Passive Ownership and Aggressive Non-GAAP Reporting[†]

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ABSTRACT. The rise of passive index funds has fueled an ongoing debate about the governance of their portfolio firms. Recent theoretical work suggests that governance quality may increase or decrease depending on whether passive ownership crowds out active ownership. We explore this theoretical implication in a broad sample of U.S. corporations, using financial reporting choices as a proxy for governance quality. We find that passive ownership increases (i) the magnitude of non-GAAP exclusions, (ii) managers' use of non-GAAP reporting to avoid losses and meet analyst expectations, and (iii) the transitory nature of non-GAAP EPS in the subsample where passive ownership likely crowds out active ownership. We find no such effects where crowding out does not occur. Our results provide evidence that governance improves when passive funds replace retail investors but not active investors.

Keywords: Passive Ownership, Active Ownership, Governance, Institutional Investors, Non-GAAP, Voluntary Disclosure

JEL Classification: G10; G14; G30; M41

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1. Introduction

Passive ownership has grown dramatically over the last 25 years. Passively-managed index funds currently hold over 30% of fund assets in the U.S. equity market (Heath et al., 2022), and index funds are now the largest shareholders of many U.S. corporations (Bebchuk and Hirst, 2019). The literature reflects considerable disagreement about how passive ownership affects corporate governance (Brav et al., 2022). Several studies show that passive funds have improved governance (e.g., Appel et al., 2016; Appel et al., 2019), while other studies document negative effects on governance (e.g., Schmidt and Fahlenbrach, 2017; Heath et al., 2022). Recent theoretical work posits that whom passive owners replace matters for governance outcomes (Corum et al., 2022). In this paper, we investigate how the growth in passive ownership affects monitoring and governance, specifically how that growth affects firms' financial reporting and disclosure choices.

The debate about passive investors' effects on corporate governance centers around whether passive owners engage in or enhance the monitoring of management. Lewellen and Lewellen (2022) argue that there exist strong financial incentives for passive owners to engage in monitoring in order to increase fund fees. However, Bebchuk and Hirst (2019) report that the largest passive-investment companies spend only about 0.2% of the total fund fees they collect on stewardship—approximately \$4,762—for each constituent firm above \$1 billion in value. Nonetheless, much of the possible monitoring by owners may be unobservable. For example, governance via "voice" (i.e., direct communication with management) by fund managers is unobservable to the extent that there is no disclosure required.[1] Therefore, the effect of the growth of passive ownership on governance and the monitoring of managers is ultimately an empirical question.

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[1] Under Regulation FD, any private conversation between a fund manager and management that includes material non-public information must be disclosed with the SEC via an 8-K filing. However, discussions related to managing the firm that do not involve details about material non-public information are not required to be disclosed, such as an owner's demand for changes in management practices.

Recent studies have attempted to understand the impact of increased passive ownership on governance. Appel et al. (2016) find an increase in monitoring after passive ownership increases, as captured by more independent directors, less takeover defenses, and more equal voting rights. In a follow-up study, Appel et al. (2019) find that greater passive ownership increases the ability of activist investors to monitor the firm by increasing activist board representation. In contrast, Heath et al. (2022) document *opposite evidence*, finding that passive ownership results in less overall monitoring of the firm, less board independence, and lower pay-for-performance sensitivity. Our paper explores the governance implications of passive owners from a new angle, based on the premise that managers may make self-interested financial reporting choices and they would have less discretion to do so under stronger governance. Specifically, we examine how aggressive non-GAAP reporting by managers may change with the level of passive ownership.

Non-GAAP reporting has been a substantial concern of regulators because it can be used to potentially mislead investors and reduce the overall monitoring of the firm. Non-GAAP reporting allows managers to provide an alternative perspective on a firm's financial performance relative to mandated financial reports. Approximately 97% of firms in the S&P 500 had some form of non-GAAP disclosure in 2017, up from 59% in 1996.[2] Prior studies suggest that managers' use of non-GAAP reporting that excludes significant expenses is opportunistic and associated with poor firm governance (e.g., Frankel et al., 2011) and leads to abnormally high CEO compensation (Guest et al., 2022). In line with the concerns raised by the academic literature, aggressive non-GAAP reporting has been a significant focus of regulators, with ongoing attention from the SEC about the use of aggressive non-GAAP disclosures to mollify disappointing performance (Kolev et al.,

2008; Guggenmos et al., 2022).[3] Our focus on aggressive non-GAAP reporting as a proxy for governance quality is also motivated by the observation that much of the debate on passive ownership is concerned with whether passive investors can effectively oversee *difficult-to-monitor activities* as opposed to broad-based changes that require little firm-specific information; non-GAAP reporting is precisely the type of activity that requires firm-specific information to monitor.

Identifying exogenous variation in passive ownership is an important consideration for understanding its effects on corporate governance. Prior studies that investigate issues related to institutional ownership often utilize the Russell index reconstitution to isolate plausibly exogenous variation (Brav et al., 2022). One difficulty with this identification strategy is whether the results generalize beyond firms that are just around the Russell reconstitution threshold. In light of this difficulty, we instead examine the effects of passive ownership on governance in a broader sample of all U.S. companies that are not necessarily near index inclusion thresholds. However, in using a broader sample, there is the concern that a firm's ownership structure is influenced by firm characteristics that also drive changes in governance. To alleviate this concern, we develop a novel approach to isolate plausibly exogenous variation in passive ownership. Our approach decomposes the variation in passive ownership into two components: variation due to endogenous index inclusion effects and variation due to exogenous flows into and out of index funds from fund investors. That is, a firm's passive ownership can change if (i) the firm is added or dropped from an index, (ii) the firm changes its relative ranking within an index, or (iii) there is an inflow or outflow of capital to index funds as an asset class. We argue that capital flows into and out of index funds—which are driven mainly by forces that are outside of an individual firm's control—are key

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[3] See also, "SEC Expected to Raise More Questions About How Firms Calculate Non-GAAP Measures." Source: https://www.wsj.com/articles/sec-expected-to-raise-more-questions-about-how-firms-calculate-non-gaap-measures-4ab42b9

determinants of passive ownership levels. Therefore, we aim to capture plausibly exogenous changes in passive ownership by using variation due to flows into and out of index funds.

Our study is guided by recent theoretical developments concerning the effects of passive versus active ownership on corporate governance. Corum et al. (2022) develop a model in which investors choose how to allocate their capital among three choices: (i) privately invest, (ii) invest with an active fund, or (iii) invest with a passive fund. Funds charge an endogenous asset management fee, which is a fraction of the realized value of the funds' assets under management (AUM). Passive funds invest all AUM in the value-weighted market portfolio, while active funds purchase stocks that are undervalued. After investments are made, fund managers select a monitoring effort to increase the realized value of their portfolio firms. The main finding of their model—which we empirically test—is that passive ownership harms (improves) governance when it does (does not) crowd out active ownership. This finding primarily arises in their framework because active funds endogenously charge higher fees than passive funds, which gives them the strongest incentives to monitor (compared to passive funds and retail investors). In order to identify subsamples in which passive ownership does (or does not) crowd out active ownership, we uncover a new stylized fact: passive funds are more likely to replace active funds when passive ownership is sufficiently high. That is, as passive ownership increases, active ownership first increases, reaches a peak, and then decreases. This stylized fact is consistent with there being a conflict of interest between passive and active funds (Ackman 2016; Fink, 2016), and it allows us to operationalize the main finding in Corum et al. (2022) in our empirical setting.

Following the theoretical motivation from Corum et al. (2022), we begin our empirical analysis by first examining the determinants of firm-level passive ownership. We construct a comprehensive dataset that contains the ownership structure for a sample of 86,887 firm-year-quarter observations. Our sample is larger than those in prior studies because it is not constrained

to firms near index inclusion thresholds. Consistent with prior literature, we find that the inclusion of a firm in an index has an economically large and statistically significant positive effect on passive ownership (Mullins, 2014). Our determinants model has an adjusted R^2 of 71.1%. We then obtain the residual from the determinants model, which captures variation in passive ownership that is not due to index effects. Such variation is likely due to plausibly exogenous flows into and out of index funds that are outside of constituent firms' control, but are used to acquire ownership of the firm in a rule-based allocation. Consistent with this, we show that time-series variation in the amount of money tracking indices explains much of the residual from the determinants model.

Having isolated the variation that is plausibly exogenous, we proceed to examine the effects of passive ownership on aggressive non-GAAP reporting. We find that passive ownership has a non-monotonic relation with the magnitude of non-GAAP exclusions. Specifically, when passive ownership is relatively low, an incremental increase in passive ownership decreases the magnitude of non-GAAP exclusions. In contrast, when passive ownership is relatively high, an increase in passive ownership increases the magnitude of non-GAAP exclusions. Because passive ownership primarily crowds out active ownership only when passive ownership is relatively high, we interpret our findings as consistent with the conclusion from Corum et al. (2022) that passive ownership improves governance only when it does not crowd out active ownership. We examine two additional proxies for aggressive non-GAAP reporting: (i) managers' use of non-GAAP to avoid losses and meet analyst expectations and (ii) the persistence of non-GAAP exclusions.[4] Consistent with Corum et al. (2022), as passive ownership increases, managers' use of non-GAAP to avoid losses and meet expectations first decreases and then increases, and the persistence of non-GAAP

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[4] Prior studies find that that non-GAAP exclusions should not be associated with future earnings (e.g., Doyle et al., 2003; Frankel et al., 2011).

exclusions first decreases and then increases. Overall, our results suggest that passive ownership increases (decreases) aggressive non-GAAP reporting when it does (does not) replace active funds.

While prior literature shows that financial reporting is a critical dimension of a firm's corporate governance (e.g., Armstrong et al., 2010), a consideration is whether the results we document for non-GAAP reporting generalize to other dimensions of a firm's corporate governance. To shed light on this, we use our empirical framework to re-examine the effects of passive ownership on board independence and board co-option (Coles et al., 2014). Consistent with our findings for non-GAAP, an incremental increase in passive ownership has a positive relation with board independence and a negative relation with board co-option in the subsample where passive ownership does not crowd out active ownership. However, these relations significantly attenuate in the subsample where there is crowding out of active owners.

Our paper makes two main contributions. First, we contribute to the literature on the consequences of the growth in passive ownership by providing empirical evidence in support of a plausible explanation for the mixed findings in the literature.[5] Specifically, we show that whether passive ownership has a positive or negative effect on governance depends on whether or not it crowds out active ownership. Relatedly, we also document an important stylized fact that passive ownership has a non-monotonic relation with active ownership: as passive ownership increases, active ownership first increases, reaches a peak, and then decreases. In other words, passive ownership begins to crowd out active ownership only when a firm's passive ownership reaches a certain threshold, which we determine is approximately 19.0% in our sample. To establish the non-monotonic relation between passive ownership on aggressive non-GAAP reporting in our sample,

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[5] For example, Appel et al. (2016) find a positive relation between passive ownership and governance and *no difference in active funds* around the Russell index assignment cutoff, whereas Heath et al. (2022) find a negative relation between passive ownership and governance and *a decrease in active funds* around the Russell index assignment cutoff.

we introduce a new empirical approach to examine the effects of passive ownership that relies on isolating variation in passive ownership due to capital flows into and out of index funds. This approach could be used in other contexts to examine the effects of passive ownership for firms that are not near the Russell reconstitution thresholds.

Second, we contribute to the understanding of the forces that shape non-GAAP reporting. The existing literature related to non-GAAP reporting mainly focuses on the role of boards, analysts, and managerial characteristics. Frankel et al. (2011) find that lower board independence leads to more opportunistic non-GAAP disclosures by managers. Christensen et al. (2021) examine how exogenous changes in analyst coverage affect non-GAAP reporting and find that a decrease in analyst coverage increases aggressive non-GAAP reporting. Abdel-Meguid et al. (2021) show that CEO personality traits, specifically CEO narcissism, impact non-GAAP reporting. Our findings suggest that a firm's ownership structure—broadly defined—can affect the quality of non-GAAP reporting, and when passive investors replace active investors, external monitoring of the firm decreases resulting in more aggressive non-GAAP reporting.

2. Background and Hypothesis Development

The rise of passive ownership in U.S. capital markets has been well-documented by researchers and financial media outlets alike. For example, Sushko and Turner (2018) and Fichtner and Heemskerk (2020) document a dramatic increase in passively managed fund ownership starting around 2008 and persisting through to today. Relative active fund ownership has decreased over the same period, with fund flows moving away from active ownership and towards passive ownership. There are several reasons attributed to the sharp increase in passive ownership. Passive funds often have lower fees, higher liquidity, more accessibility, and higher transparency compared to active funds (e.g., French, 2008; Ben-David et al., 2017). However, the most

compelling reason for the shift away from active fund management is the recent inability of active managers to outperform indexes during recessions. While prior literature shows that actively managed mutual funds do not persistently beat benchmarks on average (Jensen, 1968; Carhart, 1997; Wermers, 2000), Moskowitz (2000) suggests that the growth of active fund management during the 1980s and 1990s was due to the ability of active managers to outperform the market during recessionary periods. However, during the 2008 financial crisis, active funds substantially underperformed relevant benchmarks (Petajisto, 2018), resulting in many investors diverting capital away from actively managed funds. Practitioners and the financial press raised similar concerns about the value of owning actively managed investments, with Alex Bryan (Director of Product Management at Morningstar) saying that many active managers, who were perceived to be able to protect investors during market downturns, "didn't deliver on that promise."[6]

The asset management industry has since experienced a shift of fund flows towards passive management. The consequences of an increasing level of passive ownership remain an open question. Jack Bogle, the founder of Vanguard, issued a "last warning" to the asset management industry in his memoir raising concerns about the control of voting shares and corporate governance.[7] Bebchuk et al. (2017) argue that the rise of passive investing has created an increasingly concentrated ownership by a small number of fund managers, leading to major concerns about agency conflicts. They argue that such a shift of ownership can have consequences for the monitoring of firms, as it is not clear how much passive owners will engage in governance activities. In contrast, Appel et al. (2016) find evidence that passive owners use their concentrated voting power to elicit changes that improve firms' governance. In subsequent work, Appel et al.

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[6] Source, "The trillion-dollar ETF boom triggered by the financial crisis just keeps getting bigger" CNBC.com: https://www.cnbc.com/2018/09/14/the-trillion-dollar-etf-boom-triggered-by-the-financial-crisis.html

[7] Source, "Jack Bogle's last warning to the investment industry: 'Don't forget the little guy you serve'" CNBC.com: https://www.cnbc.com/2019/01/17/jack-bogles-last-warning-to-the-investment-industry-dont-forget-the-little-guy-you-serve---.html

(2019) document that increased passive ownership allows active owners to monitor the firm more effectively by increasing active owners' board representation, possibly assuaging initial concerns raised by Bebchuk et al. (2017). These findings are consistent with the notion from Lewellen and Lewellen (2022) that passive fund managers have financial incentives to engage in governance that increases portfolio constituents' firm value. However, the empirical literature remains mixed. Schmidt and Fahlenbrach (2017) find firm managers make poor acquisitions and appoint fewer independent directors after an increase in passive investment. Heath et al. (2022) find evidence that increased passive ownership results in lower monitoring and governance via lower board independence and lower pay-for-performance sensitivity, allowing managers to "inherit the firm" (i.e., extract rents at their own discretion).

We use the setting of non-GAAP reporting to examine the consequences of passive ownership because of its well-documented connection with governance and managerial incentives. Kolev et al. (2008) find that the SEC's increased scrutiny of non-GAAP disclosures after Sarbanes-Oxley resulted in higher-quality non-GAAP earnings exclusions, consistent with managers using non-GAAP disclosures opportunistically when external monitoring is low. Frankel et al. (2011) find that non-GAAP exclusions are more opportunistic when the firm has fewer independent directors. Similarly, lower monitoring by analysts results in more aggressive non-GAAP exclusions (Christensen et al., 2021). Firm managers also opportunistically define non-GAAP earnings to meet or beat analyst expectations, especially when earnings management is constrained (Doyle et al., 2013). Managers benefit from non-GAAP reporting in the form of greater short-term bonuses and higher total compensation (Black et al., 2021; Guest et al., 2022).

In line with the concerns raised by the academic literature, aggressive non-GAAP reporting has been a significant focus of regulators, with ongoing attention from the SEC about the use of aggressive non-GAAP disclosures to mollify disappointing performance (Kolev et al., 2008;

Guggenmos et al., 2022). Our focus on aggressive non-GAAP reporting as a proxy for governance quality is also motivated by the observation that the debate on passive ownership often centers around whether passive investors can effectively oversee "difficult-to-monitor" activities as opposed to broad-based changes that require little firm-specific information. Non-GAAP reporting is precisely the type of activity that requires firm-specific information to monitor and curtail.

Our empirical tests are motivated by recent theoretical developments examining the effects of passive ownership on governance. Specifically, Corum et al. (2022) develop a theoretical framework to analyze the governance role of passive funds. In their model, investors choose how to allocate their capital among three choices: (i) privately invest, (ii) invest with an active fund, or (iii) invest with a passive fund. Funds charge an (endogenous) asset management fee, which is a fraction of the realized value of the funds' assets under management (AUM). Passive funds invest all their AUM in the value-weighted market portfolio, while active funds invest strategically, purchasing stocks that are undervalued (i.e., have low liquidity demand). After investments are made, fund managers select a monitoring effort to increase the realized value of their portfolio firms. The collective monitoring effort exerted by all investors shapes governance quality.

The main result in Corum et al. (2022) is that easier access to passive funds can either increase or decrease overall governance of a firm depending on how such access affects the firm's ownership structure (Proposition 3). As passive funds become more accessible, investors allocate more of their capital to them. If this increase in the passive funds' stake comes at the expense of the stake held by liquidity investors, overall governance improves because liquidity investors do not monitor. That is, liquidity investors can be thought of as retail shareholders who have neither the ability nor the incentives to monitor. On the other hand, if the increase in the passive fund's stake comes at the expense of the stake held by the active funds, overall governance decreases; but the argument for this is more subtle, as discussed next.

Compared to passive funds, active funds have both a stronger incentive to monitor and a higher (or at least equivalent) ability to monitor. In Corum et al. (2022), the reason for the stronger incentive to monitor by active funds is that they charge higher fees than passive funds in equilibrium. Active funds can charge higher fees because they are able to identify undervalued firms, while passive funds simply invest in the value-weighted market portfolio.[8] A higher fee means that the fund manager will keep a higher fraction of the firm's realized value rather than distributing it out to fund investors, leading to greater incentives to exert monitoring effort, as can be seen from the first-order condition that determines funds' optimal choice of monitoring effort. On the ability of active funds to monitor, Corum et al. (2022) assume that active funds have a higher or equivalent ability compared to passive funds. Their argument for this assumption is that governance interventions are especially costly for passive funds due to their lack of firm-specific information. Consistent with this, several studies find that active mutual funds are more likely to vote against management than passive funds (e.g., Heath et al., 2022). Overall, the theoretical analysis in Corum et al. (2022) implies that an increase in passive ownership improves (decreases) governance quality when the increase crowds out (does not crowd out) active ownership.

The ideal approach to testing this hypothesis would be to identify subsamples in which passive ownership does or does not crowd out active ownership. However, it is difficult to directly observe the crowding out effect, so we take an alternative approach. Specifically, we argue that it is *more likely* that passive funds replace active funds when passive ownership is sufficiently high. The reason is that when passive funds own a relatively small stake in the firm compared to active funds, an increase in passive ownership may be less of a concern to active funds because they still have dominant influence over management. However, when the stake of passive funds is high enough,

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[8] The Investment Company Institute (ICI) estimates that the average active equity fund expense ratio was approximately 0.68% versus the average indexed equity mutual fund expense ratio of 0.06% in 2021. Source: ICI Trends in the Expenses and Fees of Funds, 2021; https://www.ici.org/system/files/2022-03/per28-02_2.pdf, Figure 12.

active funds are less capable of influencing the actions of corporate managers, resulting in decisions at the firm that may not be desirable from the perspective of active funds, leading them to exit (McCahery et al., 2016; Bebchuk et al., 2017). For example, active funds may be concerned that managers are not taking enough (appropriate) actions to increase the performance of the company. In support of this argument, we will provide descriptive evidence showing that active ownership indeed varies with passive ownership non-monotonically, first increasing before decreasing. We propose the following testable hypothesis: An increase in passive ownership will have a negative (positive) effect on governance quality—as reflected by non-GAAP reporting—when the passive ownership stake is sufficiently large (small).

3. Data

3.1. Sample Selection

We obtain data on passive and active mutual funds from the CRSP Mutual Fund Database. We follow prior studies (e.g., Appel et al., 2016) and define a fund as a passive fund if its name includes a string that identifies it as an index fund or if the CRSP Mutual Fund Database classifies it as an index fund. We classify all other funds in the CRSP Mutual Fund Database as active funds. We then link the CRSP Mutual Fund Database with S12 mutual fund holdings data compiled by Thomson Reuters. This allows us to construct ownership-type percentages at the firm level. Next, we link this data with data on firm characteristics and non-GAAP EPS obtained from CRSP, Compustat, and I/B/E/S. Our sample consists of all firms at the intersection of the CRSP, Compustat, I/B/E/S, CRSP Mutual Fund Data, and Thomson Reuters S12 databases with fiscal years ending in 2002 and 2020. We impose one additional filter to ensure comparability of the I/B/E/S and Compustat data. Specifically, I/B/E/S also provides information about GAAP EPS, and we require that this value is equal to GAAP EPS as reported in the Compustat data. Therefore,

our results are robust to using either Compustat or I/B/E/S to measure GAAP EPS. Our final sample consists of 86,887 firm-year-quarter observations.

For our tests on the likelihood that managers voluntarily provide a non-GAAP disclosure in their firm's earnings announcement, we require additional data. Specifically, we link our final sample with data from Bentley et al. (2018). Bentley et al. (2018) construct a large-sample dataset of manager-disclosed non-GAAP earnings metrics in quarterly earnings announcements. After the linking, the sample consists of 60,624 firm-year-quarter observations.

3.2. Summary Statistics

Table 1 provides summary statistics for the variables used in our analysis. *Passive Ownership* is the percentage of shares outstanding held by passive mutual funds. *Active Ownership* is the percentage of shares outstanding held by active mutual funds. The passive ownership for the average firm in our sample is 6.7%, while the active ownership for the average firm in our sample is 19.3%. Note that the relatively low passive ownership for the average firm is partly because passive ownership was low prior to 2008.

We use the following variables as determinants of passive ownership in our analysis. *SP 500* is an indicator variable equal to one if the firm belongs to the S&P 500 index. *SP 400* is an indicator variable equal to one if the firm belongs to the S&P 400 index. *SP 600* is an indicator variable equal to one if the firm belongs to the S&P 600 index. *Russell 1000* is an indicator variable equal to one if the firm belongs to the Russell 1000 index. *Russell 2000* is an indicator variable equal to one if the firm belongs to the Russell 2000 index. *Market Cap* is the natural logarithm of total market value of equity.

We use the following outcome variables in testing our hypotheses. *Non-GAAP Exclusions – Total* is the non-GAAP earnings per share measure reported by I/B/E/S minus GAAP earnings per

share. The magnitude of non-GAAP exclusions is quite large, with the average being 19% (0.06/0.31) of the average non-GAAP EPS. *Non-GAAP Exclusions – Recurring* is the non-GAAP earnings per share measure reported by I/B/E/S minus operating income per share (e.g., Bhattacharya et al., 2022). *Future GAAP Earnings* is GAAP earnings per share summed over quarters $q+1$ through $q+4$. *Future Operating Income* is operating income per share summed over quarters $q+1$ through $q+4$. *Non-GAAP EPS* is the non-GAAP earnings per share measure reported by I/B/E/S. *Non-GAAP Disclosure (BCGW)* is an indicator variable if the quarterly earnings announcement contains a non-GAAP EPS disclosure (Bentley et al., 2018). *Non-GAAP Exclusions – Total (BCGW)* is the non-GAAP earnings per share measure reported in the quarterly earnings announcement minus GAAP earnings per share (Bentley et al., 2018). *Non-GAAP to Avoid Loss* is an indicator variable equal to one if the firm's operating income per share is negative, but its non-GAAP earnings per share is positive. *Non-GAAP to Meet Exp* is an indicator variable equal to one if the firm's GAAP earnings per share is less than the consensus analyst forecast, but its non-GAAP earnings per share is greater than the consensus analyst forecast. *Prop Ind* is the proportion of independent directors on the board. *Non Co-opted Directors* is the proportion of independent directors that are appointed to the board before the CEO begins her tenure.

Our control variables include the following. *Firm Size* is the natural logarithm of total assets. *Sales Growth* is the quarterly change in revenue over the same quarter in the prior year scaled by total assets. *BTM* is the book value of equity divided by the market value of equity at the end of the fiscal quarter. *ROA* is income before extraordinary items scaled by total assets. *Volatility* is the standard deviation of *ROA* over the preceding eight quarters. *Loss* is an indicator variable equal to one if quarterly operating income per share is less than zero.

3.3. When do Passive Funds Crowd Out Active Funds?

A necessary condition to test the implications of the theoretical framework presented in Corum et al. (2022) is the existence of situations where an increase in passive ownership crowds out active ownership and where it does not. In this subsection, we first provide *descriptive* evidence that both situations exist. Further, we show that this crowding-out effect is concentrated primarily among firms with high existing passive ownership. Motivated by the discussion in Section 2, we estimate the following regression specification that allows the possibility for a non-linear relationship between passive ownership and active ownership:

$$Active\ Ownership = \beta_0 + \beta_1 Passive\ Ownership + \beta_2 Passive\ Ownership^2 + \epsilon. \qquad (1)$$

We cluster standard errors at the firm level and include industry and year fixed effects. In an alternative specification, we include the following control variables that may influence the level of passive ownership: *SP 500, SP 400, SP 600, Russell 1000, Russell 2000, Market Cap*, and *Market Cap²*.

Table 2 reports the results from estimating Equation (1). In Column (1), we find a positive and significant coefficient on *Passive Ownership* and a negative and significant coefficient on *Passive Ownership²*. This indicates that passive ownership has a non-monotonic association with active ownership, suggesting that there are both situations where passive ownership does and does not crowd out active ownership. In particular, when *Passive Ownership* is low, the overall association between passive ownership and active ownership is positive, whereas when *Passive Ownership* is high, the overall association between passive ownership and active ownership is negative. The exact threshold in which the association between passive ownership and active ownership changes direction is estimated to be approximately 19.0% (= 2.236/(2*0.0587)). We obtain similar results when including control variables in Column (2).

While descriptive, the threshold of 19.0% that we document could have important policy implications. For example, in our sample, the prevailing average passive ownership for firms at the start of 2020 is approximately 9%. This is currently less than our estimated threshold, suggesting that an increase in passive ownership for the average firm is likely not to crowd out active ownership. However, in firms with higher levels of passive ownership, as passive ownership continues to climb, ownership structure can become a significant concern.

4. Research Design

We begin this section with a discussion of our identification strategy. To examine the effects of passive ownership on corporate governance, prior studies typically exploit variation in passive ownership associated with stock assignments to the Russell 1000 and 2000 indexes (e.g., Appel et al., 2016; Heath et al., 2022). The main reason for the use of this methodology is that correlations between passive ownership and governance choices might not reflect a causal relation. For example, Appel et al. (2016) argue that passive ownership might be correlated with factors such as firms' investment opportunities or ownership by active funds. Heath et al. (2022) argue that holdings by passive and active funds are endogenous for two reasons: (i) firm characteristics may jointly affect ownership and governance and (ii) different firm policies may attract different types of investors, leading to the possibility of reverse causality.

While the Russell index reconstitution allows for identification within a narrow range of passive ownership levels, it is not suitable for our analysis, as we require subsamples where the level of passive ownership is sufficiently high and sufficiently low to test our main hypothesis. Therefore, we develop and adopt an alternative research design that accommodates all firms, not necessarily just the firms that are near Russell inclusion thresholds.

To motivate our identification strategy, we note that passive ownership in a firm can increase from one year to the next for three non-mutually exclusive reasons. First, the firm could be newly included or removed from a major index. This is the idea behind the Russell index reconstitution. Second, the firm could increase its relative ranking within an index by increasing its market capitalization. Because many indexes are value-weighted, a larger firm will receive a larger portfolio weight within an index. Third, there could be an inflow of capital to funds that track the index that a firm is a part of (which may be captured by an increase in the number of funds tracking the index). This last reason, capital inflows to passive funds, is likely to be exogenous from an individual firm's perspective because the firm's characteristics or policies are unlikely to affect the inflow of capital to an index fund. It is also unlikely to suffer from concerns of reverse causality as index fund flows are not affected by constituent firm disclosure policies. Therefore, our research design aims to isolate this variation in passive ownership, which we call flow-induced passive ownership (FIPO). Specifically, we isolate FIPO by taking the residual of the following regression:

$$Passive\ Ownership = \beta_0 + \beta_1 SP500 + \beta_2 SP400 + \beta_3 SP600 + \beta_4 Russell1000 + \beta_5 Russell2000 + \beta_6 Market\ Cap + \beta_7 Market\ Cap^2 + \epsilon. \tag{2}$$

The variables *SP500*, *SP400*, *SP600*, *Russell1000*, and *Russell2000* capture changes in passive ownership when the firm joins or leaves a major index (endogenous), while the variables *Market Cap* and *Market Cap^2* capture changes in the firm's relative ranking within an index (endogenous).

Table 3 Panel A reports results from estimating Equation (2). We find that all index variables have significant coefficients. Interestingly, *Market Cap* does not explain significant variation in firm-level passive ownership. This is consistent with Rawson and Rowe (2022) who argue: "while index funds may have more concentrated holdings in larger firms in the index… this does not lead

to concentrated ownership of individual firms' stock by index funds." Most importantly, the regression has a high adjusted R^2 of 71.1%.

Table 3 Panel B conducts a validity test to better understand the residual and predicted value from the regression in Table 3 Panel A. Specifically, we construct three time-varying proxies for the amount of money tracking indices and examine the associations between these proxies and the residual and predicted components of passive ownership. We expect that the residual component of passive ownership will be more associated with these proxies, while the predicted component of passive ownership—which captures "index effects"—will be less associated with these proxies. *Big Three Funds Tracking Indices* is the natural logarithm of the total net assets of the Big Three funds (i.e., Vanguard, State Street, and BlackRock) tracking indices. *Funds Tracking S&P Indices* is the natural logarithm of the total net assets of funds tracking an S&P index. *Funds Tracking Russell Indices* is the natural logarithm of the total net assets of funds tracking a Russell index. Consistent with our expectations, time-series variation in the amount of money tracking indices explain much of the variation in the residual component of passive ownership but little of the variation in the predicted component of passive ownership. For example, *Big Three Funds Tracking Indices* explains about 33% of the variation in *Passive Ownership Residual* but only 7% of the variation in *Passive Ownership Predicted*.

For our main specification, we estimate the relation between FIPO and aggressive non-GAAP reporting in both the "high passive ownership" (*H*) and the "low passive ownership" (*L*) subsamples. To be consistent with our hypothesis, the relation between the two is expected to be positive in the *H* subsample and negative in the *L* subsample. To measure aggressive non-GAAP reporting, we use several proxies following prior studies. Specifically, while non-GAAP reporting may be informative rather than opportunistic, the literature recognizes several signals for aggressiveness. First, large non-GAAP exclusions suggest managers are excluding certain

recurring items (e.g., Abdel-Meguid et al., 2021; Bhattacharya et al., 2022), which leads us to use the magnitude of non-GAAP exclusions as a proxy for aggressiveness. We also examine the magnitude of recurring exclusions as recurring exclusions are generally considered to be more aggressive (e.g., Bhattacharya et al., 2022). Second, we examine managers' use of non-GAAP to avoid losses or meet analyst expectations as an indication of aggressive non-GAAP reporting (e.g., Christensen et al., 2021). Third, Bentley et al. (2018) show that the non-GAAP numbers that managers disclose in earnings announcements are generally of lower quality than the non-GAAP metrics available through I/B/E/S, which leads us to proxy for aggressiveness using an indicator for whether or not the quarterly earnings announcement contains a non-GAAP EPS disclosure. Fourth, non-GAAP exclusions should be minimally associated with future earnings (e.g., Doyle et al., 2003; Frankel et al., 2011), which leads us to use the persistence of non-GAAP exclusions as a measure of aggressiveness. Following prior studies, we measure the persistence of non-GAAP exclusions by examining their association with future earnings, with a stronger association an indicator of more aggressive non-GAAP (e.g., Frankel et al., 2011).

5. Results

Our main hypothesis is that passive ownership improves (harms) governance when it does not (does) crowd out active ownership. Because it is difficult to observe crowding out directly, we take an indirect approach that relies on the argument that passive ownership is more likely to crowd out active ownership at higher levels of passive ownership (see the discussion in both Section 2 and Section 3.3).

5.1. Passive Ownership and Non-GAAP Exclusions

In this subsection, we examine the effect of FIPO on the magnitude of non-GAAP exclusions. We estimate the following regression in both the subsample of firms where passive ownership is below the median and the subsample of firms where passive ownership is above the median:

$$Non\text{-}GAAP\ Exclusions = \beta_0 + \beta_1 FIPO + \boldsymbol{\gamma} Controls + FE + \epsilon. \tag{3}$$

The coefficients of interest are β_1^L (β_1 in the subsample where passive ownership is "low") and β_1^H (β_1 in the subsample where passive ownership is "high"). In line with our hypothesis, β_1^L is expected to be negative, and β_1^H positive. As control variables, we follow Abdel-Meguid et al. (2021) and include firm size, book-to-market ratio, sales growth, return on assets, earnings volatility, and an indicator for whether the firm is profitable. In all specifications, we include industry and year fixed effects. We cluster all standard errors at the firm level.

Table 4 reports results from estimating Equation (3). The dependent variable is the magnitude of total non-GAAP exclusions. Note that FIPO is expressed in fractional terms rather than percentage terms. In Column (1), we examine the effects of passive ownership in the subsample of firms where passive ownership is below the median and find a negative and significant coefficient on FIPO. In Column (2), we examine the effects of passive ownership in the subsample of firms where passive ownership is above the median and find a positive and significant coefficient on FIPO. To the extent that the magnitude of non-GAAP exclusions captures aggressive non-GAAP reporting by the manager, our finding is consistent with the hypothesis that passive ownership has a negative (positive) effect on governance quality when the passive ownership stake is large (small).

In Columns (3-4), we further investigate the effects of FIPO on recurring non-GAAP exclusions. The dependent variable is *Non-GAAP Exclusions – Recurring*, which is defined as

non-GAAP earnings per share measure reported by I/B/E/S minus operating income per share. In Column (3), we find that FIPO has a negative effect on recurring non-GAAP disclosures, which is directionally consistent, but insignificant in our estimation. However, in Column (4), we find a positive and significant coefficient on FIPO, consistent with an incremental increase in passive ownership reducing monitoring. We report Z-Statistics following Clogg et al. (1995) comparing the coefficients on FIPO between Columns (1) and (2) and the coefficients on FIPO between Columns (3) and (4). For both total and recurring non-GAAP exclusions, we find that the Z-Statistics are negative and significant, consistent with our hypothesis.

5.2. Passive Ownership and Managers' Strategic Use of Non-GAAP Reporting

Next, we investigate the effect that FIPO has on managers' strategic use of non-GAAP reporting to avoid losses and meet analyst expectations. The use of non-GAAP reporting to hit earnings targets is an increasingly important concern by the SEC because of the possibility that investors are misled by these metrics. We expect that in poorly governed firms, managers are able to strategically disclose non-GAAP metrics by reporting positive non-GAAP EPS when GAAP EPS is negative or by reporting non-GAAP EPS that meets analyst expectations when GAAP EPS falls below analyst expectations.

Similar to our previous test, we estimate the following regression in both the subsample of firms where passive ownership is below the median and the subsample of firms where passive ownership is above the median:

$$Strategic\ Non\text{-}GAAP = \beta_0 + \beta_1 FIPO + \boldsymbol{\gamma} Controls + FE + \epsilon. \tag{4}$$

We use two proxies for *Strategic Non-GAAP*: (i) *Non-GAAP to Avoid Loss* and (ii) *Non-GAAP to Meet Exp*. *Non-GAAP to Avoid Loss* is an indicator variable equal to one if the firm's operating income per share is negative, but its non-GAAP earnings per share is positive. *Non-GAAP to Meet Exp* is an indicator variable equal to one if the firm's GAAP earnings per share is less than the consensus analyst forecast, but its non-GAAP earnings per share is greater than the consensus analyst forecast. The coefficients of interest are β_1^L (β_1 in the subsample where passive ownership is "low") and β_1^H (β_1 in the subsample where passive ownership is "high"). To be consistent with our hypothesis, β_1^L is expected to be negative, and β_1^H positive. The control variables and fixed effects are the same as Equation (3). Note that for the tests of whether managers use non-GAAP to avoid losses, we restrict our sample to the firms whose operating income per share is negative, while for the tests of whether managers use non-GAAP to meet analyst expectations, we restrict our sample to the firms whose GAAP earnings per share is less than the consensus analyst forecast.

Table 5 reports results from estimating Equation (4). In Columns (1-2), we estimate the effect of passive ownership on managers' use of non-GAAP reporting to avoid losses. Again, FIPO is expressed in fractional terms rather than percentage terms. In Column (1), we examine the effects of passive ownership in the subsample of firms where passive ownership is below the median and find a negative but statistically insignificant coefficient on FIPO. In Column (2), we examine the effects of passive ownership in the subsample of firms where passive ownership is above the median and find a positive and significant coefficient on FIPO. The interpretation of this coefficient is that a one percentage point increase in passive ownership is associated with an increase in the likelihood of managers' use of non-GAAP to avoid GAAP losses by 0.3 percentage points. Our findings are consistent with the hypothesis that passive ownership has a negative (positive) effect on governance quality when the passive ownership stake is large (small).

In Columns (3-4), we estimate the effect of passive ownership on managers' use of non-GAAP reporting to hit earnings expectations. In Column (3), when passive ownership is relatively low, we find a negative and significant effect. In Column (4), when passive ownership is relatively high, we instead find a positive and significant effect. We again report Z-Statistics to compare coefficient differences for firms below and above the median passive ownership in Columns (1-2) and Columns (3-4). For both dependent variables, we find that the Z-Statistics are negative and significant, consistent with our hypothesis and Corum et al. (2022).

5.3. Passive Ownership and the Persistence of Non-GAAP Exclusions

We next examine whether passive ownership effects the persistence of non-GAAP exclusions. Reported non-GAAP earnings that exclude certain expenses are more likely to be informative to investors if these exclusions lead to better predictive ability of future performance. We estimate the following regression in both the subsample of firms where passive ownership is below the median and the subsample of firms where passive ownership is above the median:

$$Future\ Performance = \beta_0 + \beta_1 Non\text{-}GAAP\ Earnings + \beta_2 Non\text{-}GAAP\ Exclusions + \beta_3 FIPO + \beta_4 Non\text{-}GAAP\ Earnings \times FIPO + \beta_5 Non\text{-}GAAP\ Exclusions \times FIPO + \gamma Controls + FE + \epsilon. \tag{5}$$

We have two proxies for *Future Performance*: (i) *Future GAAP Earnings* and (ii) *Future Operating Income*. *Future GAAP Earnings* is GAAP earnings per share summed over quarters $q+1$ through $q+4$. *Future Operating Income* is operating income per share summed over quarters $q+1$ through $q+4$. The coefficients of interest are β_5^L (β_5 in the subsample where passive ownership is "low") and β_5^H (β_5 in the subsample where passive ownership is "high"). Note that a positive coefficient on the interaction term $NonGAAP\ Exclusions \times FIPO$ would indicate that an increase

in *FIPO* leads to *less persistent* non-GAAP exclusions because the main relation between non-GAAP exclusions and future earnings (β_2) is expected to be negative (e.g., Frankel et al., 2011). A positive coefficient on the interaction term (β_5) counteracts the expected negative coefficient on the main term (β_2) to reduce the overall association between non-GAAP exclusions and future earnings. Therefore, to be consistent with our hypothesis, β_5^L is expected to be positive, and β_5^H negative. The control variables and fixed effects are the same as Equation (3).

Table 6 reports results from estimating Equation (5). FIPO is again expressed in fractional terms rather than percentage terms. The coefficient of interest is the interaction between *Non-GAAP Exclusions* and *FIPO*, which captures the persistence of non-GAAP exclusions. A positive coefficient on the interaction term would indicate that firms with higher FIPO have less persistent non-GAAP exclusions, while a negative coefficient would indicate that firms with higher FIPO have more persistent non-GAAP exclusions (Frankel et al., 2011). In Column (1), we examine the effects of passive ownership in the subsample of firms where passive ownership is below the median and find a positive and significant coefficient on the interaction between *Non-GAAP Exclusions* and *FIPO*, indicating that an increase in passive ownership is associated with a decrease in the persistence of non-GAAP exclusions. In Column (2), we examine the effects of passive ownership in the subsample of firms where passive ownership is above the median and find a negative and significant coefficient on the interaction between *Non-GAAP Exclusions* and *FIPO*, indicating that an increase in passive ownership is associated with an increase in the persistence of non-GAAP exclusions. As with our previous analysis, these findings are consistent with our hypothesis that passive ownership has a negative (positive) effect on governance quality when the passive ownership stake is large (small). We find qualitatively similar results in Columns (3-4) when substituting future operating income as the dependent variable. As before, we find significant differences in our coefficient estimates of interest across Columns (1-2) and Columns (3-4).

Altogether, our results in Sections 5.1 to 5.3 suggest that for firms with relatively high passive ownership (defined as above median), an incremental increase in passive ownership (i) increases the magnitude of exclusions in non-GAAP EPS, (ii) increases managers' strategic use of non-GAAP to avoid losses and meet analyst expectations, and (iii) decreases the quality of the exclusions in non-GAAP EPS. On the other hand, among firms with relatively low (defined as below median) passive ownership, an increase in passive ownership (i) decreases the magnitude of exclusions in non-GAAP EPS, (ii) decreases the strategic use of non-GAAP reporting, and (iii) increases the quality of non-GAAP exclusions. This is consistent with our hypothesis that increases in passive ownership constrain (facilitate) managerial control when passive ownership is sufficiently low (high).

6. Additional Analyses

6.1. Flow-Induced Passive Ownership and Traditional Measures of Governance

Our focus in this paper has been on understanding the financial reporting consequences of increased passive ownership and, in light of Corum et al. (2022), exploring whether passive ownership's effect on firm governance is non-monotonic. Using non-GAAP reporting to proxy for governance quality and our novel measure of passive ownership (FIPO), we have thus far provided empirical evidence consistent with the main theoretical implications of Corum et al. (2022): incremental increases in passive ownership improve governance when replacing retail investors, but harm governance when replacing active investors. In this subsection, we examine whether FIPO has consistent associations with traditional measures of governance using board independence and board co-option (Coles et al., 2014).

We follow a similar structure to our main tests, and report our regression estimates in Table 7. In Columns (1-2), we have *Board Independence* as our dependent variable and *FIPO* as our main

variable of interest, and estimate the relation in the subsamples of firms below and above median passive ownership level, respectively. In Column (1), we find a positive and significant coefficient estimate on *FIPO* for firms that have relatively low passive ownership, consistent with the notion that incremental increases in passive ownership have a positive effect on board independence. When moving to the subsample of firms with above median passive ownership in Column (2), we again find a positive and significant effect of passive ownership, but a substantially decreased magnitude. The Z-Statistic comparing the coefficients on *FIPO* in Columns (1-2) is positive and significant, consistent with the positive effects of passive ownership on board independence being concentrated among firms with relatively low passive ownership. In Columns (3-4), *Non-Co-opted Directors* (i.e., the proportion of the board added before the start of the CEO's tenure) is the dependent variable, and we again split the sample based on the level of passive ownership. In Column (3), we find a positive and significant coefficient estimate on *FIPO*, suggesting that an incremental increase in passive ownership reduces board co-option. On the other hand, Column (4) reports a negative and insignificant relation between *FIPO* and board co-option. The Z-Statistic comparing the coefficients on *FIPO* in Columns (3-4) is positive and significant, also consistent with the hypothesis that passive ownership has a negative (positive) effect on governance quality when the passive ownership stake is large (small).

6.2. Passive Ownership and Non-GAAP: Extensive vs. Intensive Margins

Here, we provide a robustness check of our measures of non-GAAP reporting using data from Bentley et al. (2018) (*BCGW*). Specifically, we examine the effects that passive ownership has on the frequency of non-GAAP disclosure (i.e., the extensive margin) and the magnitude of exclusions in non-GAAP disclosures (i.e., the intensive margin). While our main hypothesis does not necessarily have implications at the extensive margin, a firm's ownership structure may

possibly affect the total incidence of non-GAAP reporting. At the intensive margin, we are interested in whether the magnitude of exclusions in non-GAAP disclosures varies with passive ownership, which we initially test in Section 5.1 and perform an assessment of robustness here. We again use a design similar to our main analyses, with the following regression model:

$$Non\text{-}GAAP \ Disclosure \ (Freq/Exclusions) = \beta_0 + \beta_1 FIPO + \gamma Controls + FE + \epsilon. \quad (6)$$

Table 8 reports our regression estimates using data from *BCGW* on non-GAAP disclosure in quarterly earnings announcements. In Columns (1-2), we report estimates for firms where passive ownership is below and above the median, respectively. In both Columns (1-2), we find that the coefficients on *FIPO* are both positive and significant, and we do not find a significant difference for the incidence of non-GAAP disclosure across the two subsamples. In Column (3) for firms with below median passive ownership, we find a negative (but insignificant) effect of *FIPO* on the magnitude of non-GAAP exclusions. This is directionally consistent with our main findings in Table 4. In Column (4) for firms with above median passive ownership, we find a positive and significant coefficient for *FIPO*. The difference between the coefficients on *FIPO* across Column (3) and Column (4) is significant, consistent with our hypothesis. We conclude that passive ownership is not strongly related to non-GAAP disclosure on the extensive margin but is strongly related to non-GAAP disclosure on the intensive margin.

7. Conclusion

The growth of passive ownership has significant consequences for the capital market and its regulation. The external monitoring of managers is a major issue in modern corporations (Jensen and Meckling, 1976), and the current debate about the implications of increasing passive

ownership for corporate governance remains unsettled (Brav et al., 2022). Our paper sheds new light on the effects of increasing passive ownership on corporate governance by (i) focusing on the financial reporting and disclosure dimension of corporate governance, (ii) incorporating recent theoretical developments on the governance implications of passive ownership, and (iii) developing an approach to isolate plausibly exogenous variation in passive ownership beyond index inclusion thresholds.

Motivated by the theoretical insights from Corum et al. (2022), we first provide evidence suggesting that passive funds primarily crowd out retail investors (active funds) at low (high) levels of passive ownership. We then explore whether passive ownership increases or decreases external monitoring by analyzing its effect on aggressive non-GAAP reporting, using changes in flow-induced passive ownership (FIPO) to measure plausibly exogenous variations in passive ownership. Consistent with the theoretical implications from Corum et al. (2022), we find that in subsamples with high passive ownership, increases in passive ownership result in larger non-GAAP exclusions, greater use of non-GAAP to avoid losses and meet analyst expectations by managers, and more persistence in non-GAAP exclusions, suggesting a decline in the monitoring of managers. However, in subsamples with low passive ownership, these results are reversed, suggesting that governance improves.

There are fruitful avenues for future research. For example, it is desirable to identify the "bliss point" of passive ownership in the capital markets that maximizes governance quality. Regulators may find such an optimal level important when considering regulation ensuring fund managers adhere to their fiduciary duties. Also, it would be important to understand which of the governance activities used by passive fund managers provide the most effective monitoring. Further, our measure of flow-induced passive ownership could be a useful tool to examine the effects of passive ownership in other contexts.

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Table 1: Summary Statistics. This table shows the summary statistics for the 86,887 firm-year-quarter observations in our sample. *Passive Ownership* is the fraction of shares outstanding held by passive mutual funds. *Active Ownership* is the fraction of shares outstanding held by active mutual funds. *SP 500* is an indicator variable equal to one if the firm belongs to the S&P 500 index. *SP 400* is an indicator variable equal to one if the firm belongs to the S&P 400 index. *SP 600* is an indicator variable equal to one if the firm belongs to the S&P 600 index. *Russell 1000* is an indicator variable equal to one if the firm belongs to the Russell 1000 index. *Russell 2000* is an indicator variable equal to one if the firm belongs to the Russell 2000 index. *Market Cap* is the natural logarithm of total market value of equity at the end of the fiscal quarter. *Firm Size* is the natural logarithm of total assets. *Sales Growth* is the quarterly change in revenue over the same quarter in the prior year scaled by total assets. *BTM* is the book value of equity divided by the market value of equity at the end of the fiscal quarter. *ROA* is income before extraordinary items scaled by total assets. *Volatility* is the standard deviation of *ROA* over the preceding eight quarters. *Loss* is an indicator variable equal to one if quarterly operating income per share is less than zero. *Non-GAAP Exclusions – Total* is the non-GAAP earnings per share measure reported by I/B/E/S minus GAAP earnings per share. *Non-GAAP Exclusions – Recurring* is the non-GAAP earnings per share measure reported by I/B/E/S minus operating income per share. *Future GAAP Earnings* is GAAP earnings per share summed over quarters $q+1$ through $q+4$. *Future Operating Income* is operating income per share summed over quarters $q+1$ through $q+4$. *Non-GAAP EPS* is the non-GAAP earnings per share measure reported by I/B/E/S. *Non-GAAP Disclosure (BCGW)* is an indicator variable if the quarterly earnings announcement contains a non-GAAP EPS disclosure. *Non-GAAP Exclusions – Total (BCGW)* is the non-GAAP earnings per share measure reported in the quarterly earnings announcement minus GAAP earnings per share. *Non-GAAP to Avoid Loss* is an indicator variable equal to one if the firm's operating income per share is negative, but its non-GAAP earnings per share is positive. *Non-GAAP to Meet Exp* is an indicator variable equal to one if the firm's GAAP earnings per share is less than the consensus analyst forecast, but its non-GAAP earnings per share is greater than the consensus analyst forecast. *Board Independence* is the proportion of independent directors on the board. *Non Co-opted Directors* is the proportion of independent directors appointed to the board before the CEO begins her tenure.

	N	Mean	SD	Median	P25	P75
Passive Ownership	86,887	0.07	0.06	0.02	0.05	0.10
Active Ownership	86,887	0.19	0.13	0.09	0.19	0.28
SP 500	86,887	0.13	0.34	0.00	0.00	0.00
SP 400	86,887	0.10	0.30	0.00	0.00	0.00
SP 600	86,887	0.16	0.37	0.00	0.00	0.00
Russell 1000	86,887	0.24	0.43	0.00	0.00	0.00
Russell 2000	86,887	0.50	0.50	0.00	0.00	1.00
Market Cap	86,887	6.65	1.88	5.30	6.53	7.88
Firm Size	86,887	6.81	1.93	5.40	6.74	8.10
Sales Growth	86,887	0.01	0.05	-0.00	0.01	0.03
BTM	86,887	0.57	0.48	0.26	0.47	0.76
ROA	86,887	-0.00	0.05	-0.00	0.01	0.02
Volatility	86,887	0.02	0.03	0.00	0.01	0.02
Loss	86,887	0.25	0.43	0.00	0.00	0.00
Non-GAAP Exclusions – Total	86,887	0.06	0.27	0.00	0.00	0.04
Non-GAAP Exclusions – Recurring	86,887	0.02	0.17	0.00	0.00	0.02
Future GAAP Earnings	86,887	1.06	2.40	-0.11	0.83	2.02
Future Operating Income	86,887	1.21	2.19	0.01	0.89	2.07
Non-GAAP EPS	86,887	0.31	0.56	0.02	0.23	0.53
Non-GAAP Disclosure (BCGW)	60,624	0.36	0.48	0.00	0.00	1.00
Non-GAAP Exclusions – Total (BCGW)	21,908	0.19	0.50	0.02	0.08	0.23
Non-GAAP to Avoid Loss	21,460	0.14	0.35	0.00	0.00	0.00
Non-GAAP to Meet Exp	36,864	0.39	0.49	0.00	0.00	1.00
Board Independence	34,338	0.78	0.12	0.71	0.80	0.88
Non Co-opted Directors	33,169	0.46	0.35	0.14	0.43	0.78

Table 2: When Does Passive Ownership Crowd Out Active Ownership? This table reports results of OLS regressions of active ownership on passive ownership. All variables are defined in Section 4.2. All regressions include industry and year fixed effects. t-statistics based on standard errors clustered at the firm level are shown in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

	Active Ownership (%)	
	(1)	**(2)**
Passive Ownership (%)	2.236***	0.932***
	(32.50)	(13.80)
Passive Ownership^2 (%)	-0.0587***	-0.0263***
	(-24.70)	(-12.14)
SP 500		-3.909***
		(-4.86)
SP 400		2.229***
		(3.63)
SP 600		3.465***
		(7.95)
Russell 1000		1.537**
		(2.00)
Russell 2000		0.228
		(0.55)
Market Cap		8.490***
		(15.53)
Market Cap^2		-0.411***
		(-9.92)
Fixed Effects	Industry, Year	Industry, Year
Observations	86,887	86,887
Adjusted R^2	0.338	0.466

Table 3: Constructing Flow-Induced Passive Ownership (FIPO). Panel A reports results of OLS regressions of passive ownership on its determinants. All variables are defined in Section 4.2. *Passive Ownership Residual* is the residual from this regression, while *Passive Ownership Predicted* is the predicted value from this regression. Panel B reports results of OLS regressions of *Passive Ownership Residual* and *Passive Ownership Predicted* on the total net assets values of various funds tracking indices. *Big Three Funds Tracking Indices* is the natural logarithm of the total net assets of the Big Three funds (Vanguard, State Street, and BlackRock) tracking indices. *Funds Tracking S&P Indices* is the natural logarithm of the total net assets of funds tracking an S&P index. *Funds Tracking Russell Indices* is the natural logarithm of the total net assets of funds tracking a Russell index. t-statistics based on standard errors clustered at the firm level are shown in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Panel A: Determinants of Passive Ownership.

	Passive Ownership (%)
	(1)
SP 500	4.153***
	(17.29)
SP 400	5.119***
	(27.26)
SP 600	5.534***
	(44.57)
Russell 1000	1.691***
	(7.01)
Russell 2000	2.763***
	(19.14)
Market Cap	0.269
	(1.62)
Market Cap^2	-0.000582
	(-0.05)
Fixed Effects	Industry, Year
Observations	86,887
Adjusted R^2	0.711

Panel B: FIPO Construct Validity.

	Passive Ownership Residual (%)			Passive Ownership Predicted (%)		
	(1)	(2)	(3)	(4)	(5)	(6)
Big Three Funds Tracking Indices	3.045***			1.089***		
	(59.71)			(23.53)		
Funds Tracking S&P Indices		2.474***			0.947***	
		(58.91)			(24.63)	
Funds Tracking Russell Indices			1.008***			0.378***
			(47.30)			(22.32)
Observations	86,887	86,887	86,887	86,887	86,887	86,887
Adjusted R^2	0.326	0.307	0.147	0.065	0.070	0.032

Table 4: The Effect of Passive Ownership on Non-GAAP Exclusions. This table reports results of OLS regressions of non-GAAP exclusions on passive ownership. *Non-GAAP Exclusions – Total* is the non-GAAP earnings per share measure reported by I/B/E/S minus GAAP earnings per share. *Non-GAAP Exclusions – Recurring* is the non-GAAP earnings per share measure reported by I/B/E/S minus operating income per share. *FIPO* is flow-induced passive ownership and is obtained from taking the residual of the regression in Table 3 Panel A. All other variables are defined in Section 4.2. To statistically compare the regression coefficient on *FIPO* across different subsamples, we compute the Z-Statistic following Clogg et al. (1995). t-statistics based on standard errors clustered at the firm level are shown in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

	Non-GAAP Exclusions – Total		Non-GAAP Exclusions – Recurring	
	Passive Ownership Below Median	Passive Ownership Above Median	Passive Ownership Below Median	Passive Ownership Above Median
	(1)	(2)	(3)	(4)
FIPO	-0.170**	0.494***	-0.0770	0.270***
	(-1.98)	(9.21)	(-1.21)	(7.12)
Firm Size	0.0186***	0.0464***	0.00583***	0.0208***
	(8.61)	(13.59)	(3.36)	(8.66)
Sales Growth	0.0761***	0.121**	0.0420**	0.0381
	(2.95)	(2.20)	(2.03)	(1.03)
BTM	0.0296***	0.0328***	0.000764	-0.0116**
	(7.89)	(3.81)	(0.27)	(-2.06)
ROA	-1.009***	-2.352***	0.0417	-0.0421
	(-14.22)	(-14.15)	(1.09)	(-0.60)
Volatility	0.0155	-0.130	0.00294	-0.154**
	(0.32)	(-1.08)	(0.08)	(-1.96)
Loss	0.0143**	-0.00303	0.0582***	0.0991***
	(2.40)	(-0.26)	(13.01)	(12.72)
Z-Statistic	-6.57***		-4.68***	
Fixed Effects	Industry, Year	Industry, Year	Industry, Year	Industry, Year
Observations	43,444	43,443	43,444	43,443
Adjusted R^2	0.076	0.133	0.037	0.093

Table 5: The Effect of Passive Ownership on Managers' Use of Non-GAAP to Avoid Losses and Meet Expectations. This table reports results of OLS regressions of managers' use of non-GAAP to avoid losses and meet analyst expectations on passive ownership. *Non-GAAP to Avoid Loss* is an indicator variable equal to one if the firm's operating income per share is negative, but its non-GAAP earnings per share is positive. *Non-GAAP to Meet Exp* is an indicator variable equal to one if the firm's GAAP earnings per share is less than the consensus analyst forecast, but its non-GAAP earnings per share is greater than the consensus analyst forecast. *FIPO* is flow-induced passive ownership and is obtained from taking the residual of the regression in Table 3 Panel A. All other variables are defined in Section 4.2. To statistically compare the regression coefficient on *FIPO* across different subsamples, we compute the Z-Statistic following Clogg et al. (1995). t-statistics based on standard errors clustered at the firm level are shown in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

	Non-GAAP to Avoid Loss		Non-GAAP to Meet Exp	
	Passive Ownership Below Median	Passive Ownership Above Median	Passive Ownership Below Median	Passive Ownership Above Median
	(1)	(2)	(3)	(4)
FIPO	-0.265	0.305**	-0.626***	0.196**
	(-1.19)	(2.37)	(-2.84)	(2.11)
Firm Size	0.0420***	0.0601***	0.0572***	0.0575***
	(7.58)	(8.86)	(11.49)	(9.87)
Sales Growth	0.228***	0.401***	0.664***	0.789***
	(4.11)	(4.09)	(8.42)	(6.16)
BTM	-0.0119*	-0.0341**	-0.00119	-0.0312**
	(-1.76)	(-2.23)	(-0.12)	(-2.00)
ROA	0.394***	0.589***	0.0152	0.480***
	(6.10)	(5.78)	(0.14)	(2.98)
Volatility	0.185**	0.236	0.371***	0.531**
	(1.97)	(1.62)	(2.65)	(2.30)
Loss			-0.0871***	-0.125***
			(-7.63)	(-8.14)
Z-Statistic	-2.21**		-3.43***	
Fixed Effects	Industry, Year	Industry, Year	Industry, Year	Industry, Year
Observations	10730	10730	18432	18432
Adjusted R^2	0.129	0.200	0.207	0.188

Table 6: The Effect of Passive Ownership on Exclusion Persistence. This table reports results of OLS regressions of future GAAP earnings and future operating income on non-GAAP exclusions and passive ownership. *Future GAAP Earnings* is GAAP earnings per share summed over quarters $q+1$ through $q+4$. *Future Operating Income* is operating income per share summed over quarters $q+1$ through $q+4$. *FIPO* is flow-induced passive ownership and is obtained from taking the residual of the regression in Table 3 Panel A. All other variables are defined in Section 4.2. To statistically compare the regression coefficient on *FIPO* across different subsamples, we compute the Z-Statistic following Clogg et al. (1995). t-statistics based on standard errors clustered at the firm level are shown in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

	Future GAAP Earnings		Future Operating Income	
	Passive Ownership Below Median	Passive Ownership Above Median	Passive Ownership Below Median	Passive Ownership Above Median
	(1)	(2)	(3)	(4)
Non-GAAP Earnings	2.023***	2.879***	1.913***	2.878***
	(16.81)	(36.31)	(16.92)	(40.05)
Non-GAAP Exclusions	-0.717***	-0.756***	-0.534***	-0.468***
	(-5.98)	(-8.94)	(-5.12)	(-6.84)
Non-GAAP Earnings × FIPO	-10.27***	0.401	-10.23***	0.636
	(-7.63)	(0.59)	(-8.42)	(1.07)
Non-GAAP Exclusions × FIPO	9.669***	-3.391***	7.105***	-2.170***
	(4.08)	(-3.41)	(3.58)	(-2.65)
FIPO	-1.870***	-1.997***	-1.547***	-1.218***
	(-2.84)	(-4.55)	(-2.70)	(-3.36)
Firm Size	0.0668***	0.128***	0.111***	0.180***
	(4.25)	(7.69)	(7.73)	(11.65)
Sales Growth	-0.0983	-1.446***	-0.0804	-1.123***
	(-0.46)	(-3.85)	(-0.44)	(-3.64)
BTM	-0.454***	-0.794***	-0.293***	-0.407***
	(-11.61)	(-14.41)	(-9.28)	(-9.98)
ROA	-1.615***	-0.356	-1.083***	-1.122**
	(-4.50)	(-0.57)	(-3.35)	(-2.07)
Volatility	-1.720***	-2.929***	-1.211***	-3.103***
	(-4.05)	(-3.87)	(-3.12)	(-4.94)
Loss	-0.325***	-0.0272	-0.316***	-0.110**
	(-8.37)	(-0.47)	(-9.01)	(-2.25)
Z-Statistic	5.08***		4.32***	
Fixed Effects	Industry, Year	Industry, Year	Industry, Year	Industry, Year
Observations	43444	43443	43444	43443
Adjusted R²	0.509	0.568	0.601	0.694

Table 7: The Effect of Passive Ownership on Board Independence and Board Co-option. This table reports results of OLS regressions of alternative measures of corporate governance on passive ownership. *Board Independence* is the proportion of independent directors on the board. *Non Co-opted Directors* is the proportion of independent directors appointed to the board before the CEO begins her tenure. *FIPO* is flow-induced passive ownership and is obtained from taking the residual of the regression in Table 3 Panel A. All other variables are defined in Section 4.2. To statistically compare the regression coefficient on *FIPO* across different subsamples, we compute the Z-statistic following Clogg et al. (1995). t-statistics based on standard errors clustered at the firm level are shown in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

	Board Independence		Non Co-opted Directors	
	Passive Ownership Below Median	Passive Ownership Above Median	Passive Ownership Below Median	Passive Ownership Above Median
	(1)	(2)	(3)	(4)
FIPO	0.720***	0.145***	1.135***	-0.0393
	(7.44)	(4.01)	(4.39)	(-0.31)
Firm Size	0.0228***	0.0139***	0.0384***	0.0341***
	(10.14)	(6.30)	(6.44)	(4.80)
Sales Growth	-0.0680	-0.129***	-0.451***	-0.337**
	(-1.60)	(-3.24)	(-3.64)	(-2.54)
BTM	-0.00931	-0.0164**	0.0190	-0.0139
	(-0.95)	(-2.22)	(0.70)	(-0.57)
ROA	0.0413	-0.0485	0.143	0.326
	(0.42)	(-0.58)	(0.57)	(1.18)
Volatility	0.188	0.168	0.527	0.513
	(1.38)	(1.55)	(1.55)	(1.15)
Loss	0.0102	-0.00373	-0.00863	-0.0168
	(1.48)	(-0.62)	(-0.44)	(-0.82)
Z-Statistic	5.57***		4.07***	
Fixed Effects	Industry, Year	Industry, Year	Industry, Year	Industry, Year
Observations	17169	17169	16585	16584
Adjusted R^2	0.210	0.184	0.109	0.107

Table 8: Additional Analyses – The Effect of Passive Ownership on Non-GAAP Disclosure. This table reports results of OLS regressions of non-GAAP disclosure on passive ownership. *Non-GAAP Disclosure (BCGW)* is an indicator variable if the quarterly earnings announcement contains a non-GAAP EPS disclosure. *Non-GAAP Exclusions – Total (BCGW)* is the non-GAAP earnings per share measure reported in the quarterly earnings announcement minus GAAP earnings per share. *FIPO* is flow-induced passive ownership and is obtained from taking the residual of the regression in Table 3 Panel A. All other variables are defined in Section 4.2. To statistically compare the regression coefficient on *FIPO* across different subsamples, we compute the Z-Statistic following Clogg et al. (1995). t-statistics based on standard errors clustered at the firm level are shown in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

	Non-GAAP Disclosure (BCGW)		Non-GAAP Exclusions – Total (BCGW)	
	Passive Ownership Below Median	Passive Ownership Above Median	Passive Ownership Below Median	Passive Ownership Above Median
	(1)	(2)	(3)	(4)
FIPO	0.631**	0.582***	-0.197	0.633***
	(2.38)	(4.48)	(-1.05)	(5.07)
Firm Size	0.0732***	0.0716***	0.0451***	0.0869***
	(12.52)	(8.82)	(10.89)	(10.07)
Sales Growth	-0.0598	-0.243**	0.401***	0.929***
	(-0.86)	(-2.09)	(3.38)	(4.39)
BTM	0.0101	0.0184	0.0635***	-0.0136
	(0.88)	(0.90)	(3.98)	(-0.47)
ROA	0.0117	0.0777	-5.839***	-11.35***
	(0.11)	(0.44)	(-15.15)	(-12.20)
Volatility	0.343**	0.289	0.0267	-0.170
	(2.19)	(1.16)	(0.16)	(-0.38)
Loss	0.0148	-0.0629***	-0.0743***	-0.121***
	(1.05)	(-3.28)	(-3.58)	(-3.60)
Z-Statistic	0.17		-3.70***	
Fixed Effects	Industry, Year	Industry, Year	Industry, Year	Industry, Year
Observations	30,312	30,312	10,954	10,954
Adjusted R^2	0.160	0.211	0.280	0.343