers. They offer market returns at low cost and democratize access to diversified investment portfolios to a degree that was at one time unreachable for the everyday investor.

Placing limits on the ability of asset managers to make investments will essentially put the onus back on asset owners to create diversified portfolios. Certain funds or suites of funds will no longer be able to provide investors with fully diversified, one-stop shopping. Instead, asset owners will be required to hold a number of different investments offered by multiple asset management firms, and create an asset allocation, maintain constant vigilance, and re-balance amongst portfolios. The significant participation of ordinary investors in the markets today should not be set back by policy proposals that are not in the interest of asset owners.

The nascent literature purporting to link common ownership with higher consumer prices fails to provide a plausible causal theory to support its own hypotheses, and reflects misunderstandings about both the agency model of asset management and shareholder engagement. Further, a growing body of competing literature calls into question both the methodologies and conclusions from these papers. Even were the conclusions in this research found accurate, the policy proposals based on this literature would lead to more harm than good. Such changes would increase costs and disrupt the process of saving for retirement by individuals. They would greatly limit the tremendous benefits to asset owners that index funds have brought in the past four decades.

Appendix

Global Industry Classification Standards (GICS) as at September 2016

GICS is a common global classification standard used by thousands of market participants across all major groups involved in the investment process: asset managers, brokers (institutional and retail), custodians, consultants, research teams and stock exchanges.

Global Industry Classification Standards (GICS)			
11 Sectors	**24 Industry Groups**	**68 Industries**	**157 Sub Industries**
Energy	Energy	Energy Equipment & Services	Oil & Gas Drilling
			Oil & Gas Equipment & Services
		Oil, Gas & Consumable Fuels	Integrated Oil & Gas
			Oil & Gas Exploration & Production
			Oil & Gas Refining & Marketing
			Oil & Gas Storage & Transportation
			Coal & Consumable Fuels
Materials	Materials	Chemicals	Commodity Chemicals
			Diversified Chemicals
			Fertilizers & Agricultural Chemicals
			Industrial Gases
			Specialty Chemicals
		Construction Materials	Construction Materials
		Containers & Packaging	Metal & Glass Containers
			Paper Packaging
		Metals & Mining	Aluminum
			Diversified Metals & Mining
			Copper
			Gold
			Precious Metals & Minerals
			Silver
			Steel
		Paper & Forest Products	Forest Products
			Paper Products
Industrials	Capital Goods	Aerospace & Defense	Aerospace & Defense
		Building Products	Building Products
		Construction & Engineering	Construction & Engineering
		Electrical Equipment	Electrical Components & Equipment
			Heavy Electrical Equipment
		Industrial Conglomerates	Industrial Conglomerates
		Machinery	Construction Machinery & Heavy Trucks
			Agricultural & Farm Machinery
			Industrial Machinery
		Trading Companies & Distributors	Trading Companies & Distributors
	Commercial & Professional Services	Commercial Services & Supplies	Commercial Printing
			Environmental & Facilities Services
			Office Services & Supplies
			Diversified Support Services
			Security & Alarm Services
		Professional Services	Human Resource & Employment Services
	Transportation	Air Freight & Logistics	Air Freight & Logistics
		Airlines	Airlines

Appendix *(cont'd)*

Global Industry Classification Standards (GICS)			
11 Sectors	**24 Industry Groups**	**68 Industries**	**157 Sub Industries**
Industrials *(cont'd)*	Transportation *(cont'd)*	Marine	Marine
		Road & Rail	Railroads
			Trucking
		Transportation Infrastructure	Airport Services
			Highways & Railtracks
			Marine Ports & Services
Consumer Discretionary	Automobiles & Components	Auto Components	Auto Parts & Equipment
			Tires & Rubber
		Automobiles	Automobile Manufacturers
			Motorcycle Manufacturers
	Consumer Durables & Apparel	Household Durables	Consumer Electronics
			Home Furnishings
			Homebuilding
			Household Appliances
			Housewares & Specialties
		Leisure Products	Leisure Products
		Textiles, Apparel & Luxury Goods	Apparel, Accessories & Luxury Goods
			Footwear
			Textiles
	Consumer Services	Hotels, Restaurants & Leisure	Casinos & Gaming
			Hotels, Resorts & Cruise Lines
			Leisure Facilities
			Restaurants
		Diversified Consumer Services	Education Services
	Media	Media	Advertising
			Broadcasting
			Cable & Satellite
			Movies & Entertainment
			Publishing
	Retailing	Distributors	Distributors
		Internet & Direct Marketing Retail	Internet & Direct Marketing Retail
		Multiline Retail	Department Stores
			General Merchandise Stores
		Specialty Retail	Apparel Retail
			Computer & Electronics Retail

Appendix *(cont'd)*

Global Industry Classification Standards (GICS)			
11 Sectors	**24 Industry Groups**	**68 Industries**	**157 Sub Industries**
Consumer Discretionary *(cont'd)*	Retailing *(cont'd)*	Speciality Retail (cont'd)	Home Improvement Retail
			Specialty Stores
			Automotive Retail
			Homefurnishing Retail
Consumer Staples	Food & Staples Retailing	Food & Staples Retailing	Drug Retail
			Food Distributors
			Food Retail
			Hypermarkets & Super Centers
	Food, Beverage & Tobacco	Beverages	Brewers
			Distillers & Vintners
			Soft Drinks
		Food Products	Agricultural Products
			Packaged Foods & Meats
		Tobacco	Tobacco
	Household & Personal Products	Household Products	Household Products
		Personal Products	Personal Products
Health Care	Health Care Equipment & Services	Health Care Equipment & Supplies	Health Care Equipment
			Health Care Supplies
		Health Care Providers & Services	Health Care Distributors
			Health Care Services
			Health Care Facilities
			Managed Health Care
		Health Care Technology	Health Care Technology
	Pharma, Biotech, Life Sciences	Biotechnology	Biotechnology
		Pharmaceuticals	Pharmaceuticals
		Life Sciences Tools & Services	Life Sciences Tools & Services
Financials	Banks	Banks	Diversified Banks
			Regional Banks
		Thrifts & Mortgage Finance	Thrifts & Mortgage Finance
	Diversified Financials	Diversified Financial Services	Other Diversified Financial Services
			Multi-Sector Holdings
			Specialized Finance
		Consumer Finance	Consumer Finance
		Capital Markets	Asset Management & Custody Banks
			Investment Banking & Brokerage
			Diversified Capital Markets
			Financial Exchanges & Data
		Mortgage Real Estate Investment Trusts (REITs)	Mortgage REITs

Appendix *(cont'd)*

Global Industry Classification Standards (GICS)			
11 Sectors	**24 Industry Groups**	**68 Industries**	**157 Sub Industries**
Financials *(cont'd)*	Insurance	Insurance	Insurance Brokers
			Life & Health Insurance
			Multi-line Insurance
			Property & Casualty Insurance
			Reinsurance
Information Technology	Software & Services	Internet Software & Services	Internet Software & Services
		IT Services	IT Consulting & Other Services
			Data Processing & Outsourced Services
		Software	Application Software
			Systems Software
			Home Entertainment Software
	Technology Hardware & Equipment	Communications Equipment	Communications Equipment
		Technology Hardware, Storage & Peripherals	Technology Hardware, Storage & Peripherals
		Electronic Equipment, Instruments & Components	Electronic Equipment & Instruments
			Electronic Components
			Electronic Manufacturing Services
			Technology Distributors
	Semiconductors & Semiconductor Equipment	Semiconductors & Semiconductor Equipment	Semiconductor Equipment
			Semiconductors
Telecommunication Services	Telecommunication Services	Diversified Telecommunication Services	Alternative Carriers
			Integrated Telecommunication Services
		Wireless Telecommunication Services	Wireless Telecommunication Services
Utilities	Utilities	Electric Utilities	Electric Utilities
		Gas Utilities	Gas Utilities
		Multi-Utilities	Multi-Utilities
		Water Utilities	Water Utilities
		Independent Power and Renewable Electricity Producers	Independent Power Producers & Energy Traders
			Renewable Electricity
Real Estate	Real Estate	Equity Real Estate Investment Trusts (REITs)	Diversified REITs
			Industrial REITs
			Hotel & Resort REITs
			Office REITs
			Health Care REITs
			Residential REITs
			Specialized REITs
		Real Estate Management & Development	Diversified Real Estate Activities
			Real Estate Operating Companies
			Real Estate Development
			Real Estate Services

Appendix *(cont'd)*

Total annual returns for Exhibit 7 (includes dividends and reinvestments), 2007-2016

		2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Energy	Sector	34.4%	-34.9%	13.8%	20.5%	4.7%	4.6%	25.1%	-7.8%	-21.1%	27.3%
	Single stock	24.3%	-13.1%	-12.6%	10.1%	18.7%	4.7%	20.2%	-6.1%	-12.8%	19.9%
Financials	Sector	-18.6%	-55.3%	17.2%	12.1%	-17.1%	28.8%	35.6%	15.2%	-1.5%	22.8%
	Single stock	-44.7%	-63.1%	34.4%	2.3%	-20.0%	27.4%	36.7%	24.1%	1.8%	4.7%
Staples	Sector	14.2%	-15.4%	14.9%	14.1%	14.0%	10.7%	26.1%	16.0%	6.6%	5.4%
	Single stock	16.6%	-13.8%	-2.6%	3.2%	13.9%	17.0%	18.2%	11.9%	-26.6%	9.4%
Industrials	Sector	12.0%	-39.9%	20.9%	26.7%	-0.6%	15.3%	40.7%	9.8%	-2.5%	18.9%
	Single stock	2.7%	-54.0%	-1.7%	24.3%	1.3%	21.2%	37.9%	-6.7%	27.5%	4.6%
Utilities	Sector	19.4%	-29.0%	11.9%	5.5%	19.9%	1.3%	13.2%	29.0%	-4.8%	16.3%
	Single stock	9.0%	-29.9%	-8.4%	-10.4%	26.9%	-3.5%	13.0%	26.4%	-10.8%	13.5%
Consumer discretionary	Sector	-13.2%	-33.5%	41.3%	27.7%	6.1%	23.9%	43.1%	9.7%	10.1%	6.0%
	Single stock	-23.3%	8.5%	4.0%	26.9%	34.7%	-9.3%	58.9%	-22.2%	12.9%	11.0%
Healthcare	Sector	7.2%	-22.8%	19.7%	2.9%	12.7%	17.9%	41.5%	25.3%	6.9%	-2.7%
	Single stock	3.6%	-7.8%	11.3%	-0.6%	9.9%	10.8%	34.6%	17.3%	1.2%	15.3%
IT	Sector	16.3%	-43.1%	61.7%	10.2%	2.4%	14.8%	28.4%	20.1%	5.9%	13.8%
	Single stock	20.8%	-44.4%	60.5%	-6.5%	25.6%	32.6%	8.1%	40.6%	-3.0%	12.5%
Materials	Sector	22.6%	-45.6%	48.6%	22.2%	-9.7%	15.0%	25.6%	6.9%	-8.4%	16.7%
	Single stock	-6.6%	-36.5%	17.8%	-13.2%	-36.8%	1.7%	25.0%	4.1%	-2.7%	17.0%
Telecoms	Sector	12.0%	-30.5%	8.9%	19.0%	6.3%	18.3%	11.5%	3.0%	3.4%	23.5%
	Single stock	20.6%	-28.0%	4.8%	11.6%	9.0%	17.5%	9.8%	0.6%	3.6%	29.9%

Endnotes

1. While some active ETFs have been developed recently, the vast majority are index-based.
2. The use of the word 'benchmark' in this paper refers to market indexes (e.g. S&P 500) used as trackable performance benchmarks, and not the major rate-setting benchmarks, such as LIBOR or EURIBOR.
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5. Asset managers would not be considered the only type of common owner. In general, common owners are any investors who hold shares in competing companies within the same product market.
6. In this debate, one set of economics papers purports to find that common ownership leads to higher prices in the airline and banking industries. *See* Azar et al. Airline Paper; Azar et al. Banking Paper. The authors argue that one of the channels for this effect is through the effect of common owners on executive compensation. *See* Miguel Antón, Florian Ederer, Mireia Giné, and Martin C. Schmalz, Common Ownership, Competition, and Top Management Incentives (Nov. 15, 2016), available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2885826 (Antón et al. Compensation Paper). Another paper directly challenges the findings on executive compensation by concluding that common owners have the opposite effect on executive compensation to that found by the earlier paper. *See* Heung Jin Kwon, Executive Compensation under Common Ownership (Jan. 30, 2017), available at https://065274c3-a-62cb3a1a-s-sites.googlegroups.com/site/heungjinkwon/files/HeungJinKwon_JMP.pdf? (Kwon Compensation Paper). Three additional papers critique the methodologies and plausibility of the stated findings of this early literature. *See* Daniel P. O'Brien and Keith Waehrer, The Competitive Effects of Common Ownership: We Know Less than We Think (Feb. 23, 2017), available at https://papers.ssrn.com/sol3/papers2.cfm?abstract_id=2922677 (O'Brien and Waehrer Paper); Edward B. Rock and Daniel L. Rubinfeld, Defusing the Antitrust Threat to Institutional Investor Involvement in Corporate Governance (Mar. 1, 2017), available at https://papers.ssrn.com/sol3/papers2.cfm?abstract_id=2925855 (Rock and Rubinfeld Paper); Jacob Gramlich and Serafin Grundl, Testing for Competitive Effects of Common Ownership (Feb.19, 2017), available at: https://www.federalreserve.gov/econres/feds/files/2017029pap.pdf (Gramlich and Grundl Banking Paper) at 2-3, 12-13 (preliminarily concluding that the results of the Azar et al. Banking Paper are not as robust when a different methodology is utilized and argues that more research is needed in this area to form any meaningful conclusions).
7. *See* O'Brien and Waehrer Paper (discussing a number of assumptions and methodological limitations of the approach taken in the Azar et al. Airline Paper); Rock and Rubinfeld Paper at 11 (questioning the critical assumption of the Azar et al. Airline Paper methodology by pointing out that BlackRock's acquisition of Barclays Global Investors occurred at approximately the same time as Delta's acquisition of Northwest airlines, decreasing airline fuel costs, and increasing profits).
8. *See* O'Brien and Waehrer Paper (outlining a number of methodological choices that raise questions about the conclusions reached in the Azar et al. Airline Paper). *See also* Rock and Rubinfeld Paper at 12 ("Our first concern [about the Azar et al. Airline Paper] relates to market definition. In our view, relevant markets are typically determined by city pairs, not airport pairs.").
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