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THE SPECTER OF THE GIANT THREE

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ABSTRACT

This paper examines the large, steady, and continuing growth of the Big Three index fund managers—BlackRock, Vanguard, and State Street Global Advisors. We show that there is a real prospect that index funds will continue to grow, and that voting in most significant public companies will come to be dominated by the future "Giant Three."

We begin by analyzing the drivers of the rise of the Big Three, including the structural factors that are leading to the heavy concentration of the index funds sector. We then provide empirical evidence about the past growth and current status of the Big Three, and their likely growth into the Giant Three. Among other things, we document that the Big Three have almost quadrupled their collective ownership stake in S&P 500 companies over the past two decades; that they have captured the overwhelming majority of the inflows into the asset management industry over the past decade; that each of them now manages 5% or more of the shares in a vast number of public companies; and that they collectively cast an average of about 25% of the votes at S&P 500 companies.

We then extrapolate from past trends to estimate the future growth of the Big Three. We estimate that the Big Three could well cast as much as 40% of the votes in S&P 500 companies within two decades. Policymakers and others must recognize—and must take seriously—the prospect of a Giant Three scenario. The plausibility of this scenario makes it important to understand the incentives of index fund managers, a topic that we study in other work.

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INTRODUCTION

This paper analyzes the steady rise of the "Big Three" index fund managers—Blackrock, Vanguard, and State Street Global Advisors ("SSGA"). Based on our analysis of recent trends, we conclude that the Big Three will likely continue to grow into a "Giant Three," and that the Giant Three will likely come to dominate voting in public companies. This Giant Three scenario raises the importance of the incentives of index fund managers in general, and the Big Three in particular, that we analyze in other work.[1]

Our analysis is divided into three parts. In Part I, we analyze three key drivers that underlie the steady and persistent growth of the Big Three, and which mean that this growth is likely to continue. First, we discuss the factors that have led to the tenfold growth of institutional investor ownership over the past six decades. Second, we document the steady increase in of the proportion of the assets managed by investment managers that are allocated to index funds. Third, we analyze three factors that lead to the heavy concentration of the index fund sector: scale economies, the liquidity benefits offered by exchange-traded funds ("ETFs") with large assets, and the ability of dominant index fund managers to compete quickly with new products introduced by rivals. These factors are likely to facilitate the continued dominance of the Big Three.

In Part II, we present our empirical analysis of the past growth of the Big Three, their current status as major shareholders of U.S. companies, and their likely future growth. Our empirical analysis focuses on the companies in the S&P 500 and Russell 3000 indices, which represent 73% and 91% (respectively) of the total market capitalization of listed U.S. companies as of December 31, 2017.[2]

We start with the past growth and current status of the Big Three. Among other things, we document that:

- Over the last decade, more than 80% of all assets flowing into investment funds has gone to the Big Three, and the proportion of

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[1] *See* Lucian A. Bebchuk, Alma Cohen & Scott Hirst, *The Agency Problems of Institutional Investors*, 31 J. ECON. PERSP. 89, 95 (2017); Lucian Bebchuk & Scott Hirst, *Index Funds and the Future of Corporate Governance: Theory, Evidence, and Policy* COLUM. L. REV. (forthcoming 2019) (manuscript at 1), http://ssrn.com/abstract_id=3282794.

[2] Calculated based on market capitalization data from the Center for Research in Securities Prices. Market capitalization data is based on those types of shares included in the Russell 3000 and S&P 500, including common shares of U.S. companies, non-U.S. companies, real estate investment trusts, shares of beneficial interest, and units of companies incorporated outside the United States.

total funds flowing to the Big Three has been rising through the second half of the decade;

- The average combined stake in S&P 500 companies held by the Big Three essentially quadrupled over the past two decades, from 5.2% in 1998 to 20.5% in 2017;[3]
- Over the past decade, the number of positions in S&P 500 companies in which the Big Three hold 5% or more of the company's equity has increased more than five-fold, with each of BlackRock and Vanguard now holding positions of 5% or more of the shares of almost all of the companies in the S&P 500;
- Following two decades of growth, the Big Three now collectively hold an average stake of more than 20% of S&P 500 companies;[4] and
- Because the Big Three generally vote all of their shares, whereas not all of the non-Big Three shareholders of those companies do so, shares held by the Big Three represent an average of about 25% of the shares voted in director elections at S&P 500 companies in 2018.

Building on this analysis of past growth, we then proceed to extrapolate from past to predict the likely growth of the Big Three in the next two decades. Assuming that past trends continue, we estimate that the share of votes that the Big Three would cast at S&P 500 companies could well reach about 34% of votes in the next decade, and about 41% of votes in two decades. Thus, if recent trends continue, the Big Three could be expected to become the "Giant Three." In this Giant Three scenario, three investment managers would largely dominate shareholder voting in practically all significant U.S. companies that do not have a controlling shareholder.

We conclude by briefly discussing the implications of the specter of the Giant Three. Here we build on our large-scale study of index fund stewardship, which analyzes the incentives of index fund managers and provides comprehensive empirical evidence on their stewardship activities.[5] That study analyzes and documents the incentives of index fund managers, and especially major fund managers such as the Big Three, to be excessively deferential toward corporate managers. We argue that recognition of the Giant Three scenario increases the importance of a serious consideration of these incentives.

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[3] *See infra* Figure 1, and accompanying text.

[4] *See infra* Table 5, and accompanying text.

[5] *See generally* Bebchuk & Hirst, *supra* note 1.

In addition to our own prior work, the work that is most closely related to this paper is a recent elegant essay by Professor John Coates.[6] Although we and Coates both focus on issues arising from the growing concentration of ownership in the hands of a relatively small number of institutional investors, our works and views differ in key respects. To begin, Coates's essay focuses on what he labels "the problem of twelve"—that is, the possibility that twelve management teams will gain "practical power over the majority of U.S. public companies."[7] By contrast, we focus on the possibility that a much smaller number of management teams—the Big Three—will come to dominate ownership in most public companies. In addition, this paper differs from Coates's work in that our empirical analysis focuses on documenting the growth of the Big Three and estimating its future trajectory.

Finally, whereas Coates seems to be concerned that investment managers will excessively use the power that comes from their large ownership stakes, our work on index fund stewardship focusses on the incentives that the Giant Three will have to be excessively deferential to corporate managers. We therefore stress the importance of studying a scenario in which a substantial proportion of equity ownership would have deference incentives and checks on corporate managers would be insufficient.

Whatever one's view of the nature of the Giant Three scenario, the specter of the Giant Three that we document and analyze presents signiifcant questions for future research. We hope that our work will highlight for researchers, market participants, and policymakers the importance of the Giant Three scenario. The specter of the Giant Three deserves close attention, and our empirical evidence and framework of analysis could inform any future consideration of this subject.

I. THE RISE OF THE GIANT THREE: DRIVERS

This Part analyzes three key drivers that underlie the consistent growth of the Big Three and make it likely that this growth and the related dominance of the Big Three will continue. First, the proportion of shares held by institutional investors has grown considerably and can be expected to continue to grow. Second, of the shares held by institutional investors, the proportion invested in index funds has also grown steadily, and can also be expected to continue to grow. Third, structural factors have led to heavy concentration in the index funds sector, and suggest that the Big Three will

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[6] *See generally* John C. Coates IV, The Future of Corporate Governance Part I: The Problem of Twelve, Harvard John M. Olin Discussion Paper No. 1001, April 2019, http://www.law.harvard.edu/programs/olin_center/papers/pdf/Coates_1001.pdf.

[7] Coates, *supra* note 6 at 1.

only increase their dominance. Sections I.A through I.C examine in turn each of these three drivers.

A. The Rise of Institutional Investors

Over the last fifty years, institutional investors have come to hold a majority of the equity of U.S. public companies.[8] From 1950 to 2017, the institutional ownership of corporate equity increased tenfold, from 6.1% to 65%.[9] As a result, institutional investors now control a large majority of the shares of public companies and have a dominant impact on vote outcomes at those companies.

Many observers have viewed the steady increase in the share of stock owned by institutional investors as being driven by a number of factors.[10] Changes in the regulation of retirement savings increased the aggregate amount of retirement savings.[11] Retirement savings shifted from bank savings accounts to the public equity markets, as a result of favorable tax changes[12] and innovations in equity investment products.[13] An increasing focus on the value of low-cost diversification in investments was also met by lower-cost

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[8] For early works on the rise of institutional investors, *see,* for example, Bernard S. Black, *Shareholder Passivity Reexamined*, 89 MICH. L. REV. 520, 567 (1990); Robert Charles Clark, Comment & Review, *The Four Stages of Capitalism: Reflections on Investment Management Treatises*, 94 HARV. L. REV. 561, 564-65 (1981); Gerald F. Davis, *A New Finance Capitalism? Mutual Funds and Ownership Re-Concentration in the United States*, 5 EUR. MGMT. REV. 11, 12 (2008); Donald E. Farrar & Lance Girton, *Institutional Investors and Concentration of Financial Power: Berle and Means Revisited*, 36 J. FIN. 369, 375 (1981); Edward B. Rock, *The Logic and (Uncertain) Significance of Institutional Shareholder Activism*, 79 GEO. L.J. 445, 447 (1991). For more recent works, *see* Bebchuk, Cohen & Hirst, *supra* note 1, at 91; Ronald J. Gilson & Jeffrey N. Gordon, *The Agency Costs of Agency Capitalism: Activist Investors and the Revaluation of Governance Rights*, 113 COLUM. L. REV. 863, 874-75 (2013).

[9] BD. OF GOVERNORS OF THE FED. RESERVE SYS., FEDERAL RESERVE STATISTICAL RELEASE, Z1: FINANCIAL ACCOUNTS OF THE UNITED STATES: FOURTH QUARTER 2017 130 (2018) (providing evidence of level of ownership in 2017), https://www.federalreserve.gov/releases/z1/20180308/z1.pdf; MATTEO TONELLO & STEPHAN RABIMOV, THE 2010 INSTITUTIONAL INVESTMENT REPORT: TRENDS IN ASSET ALLOCATION AND PORTFOLIO COMPOSITION 22 (2010), https://www.conference-board.org/publications/publicationdetail.cfm?publicationid=1872 (providing evidence of level of ownership in 1950).

[10] *See, e.g.*, Edward B. Rock, *Institutional Investors in Corporate Governance*, *in* THE OXFORD HANDBOOK OF CORPORATE LAW AND GOVERNANCE 363, 365 (Jeffrey N. Gordon & Wolf-Georg Ringe eds., 2018).

[11] *See* Gilson & Gordon, *supra* note 8, at 879-80.

[12] *See* Clark, *supra* note 8, at 575; Davis, *supra* note 8, at 14-15.

[13] *See* John V. Duca, *The Democratization of America's Capital Markets*, ECON. & FIN. REV., Second Quarter 2001, at 10, 13.

options for achieving such diversification among public equities.[14] These factors remain in place, and have led to continuing increases in the proportion of corporate equity owned by institutional investors over the last decade. As a result, it is plausible to expect the increase in institutional ownership to continue.

B. The Growing Share of Index Funds

In addition to the growth in the proportion of corporate equity held by institutional investors, there has also been substantial growth in the proportion of institutional investor assets that are invested in index funds.

Index funds are investment funds:funds that pool the investments of many individuals and others (which we refer to as "beneficial investors") and invest them in diversified portfolios of assets. Investment funds may invest in debt securities or other assets, but we focus on investment funds that invest in equity securities. Among those equity investment funds, index funds invest in portfolios that attempt to track the performance of a particular benchmark stock market index, such as the S&P 500 or the Russell 3000. Index funds can be either traditional "open-ended" mutual funds or ETFs. A well-known example of an index mutual fund is the Vanguard S&P 500 Mutual Fund. The two largest index ETFs are SSGA's SPDR S&P 500 ETF and BlackRock's iShares Core S&P 500 ETFs.[15]

The growth of index funds is commonly attributed to a recognition of their advantages compared with active funds: lower costs, superior returns after fees, and tax advantages for investors holding funds in accounts that are not tax-sheltered.[16] The shift to index funds has been dramatic, with index funds increasing their share of the total assets invested in equity mutual funds more than eightfold in two decades, from 4% in 1995 to 34% in 2015.[17]

Table 1 shows the asset flows to (and from, shown in parentheses) both actively managed investment funds and index investment funds during the ten years from 2009 to 2018.[18] As Table 1 shows, inflows to index funds have dominated those to actively managed funds over the past decade. From 2009 to 2018, total inflows to actively managed funds were less than $200 billion, with significant outflows over the last five years erasing most of the inflows

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[14] *See id.* at 14-15.

[15] *See infra* Table 2

[16] For recent writings stressing the advantages of index funds over actively managed funds, see, for example, Gregory Zuckerman, *The Passivists: Why Stock Pickers Are Keeping the Faith*, WALL STREET J., Oct. 22, 2016, at B1.

[17] John C. Bogle, *The Index Mutual Fund: 40 Years of Growth, Change, and Challenge*, 72 FIN. ANALYSTS J. 9, 9 (2016).

[18] Table 1 is based on asset flow data from Morningstar Direct accessed on December 20, 2018. The 2018 figures include data through November 2018.

into actively managed funds over the first five years of that period. In contrast, total inflows to index funds over the same period were more than $3.4 trillion, eighteen times the total flows to actively managed funds. Flows to index funds over that decade were consistently positive and increased over time: the average inflow from 2014 to 2018 was $476 billion per year, more than double that from 2009 to 2013 ($221.5 billion per year).

Table 1. Asset Flows To (From) Active and Index Funds ($ Billions)

	Active Funds	*Index Funds*			*Total*
		Mutual Funds	*ETFs*	*Total*	
2009	259.8	62.9	126.5	189.4	449.2
2010	234.5	65.4	127.1	192.5	427.0
2011	27.8	58.4	121.1	179.4	207.2
2012	186.5	80.4	165.4	245.8	432.3
2013	154.1	104.8	195.7	300.4	454.5
Total (2009-2013)	862.7	371.7	735.8	1,107.5	1,970.2
2014	104.2	148.8	207.6	356.3	460.5
2015	(180.9)	175.8	239.8	415.6	234.6
2016	(344.1)	192.1	261.8	453.9	109.9
2017	(63.9)	237.3	463.7	701.0	637.2
2018	(185.3)	172.1	280.5	452.6	267.3
Total (2014-2018)	(669.9)	926.1	1,453.3	2,379.4	1,709.5
Total (2009-2018)	192.7	1,297.8	2,189.1	3,486.9	3,679.6

The growth in the share of index funds at the expense of active funds has been partly due to growing levels of investment in ETFs. Because of the way in which ETFs operate and are regulated, they are largely limited to investment strategies that track a defined index.[19] As Table 1 indicates, the majority of the substantial growth in index funds has been driven by the growth of ETFs. Flows to index ETFs outpaced flows to index mutual funds every year from 2009 to 2018, and the total asset flow to index ETFs from 2009 to 2018 was 60% greater than the asset flows to index mutual funds over the same period.

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19 *See, e.g.*, William A. Birdthistle, *The Fortunes and Foibles of Exchange-Traded Funds: A Positive Market Response to the Problems of Mutual Funds*, 33 DEL. J. CORP. L. 69, 72 (2008).

C. The Concentration of the Index Funds Sector

Finally, we wish to discuss the heavy concentration of the growing index funds sector in the hands of three major investment managers. As we explain below, there are three structural factors that have contributed to the dominance of a small number of players. Most importantly, these factors are likely to enable these players to retain their dominance over time.

Economies of Scale. The first factor is the significant economies of scale inherent in operating a fund tracking an index. An ETF with assets of $10 billion would have one hundred times the assets under management of an ETF with assets of $100 million tracking the same index, but the costs of operating the former would likely be much less than one hundred times the cost of operating the latter. These economies of scale provide the operator of the $10 billion ETF with a structural advantage over the operator of the $100 million ETF: the former can charge investors a much smaller expense ratio to cover costs.[20] In a recent paper Professors John Adams, Darren Hayunga, and Sattar Mansi provide empirical evidence of significant economies of scale in index fund performance.[21] The authors explain that this is partly due to there being some elements of fixed costs for investment funds that can be divided over a larger asset base in the case of large funds, including administration, broker trading commissions, management, and marketing.[22]

ETF Assets and Liquidity. There is another related factor that arises with respect to ETFs, which represent a growing segment of the index funds sector. An ETF with more assets has a substantial advantage over an ETF tracking the same index with fewer assets, not only because the larger ETF has lower operational costs as a percentage of assets (as described above), but also because the larger ETF offers beneficial investors significant liquidity advantages.

Investors considering ETF investments will consider not only the fees charged by the investment manager but also the bid-ask spreads that the investor will face when they acquire and dispose of their investment in the ETF. An ETF with fewer assets can be expected to have lower liquidity and more significant bid-ask spreads than a larger ETF, which will operate to reduce the total return the investor will enjoy from holding the ETF. Accordingly, index fund managers that have enjoyed a first-mover advantage and that currently manage ETFs with larger volumes of assets can offer

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[20] *See, e.g.*, Bogle, *supra* note 6.

[21] John Adams, Darren Hayunga & Sattar Mansi, Returns to Scale in Active and Passive Management 27 (Dec. 4, 2018) (unpublished manuscript), https://ssrn.com/abstract=3295799.

[22] *Id.* at 26.

investors liquidity benefits that index fund managers operating ETFs tracking the same index but with fewer assets simply cannot emulate. The liquidity advantages of ETFs that already have abundant assets under management can be viewed as a source of network benefits, and such benefits have long been viewed as benefitting and protecting incumbent firms.[23]

Table 2, below, reports the assets under management of the fifty largest equity ETFs.[24] These ETFs manage together more than $1.8 trillion, with the largest ETF—the SPDR S&P 500 ETF—holding more than a quarter of a trillion dollars. The fifty largest ETFs are dominated by BlackRock, Vanguard, and SSGA, which manage twenty, sixteen, and nine of the fifty largest ETFs, respectively. Only five of the fifty largest ETFs (and only one of the largest thirty ETFs) are managed by managers other than the Big Three.[25] Indeed, managers other than the Big Three manage less than 7% of the assets held in the largest fifty ETFs.[26]

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[23] *See, e.g.*, Nicholas Economides, *Competition Policy in Network Industries: An Introduction*, *in* THE NEW ECONOMY & BEYOND: PAST, PRESENT & FUTURE 96, 104 (Dennis W. Jansen ed., 2006).

[24] Data for Table 2 is taken from the ETF Database. *Largest ETFs: Top 100 ETFs by Assets*, ETFDB.COM, https://etfdb.com/compare/market-cap/ (last visited Apr. 10, 2019).

[25] Three of the five non-Big Three ETFs are managed by Charles Schwab and two are managed by Invesco. *See infra* Table 2.

[26] The total assets under management for the fifty largest equity ETFs as listed in Table 2 is $1,851 billion. The total assets under management of the five non-Big Three ETFs in the fifty largest ETFs is $122 billion, or 6.6% of the total assets under management in the fifty largest ETFs.

Table 2. Fifty Largest ETFs by Assets Under Management ("AUM")

	Exchange Traded Fund	*AUM ($bn)*	*Manager*
1.	SPDR S&P 500 ETF	$251.48	SSGA
2.	iShares Core S&P 500 ETF	$155.17	BlackRock
3.	Vanguard S&P 500 ETF	$99.00	Vanguard
4.	Vanguard Total Stock Market ETF	$99.00	Vanguard
5.	Vanguard FTSE Developed Markets ETF	$66.34	Vanguard
6.	Invesco QQQ	$65.72	Non-Big 3
7.	iShares MSCI EAFE ETF	$63.77	BlackRock
8.	Vanguard FTSE Emerging Markets ETF	$55.89	Vanguard
9.	iShares Core MSCI EAFE ETF	$53.81	BlackRock
10.	iShares Core MSCI Emerging Markets ETF	$49.67	BlackRock
11.	iShares Core S&P Mid-Cap ETF	$44.93	BlackRock
12.	Vanguard Value ETF	$43.03	Vanguard
13.	iShares Russell 2000 ETF	$42.96	BlackRock
14.	iShares Russell 1000 Growth ETF	$40.42	BlackRock
15.	iShares Core S&P Small-Cap ETF	$40.38	BlackRock
16.	iShares Russell 1000 Value ETF	$38.62	BlackRock
17.	Vanguard Growth ETF	$34.36	Vanguard
18.	Vanguard Real Estate Index Fund	$30.85	Vanguard
19.	Vanguard Dividend Appreciation ETF	$30.37	Vanguard
20.	iShares MSCI Emerging Markets ETF	$29.69	BlackRock
21.	Financial Select Sector SPDR Fund	$25.68	SSGA
22.	Vanguard Mid-Cap Index ETF	$22.45	Vanguard
23.	Vanguard Small Cap ETF	$22.18	Vanguard
24.	Vanguard High Dividend Yield ETF	$22.07	Vanguard
25.	Vanguard FTSE All-World ex-US ETF	$21.21	Vanguard
26.	SPDR Dow Jones Industrial Average ETF	$21.13	SSGA
27.	iShares S&P 500 Growth ETF	$20.91	BlackRock
28.	Health Care Select Sector SPDR Fund	$19.66	SSGA
29.	Vanguard Information Technology ETF	$19.10	Vanguard
30.	iShares Edge MSCI Min Vol USA ETF	$18.96	BlackRock
31.	Technology Select Sector SPDR Fund	$18.72	SSGA
32.	SPDR S&P MidCap 400 ETF	$18.06	SSGA
33.	iShares Russell 1000 ETF	$17.24	BlackRock
34.	iShares Select Dividend ETF	$17.10	BlackRock
35.	iShares Russell Midcap ETF	$17.02	BlackRock
36.	SPDR S&P Dividend ETF	$16.10	SSGA
37.	iShares MSCI Japan ETF	$15.86	BlackRock
38.	iShares Core S&P Total U.S. Stock Market ETF	$15.71	BlackRock
39.	Schwab International Equity ETF	$15.02	Non-Big 3
40.	iShares S&P 500 Value ETF	$15.00	BlackRock
41.	iShares J.P. Morgan USD Emerging Markets Bond ETF	$14.99	BlackRock
42.	Energy Select Sector SPDR Fund	$14.69	SSGA
43.	iShares U.S. Preferred Stock ETF	$14.21	BlackRock
44.	Invesco S&P 500® Equal Weight ETF	$14.20	Non-Big 3
45.	Schwab U.S. Large-Cap ETF	$14.12	Non-Big 3
46.	Vanguard FTSE Europe ETF	$13.68	Vanguard
47.	Consumer Discretionary Select Sector SPDR Fund	$12.99	SSGA
48.	Vanguard Large Cap ETF	$12.65	Vanguard
49.	Schwab U.S. Broad Market ETF	$12.59	Non-Big 3
50.	Vanguard Small Cap Value ETF	$12.39	Vanguard
	Total	$1,851.17	

Difficulty of Disruption. Finally, a factor relevant for assessing the persistence of market concentration is the ease with which rivals are able to unseat dominant incumbents. In some markets incumbent market leaders face significant risks of losing their dominance if a rival develops a disruptive product that customers prefer and that the incumbent is not able to replicate quickly. However, the nature of index fund offerings is such that, if investors show interest in an indexed product that is not currently offered by the Big Three, the Big Three can swiftly offer a very similar competing product. This ability of the dominant players to quickly replicate any product in which investors show an interest contributes to protecting the continued dominance of the existing major players.

II. THE NUMBERS: PAST, PRESENT, FUTURE

This Part provides empirical evidence about the steady rise of the Big Three over the past two decades, as well as their major presence in corporate ownership and voting, and estimates their future growth based on extrapolation from current trends. Section II.A provides evidence about past growth and the present importance of Big Three shareholders. Section II.B extrapolates from these past trends to predict the growth of the Giant Three.

A. The Past and Present: The Rise of the Big Three

As discussed in Part I, there has been tremendous inflows of assets to index funds over the past decade. Consistent with our analysis of the factors contributing to the heavy concentration of the index fund sector, the great majority of these inflows have gone to the Big Three.

Table 3 reports the asset flows to each of the Big Three from 2009 to 2018.[27] The total inflows to the Big Three from 2009 to 2018 were more than $3 trillion, and represent 82% of the inflows to *all* active and passive funds over that period. The dominance of the Big Three as the destination for fund inflows was naturally reflected in the growth of the Big Three during this period.

Table 3 demonstrates that the move to index funds appears to have accelerated. During the five years from 2009 to 2013, the Big Three attracted $892 billion of assets, which was 45% of the total asset inflows to investment funds during that period. Therefore, during this period the Big Three attracted close to the same amount of assets as all other investment managers

[27] Table 3 is based on asset flow data from Morningstar Direct accessed on December 20, 2018. The 2018 figures include data through November 2018.

combined. This necessarily represented a higher rate of growth for the Big Three than for other fund managers, as the Big Three started the decade with fewer assets under management. And, in the subsequent five years, from 2014 to 2018, the Big Three had $2,139 billion in inflows, more than twice as much as the preceding five years, representing 125% of total investment fund inflows.

Table 3. Asset Flows to Big Three Mutual Funds and ETFs

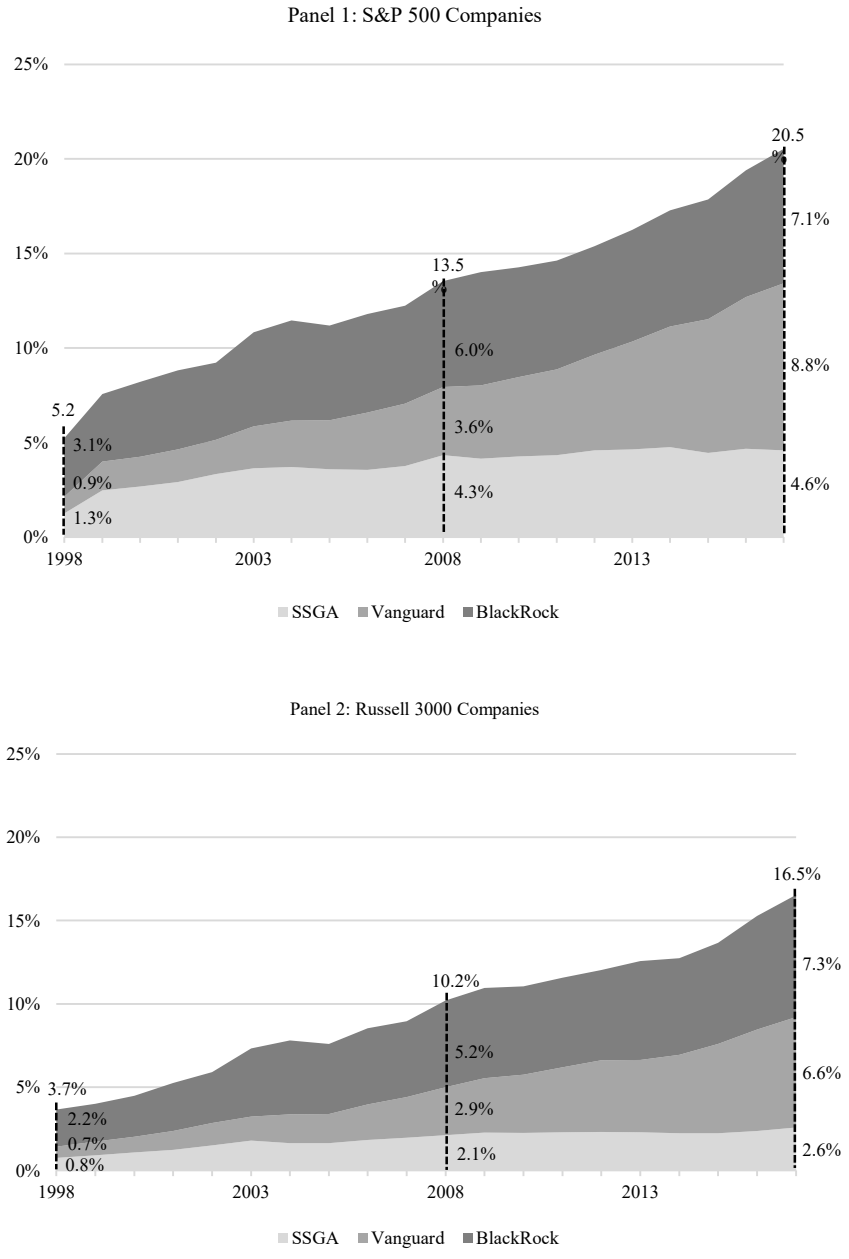
	BlackRock	*Vanguard*	*SSGA*	*Total Big 3*	*% of In-flow to All Funds*
2009	77.2	97.2	11	185.3	41.3%
2010	(11.9)	80.6	31.4	100.1	23.4%
2011	28.4	81.1	17.2	126.6	61.1%
2012	76.1	142.5	44.2	262.7	60.8%
2013	60.4	138.7	18.3	217.2	47.8%
Total (2009-2013)	230.2	539.8	121.9	891.9	45.3%
2014	113.2	216.3	41.1	370.4	80.5%
2015	108.7	236.1	(12.1)	332.7	141.8%
2016	88.5	304.8	48.3	441.5	402.0%
2017	256.7	361.1	32.9	650.7	102.1%
2018	112.3	218.7	12.9	343.9	128.6%
Total (2014-2018)	679.3	1,336.9	123.1	2,139.2	125.1%
Total (2009-2018)	909.5	1,876.7	244.9	3,031.1	82.4%

Figure 1, below, shows the average percentage of the shares large public corporations held by the Big Three for each year over the last two decades—a percentage that has been increasing consistently and at a significant rate.[28] It shows that the growth in the proportion of the U.S. equity markets managed by the Big Three has been dramatic. Panel 1 shows that the proportion of S&P 500 shares managed by the Big Three has grown approximately fourfold over the past two decades, from 5.2% in 1998, to 20.5% in 2017. Furthermore, Panel 2 shows that for Russell 3000 companies, the proportion of assets the Big Three holds has grown more than fourfold over the past two

[28] Figure 1 is based on institutional ownership from the FactSet Ownership database by FactSet Research Systems accessed on July 10, 2018, together with S&P 500 constituent data from the Compustat database by S&P Global accessed on February 14, 2017, and Russell 3000 constituent data from FTSE Russell accessed on May 29, 2018.

decades, from 3.7% in 1998 to 16.5% in 2017, though it still remains below the proportion that the Big Three hold in S&P 500 companies.

Figure 1. Percentage of Corporate Equity Held by Big Three Index Funds



Another way to provide a picture of the consistent and dramatic growth of the Big Three is to consider the number of companies at which the Big Three hold positions of 5% or more. We therefore gather data from the

FactSet Ownership database regarding the size of the positions that each of the Big Three hold in each S&P 500 and Russell 3000 company over the last ten years. Table 4 shows the number of positions of 5% or more that each of the Big Three held in S&P 500 and Russell 3000 companies, and the total number of such positions across the Big Three, in each of the years in 2007, 2012, and 2017.

Consistent with the results presented earlier, Table 4 displays a spectacular growth in the number of positions of 5% or more held by the Big Three. Whereas Vanguard held only fifteen such positions in S&P 500 companies in 2007, by 2017 Vanguard held such positions in essentially all of the S&P 500, an increase of more than thirty times. Furthermore, the number of positions of 5% or more in S&P 500 companies held by BlackRock and SSGA each tripled over the same period, from 165 to 488 (almost the entire S&P 500) for BlackRock, and from 41 to 130 for SSGA. The total number of S&P 500 positions of 5% or more held by the Big Three has increased more than fivefold, from 221 in 2007 to 1,118 in 2017. Panel 2 shows similar growth for the Russell 3000: the total number of positions of 5% or more held by the Big Three has increased more than threefold over the last decade, from 1,481 to 4,608 in 2017.

Table 4. Number of Positions of 5% or More Held by the Big Three

Panel 1: S&P 500 Companies

Year	*BlackRock*	*Vanguard*	*SSGA*	*Combined*
2007	165	15	41	221
2012	328	193	103	624
2017	488	500	130	1,118

Panel 2: Russell 3000 Companies

Year	*BlackRock*	*Vanguard*	*SSGA*	*Combined*
2007	1,267	131	83	1,481
2012	1,967	1,251	169	3,387
2017	2,344	2,059	205	4,608

The data that we have presented to describe the phenomenal growth of the Big Three over the past two decades also contains information about the major role that the Big Three currently play in the ownership of public companies. As Figure 1 shows, as of 2017 the Big Three held an average combined stake exceeding 20% of S&P 500 companies and 16.5% of Russell

3000 companies. Furthermore, as of 2017, practically all S&P 500 companies, and over two-thirds of Russell 3000 companies, had two positions of 5% or more held by two of the Big Three, and many such companies had positions of 5% or more held by each of the Big Three.

Furthermore, the above figures significantly underestimate the voting power of the Big Three and the extent to which their voting influences election outcomes. This is because index fund managers invariably vote in corporate elections, while some other holders—especially retail investors—do so to a much lesser extent.[29] To provide a sense of the effects of such nonvoting on the significance of Big Three holdings, Table 4 contrasts (1) the fraction of shares owned in companies in the S&P 500 and Russell 3000 indexes by each of the Big Three, and (2) the fraction of the votes of companies in those indexes cast at annual meetings held by each of the Big Three.[30]

Table 5. Big Three Ownership of U.S. Companies

		% of Outstanding Shares		*% of Votes Cast*	
		Mean	*Median*	*Mean*	*Median*
S&P 500	*BlackRock*	7.1%	6.9%	8.7%	8.5%
	Vanguard	8.8%	8.2%	11.1%	10.1%
	SSGA	4.6%	4.4%	5.6%	5.5%
	Big Three Total	20.5%	19.5%	25.4%	24.2%
Russell 3000	*BlackRock*	7.3%	6.8%	10.1%	9.2%
	Vanguard	6.6%	6.9%	8.6%	8.7%
	SSGA	2.6%	2.4%	3.4%	3.0%
	Big Three Total	16.5%	16.1%	22.0%	20.9%

As Table 5 indicates, the average share of the votes cast at S&P 500 companies at the end of 2017 was 8.7% for BlackRock, 11.1% for Vanguard, and 5.6% for SSGA. These proportions are about 15% higher than the

[29] In the 2017 proxy season, only 29% of shares owned by retail investors were voted. *See* BROADRIDGE & PWC, PROXYPULSE: 2017 PROXY SEASON REVIEW 2 (2017). https://www.broadridge.com/_assets/pdf/broadridge-2017-proxy-season-review.

[30] Table 5 is based on market capitalization data from Compustat accessed on February 14, 2017, institutional ownership data from FactSet Ownership accessed on July 10, 2018, and director election data from FactSet Research Systems' SharkRepellent database accessed on June 18, 2018. "Votes cast" refers to the average sum, across all directors up for election, of the votes cast for and against, and abstentions for that director at that corporation's 2017 annual meeting.

proportion of outstanding shares managed by each of those managers. As a result, for S&P 500 companies, the proportion of the total votes that were cast by the Big Three was about 25.4% on average, significantly higher than their combined ownership stake of about 20.5% on average. Similarly, for Russell 3000 companies, the proportion of the total votes that were cast by the Big Three was 22% on average, also significantly greater than the 16.5% of outstanding Russell 3000 shares managed by the Big Three. Thus, ownership figures by themselves significantly understate the effect that the Big Three have on voting outcomes.

B. The Future: The Specter of the Giant Three

We agree with the adage that it is difficult to make predictions, especially about the future. Still, given the steady rise of the ownership stakes of the Big Three over the past two decades, it is natural for policymakers, researchers, and market participants to ask what would be the result of a continuation of past trends in the growth of the Big Three. This Section provides such estimates based on the evidence regarding recent trends.

To generate such an estimate we begin by estimating the rate at which equity ownership by investors other than the Big Three has declined over the past ten years. In 2008, 13.5% of S&P 500 equity was managed by the Big Three, so 86.5% was not. Ten years later, in 2017, 20.5% of S&P 500 equity was managed by the Big Three, so 79.5% was not. We calculate that the decline from 86.5% to 79.5% over ten years reflected an annual rate of decline of 0.84%. We then ask what would happen if the ownership of shares by non-Big Three investors (which we refer to as "non-Big-Three holdings") continues to decline at this annual rate.[31]

Panel 1 of Figure 2 shows that if the recent rate of decline of non-Big-Three holdings continues at the same rate as in the past decade, the combined average ownership stake of the Big Three will rise to 27.6% in ten years, and to 33.4% of S&P 500 equity in twenty years. Similar figures hold for the Russell 3000: our estimation indicates that the average combined stake of the Big Three would rise to 23.9% for the equity of Russell 3000 companies in 2028, and to 30.1% of Russell 3000 companies in 2038.

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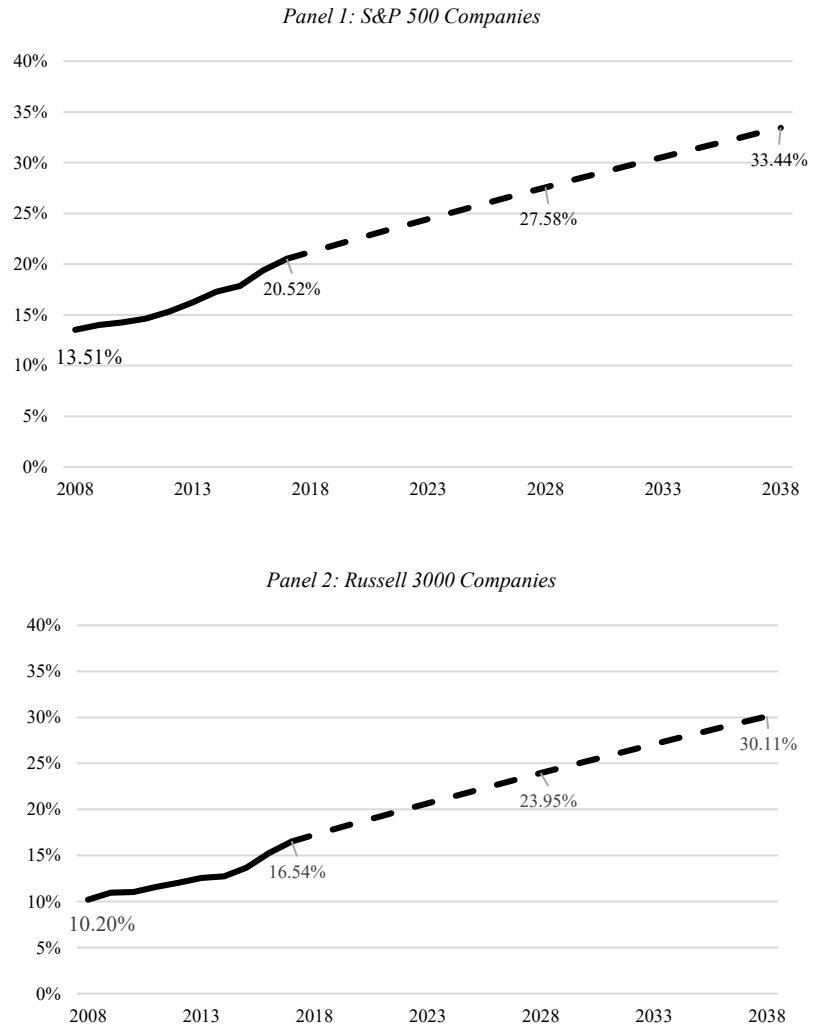
[31] This rate is calculated as $\sqrt[10]{(c_{2008}/c_{2017})}$, where c_{2008} represents the average percentage of shares of the index *not* managed by the Big Three in 2008 and c_{2017} represents the average percentage of shares of the index *not* managed by the Big Three in 2017.

Figure 2. Big Three Combined Stake—Future Growth Estimated from Past Trend



Of course, whereas we use the past ten years to derive an estimate of the rate of decline of non-Big-Three holdings, one could do so based on somewhat different periods. To examine the consequences of using such different periods, we recalculate the rate of decline of non-Big-Three holdings during the past five years, from 2013 to 2017. We obtain a calculated rate of decline of 1.05%, exceeding the 0.84% decline used above.

As we explained in Section II.A, the voting power of index funds is even greater than would be suggested by the proportion of shares that they manage, because many other shareholders do not vote. We therefore also estimate the future voting power of index funds. We first calculate the proportion of non-

Big-Three holdings that did not vote for the election of directors in each of the years from 2008 to 2017. We assume that the Big Three voted all of the shares that they managed in all of those years. This is a reasonable assumption, as Securities and Exchange Commission ("SEC") guidance has indicated that U.S. investment managers like the Big Three have a fiduciary duty to vote their shares.[32] Based on this assumption, the proportion of shares not managed by the Big Three that voted in director elections varied from 85% in 2008 to 68% in 2017. The average proportion of non-Big-Three holdings voted at director elections over that period was 73%. We assume that this proportion will remain constant, and use it to estimate the voting power of the Big Three in the future. Figure 3 shows our estimates of the voting power of the Big Three for the next twenty years, for the S&P 500 (Panel 1) and for the Russell 3000 (Panel 2).

Panel 1 of Figure 3 shows that if the proportion of non-Big-Three holdings that are voted remains the same, then the Big Three will control 34.3% of S&P 500 votes in ten years, and 40.8% of S&P 500 votes in twenty years. Panel 2 shows similar results for the Russell 3000: 29.8% of Russell 3000 votes in 2028 and 36.7% of Russell 3000 votes in 2038.

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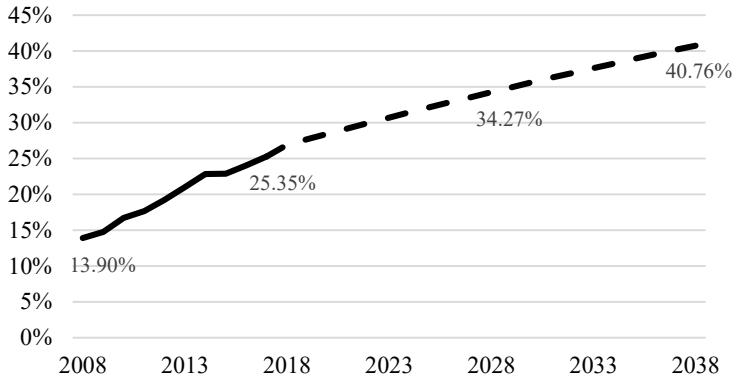
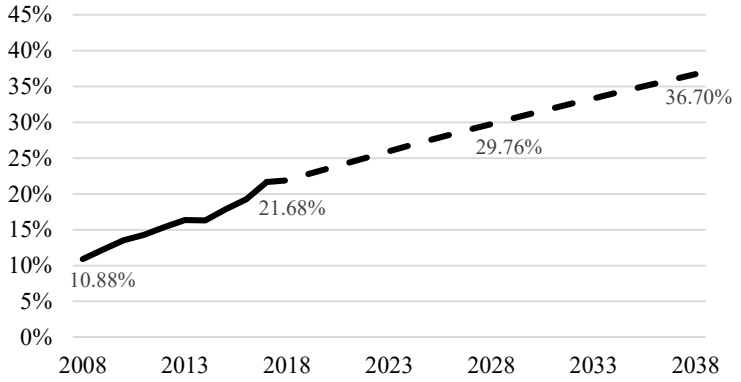
[32] *See* Interpretive Bulletin on Exercise of Shareholder Rights and Written Statements of Investment Policy, 29 C.F.R. § 2509.2016-01 (2018).

Figure 3. Expected Future Growth—Big Three Combined Voting Stake

Panel 1: S&P 500 Companies



Panel 2: Russell 3000 Companies



The estimates we obtained above are based on the rate of change in the past ten years. We also derive estimates using shorter and longer periods—specifically, the past five years and the past twenty years. Using these estimates would result in estimates of the future voting power of the Big Three commensurate to the estimate we generated above. In particular, extrapolating from Big Three growth over the past five years would result in the estimated average percentage of votes cast by the Big Three in S&P 500 companies growing to 28.4% by 2028 and 35.6% by 2038. Similarly, extrapolating from Big Three growth over the past twenty years would result in the average percentage of votes cast by the Big Three in S&P 500 companies to grow to 27.2% by 2028 and 33.3% by 2038.

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We reiterate our caution that accurately estimating the future growth of the Big Three is difficult, and actual outcomes might differ from those we have estimated above. The pace of Big Three growth over the next two decades could at some point accelerate (say, due to a tipping point being reached whereby most investors come to accept the logic of passive investing) or decelerate (say, due to remaining investors in active funds being especially resistant to this logic). However, the shift from active to index investments is expected to continue, and there are strong reasons to expect the Big Three will continue to dominate index investing. Furthermore, in evaluating where these developments can be expected to lead, recent trends provide the most relevant evidence and provide a useful basis for estimating future growth.

CONCLUSION

This paper has empirically examined the continuing steady growth of the Big Three and what it is likely to mean for our corporate governance system. We have analyzed the three drivers of the rise of the Big Three, including the structural factors that lead to the heavy concentration of the index funds sector. And we have documented the rise of the Big Three over the past decade and their large footprint in current ownership of public companies and in corporate voting.

Extrapolating from past trends, we have demonstrated the plausibility that the Big Three will grow into the Giant Three over the next two decades. In this Giant Three scenario the Big Three would dominate voting in most U.S. public companies, casting as much as 40% of the votes in S&P 500 companies on average. The clear message for policymakers from this analysis is that the Giant Three scenario, and the questions that it raises, should be taken seriously.

In particular, we wish to highlight one issue raised by the prospect of the Giant Three scenario. As we analyzed and documented in earlier work on index fund stewardship, the stewardship decisions of index funds in general, and the Big Three in particular, are afflicted by agency problems, including incentives to under-invest in stewardship and incentives to be excessively deferential to corporate managers.[33] Taking the Giant Three scenario seriously reinforces the importance of recognizing the agency problems of index fund managers. These agency problems deserve the close attention of researchers, policymakers, and market participants.

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[33] *See generally* Bebchuk, Cohen & Hirst, *supra* note 1; Bebchuk & Hirst, *supra* note 1.