

# Active Owners and Firm Policies

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In November 2012, Norway's sovereign wealth fund (NBIM) unexpectedly announced that it would foster better corporate governance practices in its portfolio firms by articulating specific governance expectations. We use this sudden change in governance preferences as a natural experiment to understand shareholder influence among active ownership investors. We first document how the fund re-balanced its portfolio to achieve this governance objective believed to be aligned with investment objectives. We then show how firms for which the fund is an important investor and also firms that are very important to the fund reacted by aligning their corporate governance following NBIM expectations. Marginal investment changes and governance changes become more correlated in the new equilibrium. We also examine the heterogeneous response of firms to institutional pressures. This paper advances existing research on active owners' influence on firms, and particularly on firm governance practices.

**JEL classification:** F30, G32, G34

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## 1. INTRODUCTION

Institutional investors are becoming increasingly influential on firm policies. The raise in intermediated investment, coupled with growing investors' demand for engagement has fueled institutional shareholder activism. There are two polar and not necessarily exclusive mechanisms to exercise this influence. One canonical model of shareholder influence is exemplified by activist investment funds enacting change through highly visible activist campaigns. In this model, both entry-exit (the "exit" channel in Hirschman's 1970 classification) and engagement issues (the "voice" channel) are important tools for influencing firms (Brav, Jiang, & Kim, 2015; Dimson, Karakas, & Li, 2015; Ferreira & Matos, 2008; Gillan & Starks, 2000; Karpoff, 1999).<sup>1</sup> At the other end of shareholder influence spectrum, purely passive investors, such as index funds, can also affect firms' actions. They can do so through direct engagement, but also by lining up with other, more active investors in their voting strategies (Del Guercio & Hawkins, 1999; Useem, Bowman, Myatt, & Irvine, 1993; Schmidt & Fahlenbrach, 2017). There is, however, a large middle ground set of active ownership investors that are neither activist investors, nor passive index funds. Among these: pension funds, mutual funds and sovereign wealth funds channel a large share of stock investment. Understanding their influence on firm policies is of paramount importance.

Active owner institutional investors tend to hold diversified, long-term oriented portfolios, with infrequent re-balancing making them in some ways close to index funds when it comes to shareholder engagement (called "quasi-indexers" in Bushee, 1998). However, active owners are, in general, allowed to deviate from their stated benchmark, thus sharing some characteristics with activist investors and, in particular, having the potential of entry or reasonable "threat of exit" with mechanisms at their disposal to influence firm policies. Although there is a growing literature exploring the preferences and interactions between active owners and firms, isolating the direct influence of active owners on firms' policies has proved difficult, given that both the funds' decisions and firms' policies are jointly co-determined.<sup>2</sup>

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<sup>1</sup> Other relevant references are: Gillan & Starks, 2003; Klein & Zur, 2009; Barber 2006.

<sup>2</sup> For example, Parrino, Sias, and Starks, 2003 explore the entry and management strategies of institutional investors. Edmans and Manso, 2011; and Duan and Jiao, 2015 show theoretically how exit strategies that are

Sovereign wealth funds (SWFs) are a specific class of active owners. They are particularly useful to understand shareholder influence because they often have idiosyncratic views about how to achieve returns or even investment preferences that go beyond pure financial returns.<sup>3</sup> In this paper, we exploit a sudden change in the investment stance of Norway's sovereign wealth fund with respect to corporate governance practices to shed some light on the influence of active owners over investee firm policies. Specifically, we are interested in addressing the question "can sovereign wealth funds, as active institutional owners, change the policies of their portfolio companies?" Our findings demonstrate that SWFs are able to trigger improvement in the governance practices of the firms they invest on. This influence demonstrates firm incentives to adhere to the fund's universally defined governance expectations. Moreover, it contributes to answer a broader question, namely, how do active owners affect firm policies in general.

In November 2012, the Norges Bank Investment Management (NBIM), who manages the Norway's SWF, (hereafter NBIM) announced unexpectedly that it would request improvement in the corporate governance of the firms in its portfolio by focusing on several very specific managerial and control rights' dimensions. This unexpected announcement about the fund's governance priorities offers a useful quasi-natural experiment. The fund changed its preferences on governance dimensions, beyond financial returns, yet some of these expected governance practices were not in place in the portfolio firms. NBIM sought to enhance its portfolio firms' corporate governance by expecting these sometimes new governance practices.

We start our analysis by selecting a company-specific governance index, from the universe of indices provided by EIKON, that captures the governance dimensions requested in the NBIM's announcement. We then show in a difference in differences setting how, indeed, the overall governance index of NBIM's portfolio firms changed and improved after the announcement, relative to that of firms outside the portfolio. This overall

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incentive-compatible for investors can affect firms' actions. Bushee, Carter, & Gerakos, 2014; and Aggarwal, Erel, Ferreira, & Matos, 2011 provide evidence on how investors and firms match in terms of their policies and preferences. Dimson, Karakas and Li, 2015 find that institutional investor activism that leads to changes in firms' CSR policies are followed by positive abnormal stock returns.

<sup>3</sup> In this paper we use the focus of the Norwegian Fund on good corporate governance as part of our empirical strategy. Other examples are New Zealand's fund open stance towards environmentally friendly investments or Qatar's fund objective of improving the country branding.

enhancement in the “governance quality” of the fund can be analytically decomposed into three components: i) The change in the composition of the firms that integrate the fund’s portfolio, ii) the governance enhancement of those firms that were already present in the portfolio at the time of the announcement, and iii) the new correlation between changes towards better governance and changes in the fund’s investment weights.

This decomposition provides a useful roadmap to explore the consequences of the NBIM governance policies’ announcement in a regression analysis. First, we analyze how the investment policy of the fund changed after the announcement. The fund increased its investments in firms that have higher governance index values (i.e., are inherently better governed), and decreased its investments in firms with lower governance index values (i.e., inherently worst governance). The effect is more intense for those components of the fund investment in which it has more discretion, indicating that this was a deliberate shift in investment strategy. Second, we examine how firms which were part of NBIMs portfolio at the time of the announcement changed their corporate governance. We find that firms improved their governance index aligning themselves better with the fund’s new governance preferences. This effect is present both in the extensive margin (firms inside versus outside of the portfolio) and in the intensive margin (different levels of importance within the portfolio). Both the importance of a firm within the NBIM portfolio and the importance of NBIM as a fraction of the firm’s shareholders explain this reaction. We also explore the heterogenous reaction of firms according to different characteristics. Firms that do not react to the announcement are big, liquid and have good financial performance. We find that firms in countries with low pre-existing quality of governance do not improve their governance. Moreover, within each country, the firms in the lowest preexisting governance index bracket do not react to the NBIM announcement. Finally, we explore the new correlations between changes in governance and changes in the investment stance of the fund and uncover that, after the announcement, changes in governance and changes in investment weights become more correlated. Taken together, our results illustrate that all three components are critical to explain the overall improvement in the governance index of the fund. Quantitatively, the most salient element is the firms’ reaction to the announcement.

Our work contributes to the existing literature in several ways. First, while most

previous research has focused on the performance market outcomes from active and activist investors, we show how a stated change in the investment preferences of an active owner investor (NBIM) was followed by an effective change in the corporate policies of the firms they own. This reveals a more direct relationship between the talk and the walk. Second, we demonstrate how this change in active investors' investment preferences can affect the composition of its portfolio within a short period of time. This is then a middle range road between shareholder activists and passive owners. Third, we provide evidence on a different "principal" actor—sovereign wealth funds—in the heterogeneous matrix of institutional investors who currently own the majority of shares of listed companies worldwide. Finally, we enhance the understanding of how SWFs, with a dual objective of maximizing financial returns and increasing global influence, may act as "engaged shareholders" in the long run.

## **2. RELATED LITERATURE**

Institutional investors and their influence on corporations has been studied extensively for the last decades (Maug, 1998; Bushee, 2001; Gillan & Starks, 2007; Brav, Jiang, & Kim, 2010; Denes, Karpoff, McWilliams, 2017). Most of the attention has focused on highly visible institutional investors such as hedge funds accumulating substantive ownership and engaging in highly visible activists campaigns (Bebchuk, Brav, & Jiang, 2015). The scholarly debate questions their impact on companies' stock and operating performance (Bebchuk, Cohen, & Ferrell, 2009; Brav, Jiang, Ma, & Tian, 2018). At the other end of the activism spectrum are institutional owners passively managed such as index funds who do not have the ability to discipline managers and hence are exposed to higher agency costs (Schmidt & Fahlenbrach, 2017). Appel, Gormley, & Keim (2016) suggest a point of interaction between these two forms of influence when passive investors can vote with activist investors to enact change. Somewhere in between these two poles are institutional investors holding minority positions in hundreds or thousands of companies and with the potential to exert an influential role on portfolio companies via *institutional active ownership* (Aghion, Van Reenen, & Zingales, 2013). These active owners often focus on enhancing investee firms' corporate governance practices because it is believed to lead to

better firm financial performance. Thus, we classify the universe of institutional investors in three categories: activist investors, active owners and passive owners.

The focus of our paper are active owners; these investors tend to have long-term mandates with diversified minority holdings, and as such, they are incentivized to monitor managers and increase in this way the value of their assets under management (Del Guercio & Hawkins, 1999). Given their widely diversified portfolios, and the impossibility to research every detailed firm policy choice, active owners benefit from setting best practice blueprints on corporate governance policies and monitor investees against these expectations (Appel et al., 2016; Black, 1998).

Active owners can also exercise “voice” strategies in various ways including formal engagements via proxy voting and informal behind-the-scenes conversations with managers and board members (Appel et al., 2016; McCahery, Sautner, & Starks, 2016). In fact, NBIM utilizes both strategies to engage with its investee companies. Additionally, active owners can discipline managers using legitimate “exit” strategies, via selling their own blocks of shares or by persuading other investors to join the selling (Edmans & Manso, 2011).

Thus, institutional investors classified as active owners have focused their monitoring efforts on overseeing governance and management quality to achieve stronger corporate governance across their portfolio. The logic is that these institutional investors, rather than exiting multiple companies, could benefit more from focusing on targeting sets of companies underperforming in firm-level governance issues, and through engagement and voting power promote wide-spread governance enhancements that would generate long term shareholder value. Either directly or through proxy advisors, active owners vote, coordinate and engage with managers in order to improve corporate governance upgrading practices such as board independence, board diversity or minority shareholder protection (Gillan & Starks, 2000; Gompers, Ishii, Metrick, 2003; Bebchuk, Cohen, Ferrell, 2009).

### **3. CONTEXT: NORGES BANK INVESTMENT MANAGEMENT**

Sovereign Wealth Funds (SWFs) are government-owned investment funds without explicit pension liabilities that typically pursue long-term investment strategies (Aguilera et al., 2016: 5). An important characteristic of SWFs is that they often follow multiple

objectives. These include financial returns—similar to other institutional investors—but also broader economic and development returns for their countries often motivated by government’s long-term policies (Bernstein, Lerner, & Schoar, 2013; Bortolotti, Fotak, & Megginson, 2015).

In this paper, we study NBIM, which manages the world’s largest sovereign wealth fund, the Government Pension Fund – Global, by assets under management. In spite of the term “pension” in its name, it does not pay pensions but instead it saves and builds financial wealth for future generations to prepare for the time when oil and natural gas reserves are depleted. As of May 2019, NBIM has assets under management worth 8,938 billion Kroner (US\$ 1.1 trillion). NBIM owns minority positions in more than 9,000 companies (including Apple, Nestle, Microsoft and Samsung) in 73 countries as of May 2019. Equity investments represent more than 65% of its portfolio and it owns on average 1.3% of all equities listed globally. NBIM fits nicely in the above description of an active owner as it lacks the capacity or incentive to initiate costly and resource-consuming shareholder campaigns—as activist hedge funds do—with every single portfolio company underperforming.

NBIM has an explicit publicly available investment strategy and uses the FTSE Global Cap index as its benchmark. Norwegian firms are excluded from the index and they also apply some country corrections and re-weight each country to control for linkages with the Norwegian economy. However, the fund can deviate from this benchmark by including, excluding, overweighting, or underweighting any firm. There are also two additional reasons for which a firm may be dropped from the portfolio: lack of engagement with the fund or that the firm does not comply with a set of ethical principles pre-stated by the fund.

More formally, the investment of NBIM in a given firm  $i$ , from country  $c$ , at time  $t$  can be represented as:

$$\text{Investment}_{ict} = I(\text{Ethics}_{it}=1) \times I(\text{Engage}_{it}=1) \times (\text{FTSE Global}_{it} \times \text{Country}_c \times \text{Stance}_{it})$$

Where  $I(\text{Ethics}_{it}=1)$  indicates that the firm fulfills the NBIM’s Council on Ethics requirements,  $I(\text{Engage}_{it}=1)$  indicates that the firm has not been excluded due to lack of engagement with the fund,  $\text{FTSE Global}_{it}$  would be the investment on the firm according to the FTSE Global Cap index and  $\text{Country}_c$  are time-invariant factors that correct the index at

a country level.  $Stance_{it}$  is the specific stance (overinvestment or underinvestment) that the fund may have on a given firm relative to the benchmark. Fund weights are defined as the relative weight of each of these investments:  $Weight_{it} = Investment_{it} / \sum_{i=1}^{i=1} (Investment_{it})$ .

This rich, well-defined investment strategy helps us to understand the mechanisms behind NBIM decision making. Moreover, the information released by the fund allows us to identify why a firm is included/excluded as well as which changes in investment emanate from discretionary elements ( $Ethics_{it}$ ,  $Engage_{it}$  or  $Stance_{it}$ ) or from mechanical rebalancings of the fund ( $FTSE\ Global_{it} \times Country_c$ ). We use this discretionary and automatic elements of NBIM's investment strategy as part of our identification strategy since it reveals the changes in investment that are exogenous or endogenous to NBIMs preferences.

### **3.1. A natural experiment: NBIM changes focus to corporate governance in 2012.**

The engagement of NBIM with its investee firms goes back to its origins. Its initial efforts mostly focused on the activity of the Council on Ethics, established in 2004, and on setting “ethical guidelines” for the sovereign fund. These guidelines have allowed the Council to recommend the exclusion of companies from the fund's investment universe, or to place companies under observation. The monitoring role of NBIM centered around the “negative screening” of companies involved in harmful production or wrong-doing: companies producing cluster munitions, nuclear weapons, tobacco or those involved on other conduct-based violations, such as severe environmental damage or serious violations of human rights. Yet, the 2012 announcement is of a completely different nature in its focus (governance), exhibits an explicit universal approach affecting every single company in which NBIM is investing.

In November 2012, NBIM published a critical discussion note (“Note” hereinafter) stating that effective corporate governance has a positive, direct and long-term impact on the value of companies. In this public announcement, NBIM explicitly declared that from that point onwards, it would request its portfolio companies to meet certain “corporate governance expectations.” This enhanced active ownership role was based on the belief that long-term diversified investors “need to pursue better market standards and practices in order to promote behaviour which enhances returns and reduces risk in the companies they

invest in” (NBIM, 2012: 7).<sup>4</sup> Three elements of the announcement are useful for the purpose of this paper. First, we argue that the Note marks a critical turning point in NBIM’s strategy, making it a relevant change in internal preferences.<sup>5</sup> Second, this change in the engagement and investment preferences of NBIM was unanticipated<sup>6</sup>, when we consider it at an annual frequency. Finally, the Note focuses only on certain specific governance dimensions which we capture through a governance index score preconstructed by Eikon.<sup>7</sup> Overall the fund’s public statement entails a substantial exogenous change in investors’ preferences from the point of view of firms on specific governance dimensions.

## 4. DATA

### 4.1. Sample and data sources

In this paper, we merge data from NBIM with firm-level governance, financial and accounting data from Eikon. We complement this data with data on the constituents of the FTSE Global Index from the FTSE Russell Help Desk. The NBIM dataset provides yearly equity holdings of NBIM as of December since its inception in 1998 containing the name and industry of the company, and the market value of the stake of NBIM.

We match the NBIM holdings with the “Environment, Social and Governance (ESG)” dataset from Eikon (Thomson Reuters). This database provides firm-level ESG variables for close to 6,000 public companies listed in multiple stock exchanges since 2002.

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<sup>4</sup> The language of the Note contained statements such as “NBIM’s primary corporate-governance focus will consequently be on mechanisms shareholders can use directly and indirectly to influence companies towards sustained business success” or “NBIM operates a corporate-governance program. Setting out generic expectations for good corporate governance is one of several steps in this program and the topic of this discussion note” (NBIM, 2012: 3).

<sup>5</sup> In fact, the novelty of this strategy was covered by financial media in the weeks that followed the Note release in November 2012: “Norway has just published an important note on what it expects in terms of corporate governance from the companies it invests with” (Carney, 2013). Comments from the CEO, Mr. Slyngstad, described how they shifted into active ownership: “I think active is a fair description. We think it is the responsibility of the larger investors to be more involved in what in the UK is referred to as stewardship and have a dialogue not just with the CEO and CFO but also the chairman of the board” (Milne, 2013a).

<sup>6</sup> “It is a big change in how the oil fund operates and signifies a more active approach to its largest investments” (Milne, 2013b).

<sup>7</sup> Eikon provides index scores at the firm level, grouped in 3 categories: environmental, social and governance. Within the category of governance, Eikon provides 3 indexes: Management, Shareholders and CSR. According to the Eikon definition, the Management Score “*measures a company’s commitment and effectiveness towards following best practice corporate governance principles*”. We use the Management Score since it is Eikon’s most complete index on governance (it includes 34 indicators) and it best matches the Note’s focus on governance expectations. The other 2 indexes within the Governance category are Shareholders and CSR, which are more restrictive and only include 12 and 8 indicators respectively.

Our sample starts in 2006 which is the first year in which NBIM invested in small and mid-cap firms. The coverage of Eikon is also much richer post 2006. Given the structure of our analysis and the timing of the shock (the Note is released in 2012), in our main specifications we use data for the period 2009-2015 (in order to have 3 years before and 3 years after the 2012 event). We collect yearly firm-level information on governance, accounting and financials for the period 2006-2015. Given the availability of governance and financial data, we obtain a final sample of 4,200 companies per year.<sup>8</sup>

As a measure of corporate governance, we use the *management score* provided by Eikon ESG as our governance index. According to Eikon, this governance score “measures a company’s commitment and effectiveness towards following best practice corporate governance principles,” with a focus on management monitoring. It represents an equally-weighted average on 34 corporate governance indicators, including board independence, CEO-Chairman separation, board diversity, board skills background, staggered boards or the existence of audit, nomination, and compensation committees. Each indicator is calculated as a “percentile score” which ranks companies according to each indicator and then equally weights the 34 indicators. .<sup>9</sup>

We also obtain data on the constituents of the FTSE Global Index from the FTSE Russell Help Desk. Finally, to calculate abnormal returns, we use return data from Eikon and the *RMRF*, *SMB*, *HML* and *UMD* global factors from Kenneth French’s website. To construct returns, we use information on total returns (which incorporates reinvested dividends) and prices (daily stock closing prices) from Eikon.

## 4.2. Descriptive statistics

Table 1 reports summary statistics for our main sample. The governance index score takes values from 0 to 100. The index score ranks companies according to the quality of its corporate governance. Values closer to 100 mean that the company has a high index value

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<sup>8</sup> For consistency and to avoid sample attrition, in our main analysis we drop firms that have one or more missing values on our main variable of interest (the management score) during our period of analysis (2009-2015). We are left with a sample of about 15,000 observations.

<sup>9</sup> A detailed explanation on the construction of the *managemet score* is provided in the Appendix.

relative to all the companies in Eikon ESG. In our sample, the average company has a governance index score of 53.9. The standard deviation is 28.6,

The average weight of a firm in NBIM (fund weight), fraction of the NBIM's portfolio represented by a firm's market value, is 0.04%. The average weight that NBIM represents in a firm (firm weight), is the fraction of the firm's market value held by NBIM and is 0.9%.

Table A1 in the appendix presents the evolution of the NBIM total equity holdings, as well as the percentage of NBIM holdings that we track in our final sample after the merge with Eikon. Tables A2 and A3 in the appendix show country and industry summary statistics of our sample. These tables classify firms that are in the portfolio of the NBIM in 2011 (treatment group) and control firms that are not in the portfolio of the NBIM in 2011. There is heterogeneity in the countries and industries in the treatment and control groups, but no significant differences in the composition of the two samples.<sup>10</sup> Table A4 in the appendix reports the yearly number of companies' entries and exits carried out by NBIM during our sample period. We can further classify whether these entries and exits are discretionary or driven by the composition of the FTSE Global Index.

### 5. THREE STEP DECOMPOSITION FOLLOWING NBIM ANNOUNCEMENT

We define  $G_{it}$  as an index that measures the total governance quality of the NBIM portfolio  $G_{it} = \sum_{i=0}^I w_{it}g_{it}$ . Where  $w_{it}$  is the investment weight of firm  $i$  at time  $t$  in the NBIM portfolio and  $g_{it}$  is the governance index of firm  $i$  at time  $t$ . The definition of  $G_{it}$  allows us to decompose changes of  $G_{it}$  in three different elements. Higher (lower) levels of  $G_{it}$  can be interpreted as better (worse) overall corporate governance quality of NBIM's portfolio.

The changes in the corporate governance overall level of the NBIM portfolio ( $\Delta G_{it}$ ) can be decomposed as follows:

$$\Delta G_{it} = \sum_{i=0}^I w_{it+1}g_{it+1} - \sum_{i=0}^I w_{it}g_{it} \quad (1)$$

We add and subtract  $w_{it}$  and  $g_{it}$  in the first term of the right-hand side and define  $\Delta w_{it} = w_{it+1} - w_{it}$  and  $\Delta g_{it} = g_{it+1} - g_{it}$  to obtain the following specification:

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<sup>10</sup> To account for country heterogeneity, our main specifications include country\*post fixed effects.

$$\Delta G_{it} = \sum_{i=0}^I (w_{it} + \Delta w_{it})(g_{it} + \Delta g_{it}) - \sum_{i=0}^I w_{it}g_{it} \quad (2)$$

Re-arranging terms we can express the expression as:

$$\Delta G_{it} = \sum_{i=0}^I \Delta w_{it}g_{it} + \sum_{i=0}^I (w_{it}\Delta g_{it}) + \sum_{i=0}^I \Delta w_{it}\Delta g_{it} \quad (3)$$

Thus, the overall change in the governance quality of the NBIM portfolio ( $\Delta G_{it}$ ) can be decomposed into the three terms of equation (3). Each has a clear economic interpretation that we analyze in the next section. The first term, the re-weighting done by NBIM, depends on the NBIM strategy. NBIM can exit (enter) firms with worse (better) governance or decrease (increase) its portfolio holdings of firms with worse (better) governance. In the first term, the firms' governance is fixed prior to the release of the Note, and the changes in  $G_{it}$  are driven by NBIM's investment strategy. The second term depends on the decision of the firms to change their governance. This term has fixed NBIM weights prior to the release of the Note and allows for firm governance levels to change. Intuitively, it is similar to a standard intent to treat specification in which treatment depends on fixed pre-determined (2011) NBIM investment weights. In this second term,  $G_{it}$  changes are driven by changes in the corporate governance index of NBIM's investee companies. Finally, the third term measures changes in corporate governance that come with changes in weights. In equilibrium it can be that NBIM changes its holdings of a firm due to changes in governance of the firm or vice-versa.

## 6. ANALYSIS

To analyze the impact of the Note on the governance quality of the NBIM's portfolio, we follow the econometric counterpart of the decomposition in equation (3) and analyze the terms one by one in the following section. Section 6.1 analyzes the overall change in the governance index of the NBIM portfolio after the release of the Note. Section 6.2 focuses on the changes in the investment strategy of NBIM, our first term in equation (3) taking the *governance types* of each firm as given and pre-determined, and exploring the impact of the investment strategy changes in the overall change in governance. Section 6.3, which extends the second term in equation (3), fixes NBIM weights prior to the release of the Note and allows for firm governance levels to change. In this way, this section measures the response of firms to the release of the note in an intent-to-treat structure that

uses the fixed holdings of NBIM before the release of the note as proxies of the NBIM influence after its release. Section 6.4 explores the third term in equation (3) and shows how the correlation between changes in governance and changes in investment weights is altered by the note. Finally, section 6.5 decomposes the overall effect onto its components.

### 6.1. The overall change in the governance index of the NBIM portfolio

We first examine how the governance index of firms included in NBIM changes with the announcement by comparing it against the changes in the governance index of firms outside NBIM. For this purpose, we estimate for every year  $t$  the following cross-sectional regression from 2007 to 2015:

$$Governance_i = \alpha + \sigma NBIM_i + \varepsilon_i \quad (4)$$

where the dependent variable  $Governance_i$  is the governance index of firm  $i$  in year  $t$ , and  $NBIM_i$  is a dummy variable that equals one if firm  $i$  belongs to the NBIM portfolio at time  $t$ , and zero otherwise. The coefficient of interest  $\sigma$  estimates for every year  $t$ , the average differential governance between firms in the NBIM portfolio and firms outside it.

Figure 1 and Table 2 show our results. Before the event (2012), we find no significant governance differences across firms inside and outside the NBIM portfolio. However, firms in the portfolio of NBIM exhibit higher significant governance levels in the period following the event (2012-2015) relative to firms outside the portfolio. The difference between the periods is statistically significant and economically large, amounting to 4 to 5 score points in the governance index. That is, if there were a maximum corporate governance level of 100 among companies, the firms inside the NBIM portfolio would increase their relative governance quality by 4 to 5 points, on average, after the announcement. The positive overall effect that we find can be due to firms reacting to the NBIM's new governance preferences (the firms in the portfolio of NBIM receive treatment and improve their governance), or due to a "rebalancing" channel (NBIM exits firms with low governance index values and invests in firms with high governance index values). We explore in detail these components in the following sections.

In addition, we also compute continuous measures of the NBIM weights. For that purpose, we estimate the following pooled OLS regression:

$$\text{Governance}_{it} = \sigma_1 \text{Post}_{(t \geq 2012)} * \text{NBIM\_Weight}_{it} + \text{NBIM\_Weight}_{it} + \alpha_t + \varepsilon_{it} \quad (5)$$

where  $\text{Governance}_{it}$  is analogous to that in equation (4),  $\text{NBIM\_Weight}_{it}$  is either the NBIM firm weight or the NBIM fund weight, and  $\text{Post}_{(t \geq 2012)}$  is a dummy variable that takes the value of one after the Note's release (2012–2015) and zero for previous years (2009–2011). We include the full sample of firms in this analysis (those that belong to the NBIM portfolio and those that don't). The NBIM fund weight is the fraction that NBIM's holding of a given firm represent over the total NBIM's portfolio. The NBIM firm weight is the fraction of the firm's market value held by NBIM. The results in Table 3 show how the portfolio of firms constructed with fund weights increases its average governance index after the announcement by an average of 8 percentile scores. The results are statistically not significant when we focus on firm weights.

Taken together, both results show that the overall governance quality (measured according to NBIM's preferences) of the NBIM portfolio improved after the announcement. In the next two sections, we analyze which part of this governance change can be attributed to changes in the investment strategy of NBIM and which part to changes in governance quality within the firms that are part of the NBIM portfolio.

## 6.2 Changes on the investment strategy of NBIM

To examine whether NBIM re-balanced its portfolio according to the new governance guidelines, we first analyze whether NBIM invests in firms with better governance index values after the announcement. We use the following empirical strategy:

$$\text{Governance}_{i2011} = \sigma_1 \text{Post}_{(t \geq 2012)} * \text{NBIM\_entry}_{it} + \text{NBIM\_entry}_{it} + \alpha_t + \varepsilon_{it} \quad (6)$$

where  $\text{Governance}_{i2011}$  is the governance index of firm  $i$  fixed in year 2011 (before the announcement),  $\text{NBIM\_entry}_{it}$  is a dummy variable that takes the value of one if firm  $i$  enters the NBIM portfolio in year  $t$ , and it takes a value of zero according to three different control groups, and  $\text{Post}_{(t \geq 2012)}$  is a dummy variable (structural break) that takes a value of one after the Note's release (2012–2015) and zero for previous years (2009–2011). We use three alternative control groups. The first control group includes firms that do not belong to the NBIM portfolio. The second control group includes firms that belong to the NBIM

portfolio. The third control group is all the firms in our sample, those that belong to the NBIM portfolio and those that do not belong to the NBIM portfolio.

By keeping the governance index fixed at a point in time before the announcement, we avoid that changes in the governance of firms can act as a confounding factor for the changes in the investment strategy of the fund. Intuitively, we are fixing the firms' governance levels before the announcement and keeping them constant throughout the analysis.

We show the results in Table 4. Columns 1-3 use all the new entrants in NBIM. Each column corresponds to one of the three control groups described (NonNBIM, NBIM, ALL). All three specifications have a negative and statistically significant coefficient on the *NBIM\_entry* variable. On average, throughout the whole sample period, firms entering the fund have lower governance index values than firms outside the fund (Column 1). The relative governance effect is larger when compared with the firms inside the fund (Column 2), consistent with firms inside the fund having a better governance than those outside the fund. The coefficient of *NBIM\_entry* in column 3 is the composition of these two effects. The main variable of interest is *NBIM\_entry\*Post*. All three coefficients are positive and statistically significant, indicating that the fund puts more weight on corporate governance when picking entrants after the announcement. The effect is large and statistically significant corresponding to a difference of 4 to 6 score points.

In columns 4-6 we replicate this analysis, excluding those entries and exits that are exogenous to the fund and driven by the FTSE Global Cap holdings. When we focus on the discretionary entries and exits selected by NBIM, we find stronger results. As expected, the effect of interest is more intense for this component of entry; amounting to 6 to 8 additional governance score points after the announcement.

Overall, the results in Table 4 show that, on average, firms entering the NBIM portfolio tended to have lower governance scores than those inside or outside the portfolio. However, this effect is almost completely offset by the change in preferences of the fund after the announcement, providing strong support for the thesis that the fund did indeed change its investment strategy after the announcement.<sup>11</sup>

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<sup>11</sup> This improvement occurs despite the big increase in the amount of holdings of NBIM from 2011 to 2012 (see Table A1 in the appendix) which would make more difficult to cherry pick stocks with high governance after the announcement.

We develop a similar analysis to test for exit effects. Again, we use equation (6) to estimate whether NBIM exits firms with poor governance after the announcement. For this purpose, we use the dummy  $NBIM\_exit_{it}$  instead of the dummy  $NBIM\_entry_{it}$ .  $NBIM\_exit_{it}$  is a dummy variable equal to one if firm  $i$  exits the NBIM portfolio in year  $t$ , and equal to zero according to the three control groups used for  $NBIM\_entry_{it}$ . The results are shown in Table 5. The baseline levels of governance of firms exiting NBIM are, before the announcement, comparable to the rest of the firms in NBIM and outside NBIM. However, after the announcement, the governance score of firms that exit the fund is relatively lower by approximately five score points. Once again, if we focus on the discretionary elements of exits, the effect is larger and statistically more significant; with firms exiting NBIM being, on average, seven score points worse than the firms that remain in or out of NBIM.

Summing up, in this section we show that after the announcement entrants in NBIM have better inherent governance and firms exiting NBIM have worse inherent governance. Once we focus on discretionary investment changes made by NBIM, effects are even stronger.

In Table A5 in the Appendix, we observe that NBIM has a spike in the amount of exits in 2011, some months before the Note. It seems that the fund started to re-balance its portfolio even before the release of the Note. Moreover, in 2012 the amount of entries is particularly low relative to other years. It seems that the fund corrects its strategy and decreases its rapid expansion into new firms.<sup>12</sup>

### **6.3. Changes on the governance of NBIM portfolio firms**

#### *6.3.1. The effect on governance of NBIM portfolio firms*

To analyze the effect of the Note on the governance of NBIM portfolio firms, we need to fix the weights of the firms prior to the release of the Note and calculate the changes in governance. For this purpose, our treatment group will be composed by the firms that belong to the portfolio of NBIM in December 2011, before the release of the Note. Our control group will include firms that do not belong to the portfolio of NBIM in

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<sup>12</sup> This occurs despite the increase in the amount of holdings of NBIM from 2011 to 2012 (see Table A1 in the appendix).

December 2011. We instrument the NBIM holdings after the announcement of 2012, with the holdings of NBIM in 2011.<sup>13</sup> The regression is the following:

$$\text{Governance}_{izt} = \sigma_1 \text{Post}_{(t \geq 2012)} * \text{NBIM}_{iz2011} + \text{Post}_{(t \geq 2012)} * \delta_z + \alpha_t + \mu_i + \varepsilon_{izt} \quad (7)$$

for firm  $i$ , in country  $z$ , at time  $t$ .  $\text{NBIM}_{iz2011}$  is a dummy variable equal to one if firm  $i$  belongs to the NBIM portfolio in 2011 and zero otherwise.

In Table 6, we show results from panel regressions with firm fixed effects. In column 2, we fix 2009 as our base year (omitted year)—we do not use information from previous years in our analysis to maintain a balanced period of three years before and after the event. Results in Table 6 show a significant increase in the governance index scores of firms' in the portfolio of NBIM in 2011. On average, firms in the portfolio of NBIM enhance their governance by almost 6 score points yearly after the disclosure of the Note relative to firms that are not in the portfolio of NBIM. Moreover, by interacting  $\text{NBIM}_i$  with year dummies instead of  $\text{POST}_{(t \geq 2012)}$ , we are able to capture the speed of the changes in governance. The magnitude of the difference in governance among the two groups increases with time. We interpret this overtime increase with the idea that taking into account that changing governance provisions takes time.

In Table 7, we deepen in the analysis on whether the improvement on governance is NBIM driven. For this purpose, we classify firms in 2011 into four groups: firms in the portfolio of NBIM that are not in FTSE Global Index, firms in the FTSE Global Index that belong to the portfolio of NBIM, firms in the FTSE Global Index not held by NBIM, and firms excluded by the NBIM ethics committee. We observe that firms that improve their governance scoring after the announcement are the firms in which NBIM is invested. After the announcement, we do not observe a significant increase in the governance index scores of firms exclusively listed in the FTSE Global Index. Only firms that are held by NBIM (independently of whether they are also in FTSE) exhibit improvements in governance.

### 6.3.2. *Skin in the firm versus strong voice*

Fich, Harford & Tran (2015) introduce the debate on whether institutional monitoring is greater depending on the fraction of the firm held by the institution or

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<sup>13</sup> In Table A7 of the appendix we show the relevance condition of our instrument is satisfied.

depending on the fraction of the institution's portfolio represented by the firm. In Table 8 we analyze whether the improvement in governance after the announcement depends on the fraction of the firm held by NBIM, or on the fraction that the firm represents for NBIM.

We use the following specification:

$$\text{Governance}_{izt} = \sum_{q=1}^Q \sigma_q \text{Post}_{(t \geq 2012)} I_q(\text{NBIM\_Weight}_{iz2011}) + \text{Post}_{(t \geq 2012)} * \delta_z + \alpha_t + \mu_i + \varepsilon_{izt} \quad (8)$$

for firm  $i$ , in country  $z$ , at time  $t$ .  $I_q$  are quartiles of the NBIM weights (zero weight is the omitted category) and  $\text{NBIM\_Weight}_{iz2011}$  represents the fraction of the firm held by NBIM in 2011 or the fraction of NBIM's portfolio represented by the firm in 2011. The coefficients of interest are  $\sigma_q$  and are showed in columns 4 and 5 of Table 8. In columns 1, 2 and 3 of Table 8 we use a linear regression model and instead of using quartiles, we include the continuous measure of  $\text{NBIM\_Weight}_{iz2011}$ . Results with the linear specification seem to indicate a positive relation with the firm weights. Firms in which NBIM has a higher weight improve more their governance after the announcement. When we observe the results in the specification with quartiles, we observe that coefficients increase with the size of the weight that the firm represents in the NBIM fund.

### 6.3.3. Heterogeneous effects

In Table 9 we use the following specification:

$$\text{Governance}_{izt} = \text{Post}_{(t \geq 2012)} * \delta_z + \sum_{q=1}^Q \sigma_q \text{Post}_{(t \geq 2012)} * I_q(\text{Feature}_{iz2011}) + \sum_{q=1}^Q \vartheta_q \text{Post}_{(t \geq 2012)} * I_q(\text{Feature}_{iz2011}) * \text{NBIM}_{iz2011} + \alpha_t + \mu_i + \varepsilon_{izt} \quad (9)$$

for firm  $i$ , in country  $z$ , at time  $t$ .  $I_q$  are dummy variables equal to one for firms in the  $i$ th quartile in 2011 of the analyzed feature. All other variables are analogous to those defined in equation (7). The coefficients of interest are  $\vartheta_q$  which indicate for each feature and quartile, the average governance difference between treated and non-treated firms after 2011. We explore whether there are heterogeneous reactions on the firms' response to the announcement according to different features. We measure all the features before the announcement, in 2011. We evaluate the following features: firm's total assets, firm's total market value, firm's performance (EBITDA over revenues), firm's governance, the voice

and accountability governance indicator of the firm's country of incorporation and firm's liquidity.

In columns 1 and 2 of Table 9 we observe that the improvement in governance after the announcement is larger for smaller firms (relative to the control group). In fact, the governance of firms in the top quartile of size does not change after the announcement. In column 3, we observe that firms with worst past performance react more to the NBIM's announcement and improve more their governance. This is probably to compensate their poor results and to avoid an exit by NBIM. In column 4, we find that firms in the lowest quartile of past governance scores do not react to NBIM's announcement. Perhaps because they understand that NBIM will exit them or because it is more costly for them to improve governance. On the other hand, firms in the highest quartile of past governance scores slightly react. This might be either because there is small room to improve their governance or because they already fulfill NBIM expected governance standards. Moreover, it seems that the country of origin of the firms is influential in investee firms' reaction to the announcement. In column 5, we observe that firms incorporated in countries with weak national corporate governance quality, do not improve their governance scores, while the opposite is true for firms incorporated in countries with stronger corporate governance quality. These findings suggest that the influence of active owners on firm policies is contingent on the nature of the national corporate governance where those firms are embedded. It seems like there exists a minimum national threshold for active owners to have an influence. This result speaks to whether country or firm drives firm corporate governance changes. Finally, stock liquidity also seems to have an influence on the reaction of firms to NBIM's announcement. Firms with high liquidity do not react to the announcement since their stock prices suffer the least the threat of exit. On the contrary, firms with lower liquidity are more affected by the announcement since their stock prices suffer a higher cost of exit by NBIM.

#### **6.4. Reaction of NBIM investments to governance changes**

In this section we analyze whether changes in governance are linked to investment changes. For this purpose, we estimate the following OLS pooled regression:

$$\Delta \text{Governance}_{iz(t+2,t)} = \sigma_1 \text{Post}_{(t \geq 2012)} * \Delta \text{NBIM\_Weight}_{iz(t+2,t)} + \text{Post}_{(t \geq 2012)} * \delta_z$$

$$+ \Delta NBIM\_Weight_{iz(t+2,t)} + \alpha_t + \varepsilon_{izt} \quad (9)$$

for firm  $i$ , in country  $z$ , at time  $t$ .  $\Delta Governance_{i(t+2,t)}$  is the difference between firm  $i$ 's governance index score in year  $t+2$  and year  $t$ , and  $\Delta NBIM\_Weight_{i(t+2,t)}$  is the difference between the firms' holdings by NBIM in year  $t+2$  and year  $t$ .

The regression analyzes whether there is a correlation between changes in governance of firms and changes in investment by NBIM, and whether this correlation changes before and after the announcement. Results are shown in Table 10. The correlation between changes in governance and changes in investment weights becomes high and statistically significant only after the announcement; while the two seem uncorrelated before the announcement. We also perform Granger causality tests to better understand the relation between innovations in governance and innovations in investment changes.<sup>14</sup> We find that lagged changes in governance predict changes in fund weights. The reverse effect is not statistically significant. These results provide evidence that the NBIM strategy reacts to positive changes in governance after the release of the Note. NBIM re-weights its portfolio holdings not only according to the levels of governance of the firms, but also according to the changes in the levels of the governance of the firms. However, we do not find evidence that lagged changes in firm weights predict changes in governance.

Although establishing causality in this last part of the analysis is challenging, it allows us to complete the decomposition of effects in Section 5. Next, we analytically decompose the three different effects.

### **6.5. Analytical decomposition of overall governance effect**

Using the measures of the weights (percentage the firm represents in the NBIM fund per year) and the governance index (measure from 0 to 100 each firm has per year), we calculate the values for each of the terms mathematically for the years 2010-2015. We choose 2010 and 2015 because these years are clearly before and after the release of the Note, but the results are consistent across different period choices.

We show the results in the following table.

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<sup>14</sup> Results are shown in Table A8 of the appendix.

<u>Period: 2010-15</u>	<b>Total</b>	<b>Term 1</b>	<b>Term 2</b>	<b>Term 3</b>
	$\Delta G$	$\Delta w * g$	$w * \Delta g$	$\Delta w * \Delta g$
$w_{it} = \text{holding}_{it} / \text{total holding}_{i2010}$	39.31	31.35	2.95	5.04
$w_{it} = \text{holding}_{it} / \text{total holding}_{it}$ (2010 firms)	2.33	-2.51	2.95	1.87
$w_{it} = \text{holding}_{it} / \text{total holding}_{it}$	-0.73	-5.55	2.95	1.86

In the regression analysis, given that we are fixing either governance index or investment weights, we are keeping the panel of firms constant throughout the analysis. This same idea is replicated in the first two rows of the table, where we keep the denominator of the investment weight constant or the set of firms constant respectively. Overall, we find a positive increase of the governance index of the NBIM. The first term is negative. As we will show, the effect is positive for existing firms but negative for new ones, as marginal new firms have worse governance than pre-existing ones. The second term is the most positive term, which means that firms owned by NBIM are in fact improving their governance significantly. Finally, the cross-product is also positive, which means that on average NBIM increases (decreases) its weights on firms that increase (decrease) their governance.

However, one has to bear in mind that the fund expanded significantly during this period (see Table A1), almost doubling its size. Note also that, from Table 4, we know that the firms that join NBIM have, on average of worse governance than those inside NBIM and that this effect is only partially offset by the change in preferences of the fund. For this reason, in the last row of the table, we relax the full panel assumption and allow new firms to enter the analysis. When doing so, the first term, which is affected by entry, becomes large and negative, reflecting the relatively poor governance quality of new entrants. Still, we can conclude that the change in governance preferences of the fund, partially offsets the mechanical decrease in governance levels induced by the fund's expansion.

## 7. DISCUSSION AND CONCLUSION

Understanding the scope and channels of influence of active owners, such as pension funds, mutual funds or sovereign wealth funds, on firms continues to be an important issue in corporate governance, beyond looking at market reactions. While

institutional investors classified as active owners represent a large fraction of firm ownership, their stance when it comes to firm policies is often seen as not pro-active enough. Estimating how the composition of these two factors results in effective or ineffective governance is an important empirical question. Within this framework SWFs can be useful, as they often have investment policies with preferences that depart from the standard maximization of short-term profits. Unexpected changes in these preferences can be used to extract information about how firms cater to the preferences of their investors.

We use a quasi-natural experiment: the announcement made by NBIM in November 2012 which outlined what the Norway's sovereign fund expected from its portfolio companies in terms of corporate governance. The release of that Note initiated a comprehensive strategy of engagement with portfolio companies. We use a pre-existing governance index that reflects NBIMs preferences and use a difference-in-differences strategy to decompose the total change in the corporate governance change of the fund into the one-off re-weighting of its portfolio, the change in governance of the firms that are part of the fund (in an intent-to-treat structure) and the change in the dynamics of the fund investment that follows the initial re-balancing.

Following this structure, we uncover the following results i) the overall governance level (index) of the fund increased following the announcement ii) the investment stance of the fund changed, focusing more on firms with high governance index scores and less on firms with low-governance index scores iii) firms reacted to the fund's new policy by improving their governance, these results are present both if we represent the funds' influence as the fraction that the firm represents in the fund and the fraction that the fund represents in the firm iv) after the announcement, the changes in the fund marginal changes in investment weights became more reactive to the recent changes in the firms' governance scores. Overall these results show that the fund did change its investment strategy following the announcement and that firms also reacted to this change. We decompose the overall improvement of the fund's governance quality and show that most of the effect comes from the reaction of firms.

These results add evidence of the monitoring role of active owners and, in particular, sovereign wealth funds. In our application, we can estimate this influence in a causal way and show large and significant results both from an economic and statistical

perspective. Our results shed light on the literature of shareholder activism and the growing theme of heterogeneous shareholders (Goranova & Ryan, 2014; Hoskisson et al., 2002; Schnatterly & Johnson, 2014). Regarding the literature on sovereign wealth funds, this research may help to understand how, without having a seat on the board, large funds can exert an influence (Vasudeva, 2013) and impact their investee companies' corporate governance.

Our results are reminiscent of an “exit” channel in which NBIM divests from firms with worst governance and a “voice” channel through which NBIM effectively improves the governance of its portfolio companies. This “voice” channel put in place through different mechanisms, most of them “behind-the-scenes” (McCahery et al., 2016), turns out to be effective and can be a way to circumvent the “liability of sovereignness” or the discount effect detected in the literature on sovereign investors (Aguilera et al., 2016; Bortolotti et al., 2015). Of course, these two effects, voice and exit, interact with each other, as a credible threat of exit can be a powerful tool when exercising “voice”. By focusing on the direct effect that ownership has on corporate governance, we also add to the discussion around the effects of institutional owners as long-term patient investors, instead of being driven by short-term gains (Bebchuk et al., 2015; Stathopoulos & Voulgaris, 2016). We include the sovereign wealth funds in the matrix of heterogeneous principals, among these patient institutional investors (Bushee, 1998). Moreover, we show that both the fraction of the firm held by NBIM and the fraction of the NBIM's portfolio represented by the firm are key in influencing the firms. An increase in any of them is translated into a positive improvement of the governance of the firms.

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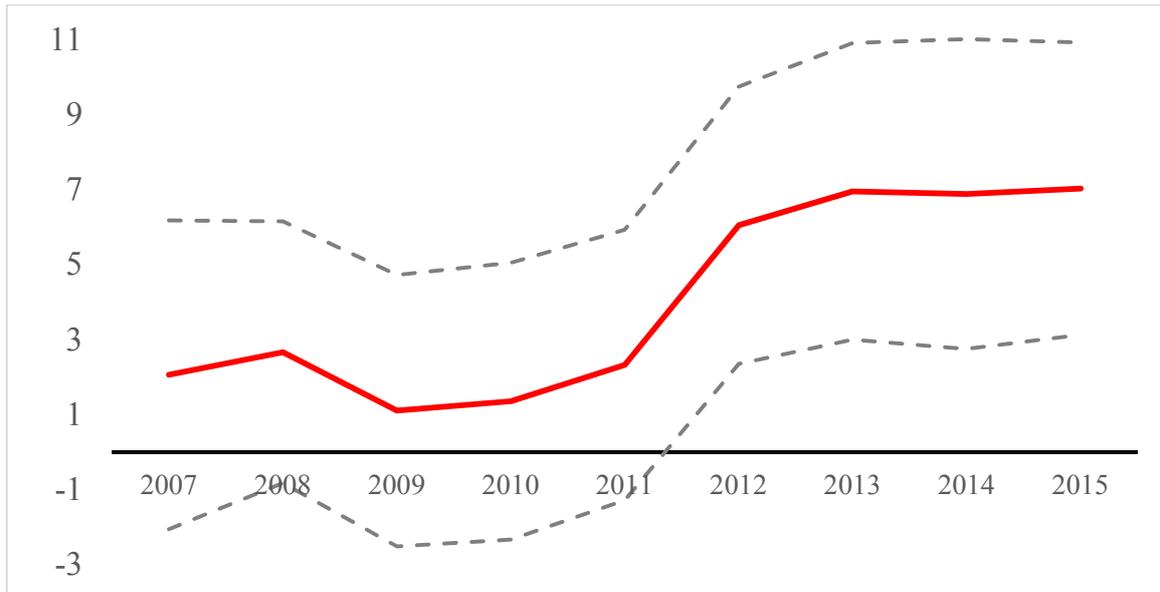
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## FIGURES & TABLES

**Figure 1. Governance Index differences among NBIM and non-NBIM firms**

This graph plots the  $\sigma$  estimates from year-by-year cross-sectional regressions and 90% confidence intervals. The  $\sigma$  estimates are yearly differences in governance between treated firms (firms that belong to the NBIM portfolio) and control firms (firms that do not belong to the NBIM portfolio). The dependent variable is the Governance Index. Only one regressor is used, a dummy variable that takes the value of one if the firm belongs to the NBIM portfolio in year  $t$  and zero otherwise.



**Table 1. Summary Statistics**

This table reports mean, standard deviation, 25th-percentile, median, 75th-percentile and number of observations for each variable by firm. The Governance Index is an index ranked from 0 to 100 that measures a company's commitment and effectiveness towards following best practice corporate governance principles. NBIM Weight (fund) is the fraction of the NBIM's portfolio represented by the firm's market value. NBIM Weight (firm) is the fraction of the firm's market value held by NBIM.  $\Delta$ Governance Index<sub>(t+i,t)</sub> measures the difference between the firm's score in t+i and t.  $\Delta$ NBIM Weight (fund)<sub>(t+i,t)</sub> measures the difference between the fraction of the NBIM's portfolio represented by the firm in t+i and in t.  $\Delta$ NBIM Weight(firm)<sub>(t+i,t)</sub> measures the difference between the percentage market value that NBIM holds of the firm in t+i and in t.

	Mean	Standard Deviation	25%	Median	75%	Obs.
Governance Index	53.877	28.61	29.589	55.267	79.231	14966
NBIM Weight (fund)	0.041	0.11	0.004	0.012	0.032	14966
NBIM Weight (firm)	0.880	1.25	0.009	0.559	0.975	14919
$\Delta$ Governance Index <sub>(t+1,t)</sub>	1.059	18.30	-8.486	0.332	10.597	12828
$\Delta$ NBIM Weight (fund) <sub>(t+1,t)</sub>	-0.001	0.03	-0.003	0.000	0.003	12828
$\Delta$ NBIM Weight (firm) <sub>(t+1,t)</sub>	0.020	0.55	-0.029	0.000	0.075	12783
$\Delta$ Governance Index <sub>(t+2,t)</sub>	1.592	21.64	-10.753	0.641	14.031	10690
$\Delta$ NBIM Weight (fund) <sub>(t+2,t)</sub>	-0.001	0.04	-0.004	0.000	0.005	10690
$\Delta$ NBIM Weight (firm) <sub>(t+2,t)</sub>	0.060	0.75	-0.022	0.002	0.146	10649

**Table 2. Governance Index differences among NBIM and non-NBIM firms**

This table presents estimates of yearly cross-sectional OLS regressions of governance index differences among NBIM and non-NBIM firms. The dependent variable is the Governance Index. For each year  $t$ , one explanatory variable is used (NBIM), a dummy variable that takes the value of one if the firm belongs to the NBIM portfolio and zero otherwise. Standard errors are shown in parentheses. \*\*\*, \*\* and \* indicate significance at the 1%, 5% and 10% level, respectively.

	2007	2008	2009	2010	2011	2012	2013	2014	2015
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
NBIM	2.064 (2.102)	2.667 (1.782)	1.107 (1.848)	1.358 (1.884)	2.326 (1.842)	6.054*** (1.888)	6.960*** (2.020)	6.887*** (2.110)	7.032*** (1.990)
Observations	1,421	2,123	2,138	2,138	2,138	2,138	2,138	2,138	2,138
R-squared	0.001	0.001	0.000	0.000	0.001	0.005	0.006	0.005	0.006

**Table 3. Governance Index differences among fund and firm weights**

This table shows estimates from OLS regressions of the effect of fund and firm weights on the governance index. The dependent variable is the Governance Index (an index that ranks from 0 to 100). In column 1, the independent variables are NBIM weight fund (fraction of the NBIM's portfolio represented by the firm), an interaction of NBIM weight fund and Post (a dummy variable that takes the value of one for the period 2012-2015 and zero for the period 2009-2011) and year dummies. Column 2 is analogous to column 1 we now use NBIM weight firm, which is the percentage of the firm's market value held by NBIM. Standard errors are shown in parentheses. \*\*\*, \*\* and \* indicate significance at the 1%, 5% and 10% level, respectively.

	Fund Weight (1)	Firm Weight (2)
NBIM_Weight	36.163*** (2.285)	1.197*** (0.290)
Post*NBIM_Weight	8.000** (3.743)	-0.309 (0.373)
Observations	18,611	18,540
R-squared	0.031	0.008

**Table 4. Governance differences for firms that enter the portfolio of NBIM**

This table reports the results from pooled OLS regressions. The dependent variable is the Governance Index fixed in 2011. The key explanatory variable is NBIM\_entry, a dummy equal to one for firms that enter the NBIM portfolio in year  $t$  and do not belong to the NBIM portfolio in year  $t-1$ . This dummy is equal to zero according to the control group selected. The control group varies in each column. In column 1, NBIM\_entry is equal to zero for firms that do not belong to the NBIM portfolio the previous and subsequent 2 years. In column 2, NBIM\_entry is equal to zero for firms that belong to the NBIM portfolio the previous and subsequent 2 years. In column 3, NBIM\_entry is equal to zero for NBIM and non-NBIM firms. Post is a dummy variable equal to one for the period 2012-2015 and equal to zero for the period 2009-2011. Columns 4, 5 and 6 are analogous to columns 1, 2 and 3, but we exclude the entries that are driven by entries in the FTSE Global Cap. Year dummies are included. Standard errors clustered at the firm level are shown in parentheses. \*\*\*, \*\* and \* indicate significance at the 1%, 5% and 10% level, respectively.

	All Entries			Discretionary Entries Only		
	Vs-NonNBIM (1)	Vs-NBIM (2)	Vs-ALL (3)	Vs-NonNBIM (4)	Vs-NBIM (5)	Vs-ALL (6)
NBIM entry	-4.011** (1.908)	-9.850*** (1.541)	-8.939*** (1.507)	-4.918* (2.687)	-10.881*** (2.451)	-9.909*** (2.428)
NBIM entry *Post	4.426* (2.365)	5.889*** (2.084)	5.486*** (2.104)	6.406** (3.157)	7.916*** (3.013)	7.451** (3.016)
Observations	2,906	14,892	17,026	2,572	14,558	16,692
R-squared	0.003	0.004	0.002	0.004	0.002	0.001

**Table 5. Governance differences for firms that exit the portfolio of NBIM**

This table reports the results from pooled OLS regressions. The dependent variable is the Governance Index fixed in 2011. The key explanatory variable is NBIM\_exit, a dummy equal to one for firms that exit the NBIM portfolio in year  $t$ . This dummy is equal to zero according to the control group selected. The control group varies in each column. In column 1, NBIM\_exit is equal to zero for firms that do not belong to the NBIM portfolio the previous and subsequent 2 years. In column 2, NBIM\_exit is equal to zero for firms that belong to the NBIM portfolio the previous and subsequent 2 years. In column 3, NBIM\_exit is equal to zero for NBIM and non-NBIM firms. Post is a dummy variable equal to one for the period 2012-2015 and equal to zero for the period 2009-2011. Columns 4, 5 and 6 are analogous to columns 1, 2 and 3, but we exclude the exits that are driven by exits in the FTSE Global Cap. Year dummies are included. Standard errors clustered at the firm level are shown in parentheses. \*\*\*, \*\* and \* indicate significance at the 1%, 5% and 10% level, respectively.

	All Exits			Discretionary Exits Only		
	Vs-NonNBIM (1)	Vs-NBIM (2)	Vs-ALL (3)	Vs-NonNBIM (4)	Vs-NBIM (5)	Vs-ALL (6)
NBIM_exit	2.010 (2.261)	-3.342* (1.921)	-2.586 (1.899)	2.283 (2.366)	-3.054 (2.036)	-2.322 (2.015)
NBIM_exit *Post	-5.807* (2.979)	-5.058* (2.756)	-5.311* (2.766)	-7.661** (3.120)	-6.954** (2.916)	-7.184** (2.924)
Observations	2,651	14,637	16,771	2,596	14,582	16,716
R-squared	0.003	0.001	0.001	0.004	0.002	0.001

**Table 6. The effect of NBIM on firm governance**

This table reports estimates of the effect of the announcement on the governance of NBIM portfolio firms. The dependent variable is the Governance Index measured at the firm level. Column 1 reports estimates of a pooled OLS regression. Columns 2 and 3 include firm fixed effects. NBIM is a dummy variable equal to one for firms in the portfolio of NBIM in 2011 and zero otherwise. Post is a dummy variable equal to one for the period 2012-2015 and equal to zero for the period 2009-2011. In column 3, year\* is a dummy variable for the years 2010, 2011, 2012, 2013, 2014 and 2015, the reference year is 2009. Year dummies and dummies on the interaction of the dummy Post and country dummies are included. Standard errors clustered at the firm level are shown in parentheses. \*\*\*, \*\* and \* indicate significance at the 1%, 5% and 10% level, respectively.

	(1)	(2)	(3)
NBIM*Post	5.912*** (1.785)	4.913*** (1.299)	
NBIM*year2010			0.639 (1.422)
NBIM*year2011			2.349 (1.569)
NBIM*year2012			5.293*** (1.746)
NBIM*year2013			4.984*** (1.836)
NBIM*year2014			6.246*** (2.060)
NBIM*year2015			7.072*** (1.994)
Year & Post*Country dummies	Yes	Yes	Yes
Firm F.E.	No	Yes	Yes
Observations	14,966	14,966	14,966
R-squared	0.035	0.024	0.025
Number of id		2,138	2,138

**Table 7. The effect of NBIM on governance – discretionary investments**

This table reports estimates of the effect of the announcement on the governance of NBIM portfolio firms. The dependent variable is the Governance Index. NBIM is a dummy variable equal to one for firms in the portfolio of NBIM in 2011 and zero otherwise. FTSE is a dummy variable equal to one for firms in the FTSE in 2011 and zero otherwise. OnlyNBIM is a dummy variable equal to one for firms in the portfolio of NBIM in 2011 that do not belong to FTSE in 2011. OnlyFTSE is a dummy variable equal to one for firms in the FTSE in 2011 that do not belong to NBIM in 2011 or have not been excluded by the ethics committee of NBIM in 2011. NBIMFTSE is a dummy variable equal to one for firms both in the portfolio of NBIM in 2011 and in the FTSE in 2011. Excluded-ethics is a dummy variable equal to one for firms that have been excluded from NBIM holdings by the ethics committee of NBIM by 2011. Post is a dummy variable equal to one for the period 2012-2015 and equal to zero for the period 2009-2011. Firm fixed effects, year dummies and dummies on the interaction of the dummy Post and country dummies are included. Standard errors clustered at the firm level are shown in parentheses. \*\*\*, \*\* and \* indicate significance at the 1%, 5% and 10% level, respectively.

	(1)	(2)	(3)	(4)
NBIM*Post	4.913*** (1.299)		4.119*** (1.462)	
FTSE*Post		3.089*** (1.085)	1.444 (1.216)	
OnlyNBIM*Post				3.863** (1.953)
NBIMFTSE*Post				5.171*** (1.551)
OnlyFTSE*Post				1.105 (2.851)
Excluded-ethics*Post				-1.949 (4.134)
Firm F.E.	Yes	Yes	Yes	Yes
Year & Post*Country dummies	Yes	Yes	Yes	Yes
Observations	14,966	14,966	14,966	14,966
R-squared	0.024	0.023	0.025	0.025
Number of id	2,138	2,138	2,138	2,138

**Table 8. The effect of NBIM on firm governance – Extensive vs. Intensive margin**

This table reports OLS estimates from panel regressions with firm fixed effects. The dependent variable is the Governance Index.  $NBIM\_Weight_{2011}(fund)$  is the fraction of the NBIM's portfolio represented by the firm's market value in 2011.  $NBIM\_Weight_{2011}(firm)$  is the fraction of the firm's market value held by NBIM in 2011. Post is a dummy variable equal to one for the period 2012-2015 and equal to zero for the period 2009-2011. In column 4,  $I(\% \text{ quartile } i)$  is a dummy variable equal to one for firms in the  $i$ th quartile of  $NBIM\_Weight_{2011}(fund)$ . In column 5,  $I(\% \text{ quartile } i)$  is a dummy variable equal to one for firms in the  $i$ th quartile of  $NBIM\_Weight_{2011}(firm)$ . In columns 4 and 5, the reference group is formed by all the firms that are not in the portfolio of NBIM in 2011. Firm fixed effects, year dummies and dummies on the interaction of the dummy Post and country dummies are included. Standard errors clustered at the firm level are shown in parentheses. \*\*\*, \*\* and \* indicate significance at the 1%, 5% and 10% level, respectively.

	Fund (1)	Firm (2)	Fund+Firm (3)	Fund (4)	Firm (5)
Post*NBIM_Weight <sub>2011</sub> (firm)		0.40* (0.20)	0.43** (0.21)		
Post* NBIM_Weight <sub>2011</sub> (fund)	-0.37 (2.23)		-1.49 (2.29)		
Post* I(% quartile1)				4.26*** (1.51)	1.52 (2.12)
Post* I(% quartile2)				4.71*** (1.48)	3.75** (1.62)
Post* I(% quartile3)				4.82*** (1.46)	4.86*** (1.63)
Post* I(% quartile4)				5.76*** (1.45)	8.50*** (1.70)
Firm F.E.	Yes	Yes	Yes	Yes	Yes
Year & Post*Country dummies	Yes	Yes	Yes	Yes	Yes
Observations	14,966	14,910	14,910	14,966	14,910
R-squared	0.01	0.02	0.02	0.02	0.02
Number of id	2,138	2,130	2,130	2,138	2,130

**Table 9. The effect of NBIM on firm governance – Heterogeneous effects**

This table reports OLS estimates from panel regressions with firm fixed effects. The dependent variable is the Governance Index. Post is a dummy variable equal to one for the period 2012-2015 and equal to zero for the period 2009-2011. NBIM is a dummy variable equal to one for firms in the portfolio of NBIM in 2011 and zero otherwise. For each feature analyzed, we create quartiles, so that  $Q(\% \text{ quartile } i)$  is a dummy variable equal to one for firms in the  $i$ th quartile of each feature in 2011. In column 1 we classify NBIM portfolio firms according to total assets. In column 2 we classify NBIM portfolio firms according to total market value. In column 3 we classify NBIM portfolio firms according to performance (EBITDA over revenues). In column 4 we classify NBIM portfolio firms according to their governance index. In column 5 we classify NBIM portfolio firms according to their country's worldwide governance indicator of voice and accountability. In column 6 we classify NBIM portfolio firms according to their liquidity (daily volume traded / daily absolute return). The coefficients reported are those of the interaction of  $\text{Post} \times \text{NBIM} \times Q(\% \text{ quartile } i)$ . Firm fixed effects, time dummies and dummies on the interaction of the dummy Post and country dummies are included. Standard errors clustered at the firm level are shown in parentheses. \*\*\*, \*\* and \* indicate significance at the 1%, 5% and 10% level, respectively.

	Heterogeneous Effects on Governance					
	Assets (1)	MV (2)	Performance (3)	Governance (4)	WGI (5)	Liquidity (6)
Post*NBIM*Q(% quartile1)	8.02** (3.34)	7.65** (2.97)	9.19*** (2.95)	0.90 (2.22)	-0.02 (2.56)	6.34** (2.51)
Post*NBIM*Q(% quartile2)	6.66*** (2.36)	7.55*** (2.56)	7.64*** (2.54)	7.46*** (2.42)	4.46** (2.20)	6.13** (2.53)
Post*NBIM*Q(% quartile3)	5.61*** (2.14)	4.01* (2.17)	5.16* (2.82)	9.13*** (2.71)	12.46*** (3.06)	6.38** (2.53)
Post*NBIM*Q(% quartile4)	-0.49 (2.51)	-0.22 (2.45)	2.30 (2.18)	3.87* (2.20)	5.79** (2.83)	-0.04 (2.28)
Firm & time dummies	Yes	Yes	Yes	Yes	Yes	Yes
Post*Country dummies	Yes	Yes	Yes	Yes	Yes	Yes
Post*Q(% quartile`i`)	Yes	Yes	Yes	Yes	Yes	Yes
Observations	14,945	14,910	13,748	14,966	14,728	14,686
R-squared	0.03	0.03	0.03	0.04	0.03	0.03
Number of id	2,135	2,130	1,964	2,138	2,104	2,098

**Table 10. Changes on investment and changes on governance.**

This table reports the results from OLS regressions. The dependent variable is the difference between the Governance Index in t+2 and the Governance Index in t. In column 1,  $\Delta\text{NBIM\_Weight}_{(t+2,t)}$  measures the difference between the fraction of the NBIM's portfolio represented by the firm in t+2 and in t. In column 2,  $\Delta\text{NBIM\_Weight}_{(t+2,t)}$  measures the difference between the percentage market value that NBIM holds of the firm in t+2 and in t. Post is a dummy variable equal to one for the period 2012-2015 and equal to zero for the period 2009-2011. Year dummies and dummies on the interaction of the dummy Post and country dummies are included. Standard errors are shown in parentheses. \*\*\*, \*\* and \* indicate significance at the 1%, 5% and 10% level, respectively.

	Fund (1)	Firm (2)
Post* $\Delta\text{NBIM\_Weight}_{(t+2,t)}$	24.515** (10.421)	0.584 (0.590)
$\Delta\text{NBIM\_Weight}_{(t+2,t)}$	0.544 (6.287)	0.139 (0.369)
Year & Post*Country dummies	Yes	Yes
Observations	10,690	10,649
R-squared	0.014	0.013

## APPENDIX

**Table A1. NBIM holdings and Eikon (Thomson Reuters) coverage**

This table presents NBIM total holdings by year (column 2) and the amounts covered by the Eikon (Thomson Reuters) database (column 3). Column 4 shows the percentage of the NBIM total holdings that are covered by the Eikon (Thomson Reuters) database. For each year it divides the value of column 2 by the value of column 3.

	NBIM total holdings (\$ billions)	NBIM holdings matched with Eikon (\$ billions)	Percentage covered
2008	160.53	115.44	71.9%
2009	284.73	210.49	73.9%
2010	325.76	240.04	73.7%
2011	325.19	243.45	74.9%
2012	417.83	318.58	76.2%
2013	515.69	388.91	75.4%
2014	526.81	397.79	75.5%
2015	519.50	399.86	77.0%

**Table A2: Summary statistics by sector of economic activity**

This table reports the number of companies in each group by sector of economic activity. In column 2, Non-NBIM are companies which do not belong to the portfolio of NBIM in 2011, they form our “control group”. In column 3, NBIM are companies that belong to the portfolio of NBIM in 2011, they form our “treated group”. Column 4 adds the number of firms in columns 2 and 3 for each sector of economic activity. Column percentages are shown below the number of companies.

<b>Sector of Economic Activity</b>	<b>Non-NBIM</b>	<b>NBIM</b>	<b>Total</b>
Accommodation and Food Services	30	45	75
	2.4%	1.5%	1.8%
Administrative, Support, Waste Management, Remediation Services	15	44	59
	1.2%	1.5%	1.4%
Agriculture, Forestry, Fishing and Hunting	7	9	16
	0.5%	0.3%	0.4%
Arts, Entertainment, and Recreation	6	19	25
	0.5%	0.6%	0.6%
Construction	50	115	165
	3.9%	3.9%	3.9%
Educational Services	5	9	14
	0.4%	0.3%	0.3%
Finance and Insurance	247	438	685
	19.4%	14.8%	16.2%
Health Care and Social Assistance	21	21	42
	1.6%	0.7%	1.0%
Information	109	193	302
	8.6%	6.5%	7.1%
Manufacturing	309	1,021.0	1,330.0
	24.3%	34.6%	31.5%
Mining, Quarrying, and Oil and Gas Extraction	137	256	393
	10.8%	8.7%	9.3%
Other Services (except Public Administration)	3	8	11
	0.2%	0.3%	0.3%
Professional, Scientific, and Technical Services	58	117	175
	4.6%	4.0%	4.1%
Real Estate and Rental and Leasing	95	163	258
	7.5%	5.5%	6.1%
Retail Trade	56	165	221
	4.4%	5.6%	5.2%
Transportation and Warehousing	45	127	172
	3.5%	4.3%	4.1%
Utilities	52	134	186
	4.1%	4.5%	4.4%
Wholesale Trade	28	68	96
	2.2%	2.3%	2.3%
<b>Total</b>	<b>1273</b>	<b>2952</b>	<b>4225</b>
	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

**Table A3: Summary statistics by country**

This table reports the number of companies in each group by country. In column 2, Non-NBIM are companies which do not belong to the portfolio of NBIM in 2011. In column 3, NBIM are companies that belong to the portfolio of NBIM in 2011. Column 4 adds the number of firms in columns 2 and 3 for each country.

Country	Non-NBIM	NBIM	Total
Australia	161	167	328
Austria	2	11	13
Bahrain	8	0	8
Belgium	4	20	24
Brazil	39	42	81
Canada	86	179	265
Chile	6	16	22
China	71	66	137
Colombia	4	7	11
Cyprus	2	0	2
Czech Republic	0	3	3
Denmark	3	19	22
Egypt	2	9	11
Finland	0	21	21
France	12	80	92
Germany	9	71	80
Greece	4	14	18
Hong Kong	20	109	129
Hungary	0	4	4
India	47	42	89
Indonesia	26	6	32
Ireland	0	13	13
Ireland	10	0	10
Israel	3	14	17
Italy	5	35	40
Japan	22	348	370
Jordan	1	0	1
Kazakhstan	1	0	1
Kuwait	11	0	11
Luxembourg	3	1	4
Malaysia	17	30	47
Malta	1	0	1
Mexico	14	19	33
Morocco	2	1	3
Netherlands	14	21	35
New Zealand	25	12	37
Nigeria	1	0	1
Norway	16	0	16
Oman	9	0	9
Papua New Guinea	1	0	1
Peru	0	2	2
Philippines	8	17	25
Poland	7	23	30
Portugal	0	10	10
Qatar	12	0	12
Russia	15	16	31
Saudi Arabia	14	0	14
Singapore	7	30	37
South Africa	76	36	112
South Korea	56	56	112
Spain	11	35	46
Sri Lanka	1	0	1
Sweden	11	43	54
Switzerland	9	56	65
Taiwan	9	106	115
Thailand	25	8	33
Turkey	0	18	18
United Arab Emirates	9	4	13
United Kingdom	126	245	371
United States	214	871	1,085
Zimbabwe	1	0	1
<b>Total</b>	<b>1,273</b>	<b>2,956</b>	<b>4,229</b>

**Table A4: Number of firms that enter and exit the NBIM portfolio every year**

This table reports the number of firms that NBIM yearly exits and entries. Columns 3 and 4 report NBIM exits and entries that are not driven by FTSE exits and entries.

	Exits	Entries	Exits (Discretionary)	Entries (Discretionary)
2009	70	150	50	77
2010	31	169	25	73
2011	228	157	219	52
2012	70	205	64	149
2013	60	279	50	177
2014	81	235	76	105

**Table A5. Governance Index differences among NBIM and non-NBIM firms (weighted)**

This table presents estimates of yearly cross-sectional OLS regressions regressions (weighted by the logarithm of assets) of governance index differences among NBIM and non-NBIM firms. The dependent variable is the Governance Index. For each year  $t$ , one explanatory variable is used (NBIM), a dummy variable that takes the value of one if the firm belongs to the NBIM portfolio and zero otherwise. Standard errors are shown in parentheses. \*\*\*, \*\* and \* indicate significance at the 1%, 5% and 10% level, respectively.

	2007	2008	2009	2010	2011	2012	2013	2014	2015
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
NBIM	1.558 (2.134)	2.799 (1.808)	1.091 (1.874)	0.914 (1.906)	2.092 (1.852)	5.605*** (1.901)	6.462*** (2.040)	6.531*** (2.119)	6.689*** (2.007)
Observations	1,417	2,117	2,135	2,135	2,135	2,137	2,135	2,132	2,138
R-squared	0.000	0.001	0.000	0.000	0.001	0.004	0.005	0.004	0.005

**Table A6. The effect on governance of NBIM portfolio firms (weighted)**

This table reports estimates of panel regressions (weighted by the logarithm of assets) of the effect of the announcement on the governance of NBIM portfolio firms. The dependent variable is the Governance Index. NBIM is a dummy variable equal to one for firms in the portfolio of NBIM in 2011 and zero otherwise. FTSE is a dummy variable equal to one for firms in the FTSE in 2011 and zero otherwise. OnlyNBIM is a dummy variable equal to one for firms in the portfolio of NBIM in 2011 that do not belong to FTSE in 2011. OnlyFTSE is a dummy variable equal to one for firms in the FTSE in 2011 that do not belong to NBIM in 2011 or have not been excluded by the ethics committee of NBIM in 2011. NBIMFTSE is a dummy variable equal to one for firms both in the portfolio of NBIM in 2011 and in the FTSE in 2011. Excluded-ethics is a dummy variable equal to one for firms that have been excluded from NBIM holdings by the ethics committee of NBIM by 2011. Post is a dummy variable equal to one for the period 2012-2015 and equal to zero for the period 2009-2011. Firm fixed effects, year dummies and dummies on the interaction of the dummy Post and country dummies are included. Standard errors clustered at the firm level are shown in parentheses. \*\*\*, \*\* and \* indicate significance at the 1%, 5% and 10% level, respectively.

	(1)	(2)	(3)	(4)
NBIM*Post	4.547*** (1.402)		3.674** (1.582)	
FTSE*Post		3.096*** (1.179)	1.651 (1.328)	
OnlyNBIM*Post				3.621* (2.115)
NBIMFTSE*Post				5.022*** (1.673)
OnlyFTSE*Post				1.741 (3.153)
Excluded-ethics*Post				-1.512 (4.320)
Firm F.E.	Yes	Yes	Yes	Yes
Year & Post*Country dummies	Yes	Yes	Yes	Yes
Observations	14,947	14,947	14,947	14,947
R-squared	0.733	0.732	0.733	0.733

**Table A7. Governance Index differences for firms that enter the portfolio of NBIM (weighted)**

This table reports the results from pooled OLS regressions (weighted by the logarithm of assets). The dependent variable is the Governance Index fixed in 2011. The key explanatory variable is NBIM\_entry, a dummy equal to one for firms that enter the NBIM portfolio in year  $t$  and do not belong to the NBIM portfolio in year  $t-1$ . This dummy is equal to zero according to the control group selected. The control group varies in each column. In column 1, NBIM\_entry is equal to zero for firms that do not belong to the NBIM portfolio the previous and subsequent 2 years. In column 2, NBIM\_entry is equal to zero for firms that belong to the NBIM portfolio the previous and subsequent 2 years. In column 3, NBIM\_entry is equal to zero for NBIM and non-NBIM firms. Post is a dummy variable equal to one for the period 2012-2015 and equal to zero for the period 2009-2011. Columns 4, 5 and 6 are analogous to columns 1, 2 and 3, but we exclude the entries that are driven by entries in the FTSE Global Cap. Year dummies are included. Standard errors clustered at the firm level are shown in parentheses. \*\*\*, \*\* and \* indicate significance at the 1%, 5% and 10% level, respectively.

	Vs-NonNBIM (1)	Vs-NBIM (2)	Vs-ALL (3)	Vs-NonNBIM (4)	Vs-NBIM (5)	Vs-ALL (6)
NBIM_entry	-4.762** (1.970)	-10.043*** (1.591)	-9.269*** (1.558)	-5.526** (2.775)	-10.915*** (2.543)	-10.096*** (2.519)
NBIM_entry *Post	4.456* (2.379)	5.587*** (2.128)	5.283** (2.142)	6.358** (3.224)	7.532** (3.104)	7.182** (3.103)
Observations	2,859	14,865	16,962	2,530	14,536	16,633
R-squared	0.003	0.004	0.003	0.003	0.002	0.002

**Table A8. Governance Index differences for firms that exit the portfolio of NBIM (weighted)**

This table reports the results from pooled OLS regressions (weighted by the logarithm of assets). The dependent variable is the Governance Index fixed in 2011. The key explanatory variable is NBIM\_exit, a dummy equal to one for firms that exit the NBIM portfolio in year  $t$ . This dummy is equal to zero according to the control group selected. The control group varies in each column. In column 1, NBIM\_exit is equal to zero for firms that do not belong to the NBIM portfolio the previous and subsequent 2 years. In column 2, NBIM\_exit is equal to zero for firms that belong to the NBIM portfolio the previous and subsequent 2 years. In column 3, NBIM\_exit is equal to zero for NBIM and non-NBIM firms. Post is a dummy variable equal to one for the period 2012-2015 and equal to zero for the period 2009-2011. Columns 4, 5 and 6 are analogous to columns 1, 2 and 3, but we exclude the exits that are driven by exits in the FTSE Global Cap. Year dummies are included. Standard errors clustered at the firm level are shown in parentheses. \*\*\*, \*\* and \* indicate significance at the 1%, 5% and 10% level, respectively.

	Vs-NonNBIM (1)	Vs-NBIM (2)	Vs-ALL (3)	Vs-NonNBIM (4)	Vs-NBIM (5)	Vs-ALL (6)
NBIM_exit	0.790 (2.298)	-4.092** (1.945)	-3.446* (1.924)	1.074 (2.392)	-3.830* (2.050)	-3.200 (2.029)
NBIM_exit *Post	-4.881 (3.007)	-4.374 (2.796)	-4.556 (2.805)	-6.686** (3.145)	-6.186** (2.946)	-6.353** (2.953)
Observations	2,613	14,619	16,716	2,558	14,564	16,661
R-squared	0.003	0.002	0.001	0.004	0.002	0.001

**Table A9. First stage: relevance of NBIM-2011**

This table reports the results from OLS regressions. The dependent variable is the dummy NBIM-year, for each year  $t$ , this dummy is equal to one for firms that belong to the portfolio of NBIM, and zero otherwise. NBIM is a dummy equal to one for firms that belong to the portfolio of NBIM in 2011, and zero otherwise. Post is a dummy equal to one for the period 2012-2015, and zero otherwise. In column 2, we add interactions of NBIM with year dummies for 2012, 2013, 2014 and 2015. Standard errors clustered at the firm level are shown in parentheses. \*\*\*, \*\* and \* indicate significance at the 1%, 5% and 10% level, respectively.

	Relevance (1)	Relevance with YD (2)
NBIM*Post	0.663*** (0.024)	
NBIM*year2012		0.833*** (0.022)
NBIM*year2013		0.694*** (0.028)
NBIM*year2014		0.602*** (0.030)
NBIM*year2015		0.526*** (0.031)
Year & Post*Country dummies	Yes	Yes
Observations	14,966	14,966
R-squared	0.958	0.960

**Table A10: Granger Causality**

These tables report results from Granger causality Wald tests by implementing a GMM panel vector autoregression model. In column 1 and 3, the dependent variable is  $\Delta\text{Governance}_{(t+1,t)}$ , a variable equal to the difference of the governance index between year t+1 and year t. In columns 2 and 4, the dependent variable is  $\Delta\text{NBIM\_Weight}_{(t+1,t)}$  which measures the difference between the fraction of the NBIM's portfolio represented by the firm in year t+1 and year t. The regressors are one period lagged measures of  $\Delta\text{Governance}_{(t+1,t)}$ , and  $\Delta\text{NBIM\_Weight}_{(t+1,t)}$ . Columns 1 and 2 report results for the period 2012-2015, and columns 3 and 4 report results for the period 2009-2011. Panel B and Panel C report P-values for the estimates of the regressions in column 1 and column 2. Standard errors are shown in parentheses. \*\*\*, \*\* and \* indicate significance at the 1%, 5% and 10% level, respectively.

Panel A: GMM estimation

	$\Delta\text{Gov}_{(t+1,t)}$ 2012-15 (1)	$\Delta\text{NBIM\_W}_{(t+1,t)}$ 2012-15 (2)	$\Delta\text{Gov}_{(t+1,t)}$ 2009-11 (3)	$\Delta\text{NBIM\_W}_{(t+1,t)}$ 2009-11 (4)
Lagged $\Delta\text{Governance}_{(t+1,t)}$	-0.195*** (0.021)	0.005** (0.002)	-0.210*** (0.013)	0.003 (0.002)
Lagged $\Delta\text{NBIM\_Weight}_{(t+1,t)}$	0.132 (0.141)	0.062 (0.075)	-0.018 (0.060)	-0.084** (0.035)
Observations	4,276	4,276	6,399	6,399

Panel B: Changes in governance:  $\Delta\text{Governance}_{(t+1,t)}$  P- value

- Predicted by lagged $\Delta\text{NBIM\_Weight}_{(t+1,t)}$	0.348
- Controls for lagged $\Delta\text{Governance}_{(t+1,t)}$	

Panel C: Changes in fund weights:  $\Delta\text{NBIM\_Weight}_{(t+1,t)}$  P- value

- Predicted by lagged $\Delta\text{Governance}_{(t+1,t)}$	0.049
- Controls for lagged $\Delta\text{NBIM\_Weight}_{(t+1,t)}$	

### How Eikon ESG builds the score for the Management Category.

The Management Category designed by Eikon measures a company's relative performance on 34 management indicators (listed below), based on company-reported information. We obtain one management score per company and year. We called this our governance index and it takes values from 0 to 100. Each indicator within the category score is calculated as a "percentile score", which ranks companies according to each indicator. It is based on three factors: How many companies are worse than the current one? How many companies have the same value? And how many companies have a value at all? For each indicator, we obtain a score. The formula to calculate the score of each indicator is described in equation (1):

$$\frac{\text{n. of companies with a worst value} + \frac{\text{n. of companies with the same value included in the current one}}{2}}{\text{n. of companies with a value}}$$

Thus, after calculating the score of the 34 indicators per company, we derive the average scores for individual companies as the equally weighted sum of the 34 indicators, as described in equation (2).

$$\text{average score} = \sum_{s=1}^S \text{score} / 34 \quad (2)$$

The last step to obtain the Management score, takes the average scores for each company obtained in equation (2) and repeats the formula in equation (1), to rank again companies according to their average scores.

*Management score =*

$$\frac{\text{n. of companies with a worst average score} + \frac{\text{n. of companies with the same average score included in the current one}}{2}}{\text{n. of companies with an average score}}$$

**TABLE A11. Definitions of the provisions included in the Management Score of Eikon.**

Board Cultural Diversity	Percentage of board members that have a cultural background different from the location of the corporate headquarters.
Executive Members Gender Diversity	Percentage of female executive members.
Board Functions Policy	Does the company have a policy for maintaining effective board functions?
Board Meeting Attendance Average	The average overall attendance percentage of board meetings as reported by the company.
Succession Plan	Does the company have a succession plan for executive management (key board members) in the event of unforeseen circumstances?
External Consultants	Do the board or board committees have the authority to hire external advisers or consultants without management's approval?
Audit Committee Independence	Percentage of independent board members on the audit committee as stipulated by the company.
Audit Committee Mgt Independence	Does the company report that all audit committee members are non-executives?
Compensation Committee Independence	Percentage of independent board members on the compensation committee as stipulated by the company.
Compensation Committee Mgt Independence	Does the company report that all compensation committee members are non-executives?
Nomination Committee Independence	Percentage of non-executive board members on the nomination committee.
Nomination Committee Involvement	Percentage of nomination committee members who are significant shareholders (more than 5%).
Board Attendance	Does the company publish information about the attendance of the individual board members at board meetings?
Board Structure Policy	Does the company have a policy for maintaining a well-balanced membership of the board?
Board Size More Ten Less Eight	Total number of board members which are in excess of ten or below eight.
Board Background and Skills	Does the company describe the professional experience or skills or the age of every board member?
Female on Board	Percentage of female on the board.
Board Specific Skills	Percentage of board members who have either an industry specific background or a strong financial background.
Experienced Board	Average number of years each board member has been on the board.
Non-Executive Board Members	Percentage of non-executive board members.

Independent Board Members	Percentage of independent board members as reported by the company.
CEO-Chairman Separation	Does the CEO simultaneously chair the board or has the chairman of the board been the CEO of the company?
Board Member Affiliations	Average number of other corporate affiliations for the board member.
Board Individual Reelection	Are all board member individually subject to re-election (no classified or staggered board structure)?
Executive Compensation Policy	Does the company have a policy for performance-oriented compensation that attracts and retain the senior executives and board members?
Compensation Improvement Tools	Does the company have the necessary internal improvement and information tools for the board members to develop appropriate compensation/remuneration to attract and retain key executives?
CEO Compensation Link to TSR	Is the CEO's compensation linked to total shareholder return (TSR)?
Total Senior Executives Compensation	The total compensation paid to all senior executives as reported by the company.
Shareholders Approval Stock Compensation Plan	Does the company require that shareholder approval is obtained prior to the adoption of any stock based compensation plans?
Executive Individual Compensation	Does the company provide information about the total individual compensation of all executives and board members?
Highest Remuneration Package	Highest remuneration package within the company in US dollars.
Executive Compensation LT Objectives	Is the management and board members remuneration partly linked to objectives or targets which are more than two years forward looking?
Sustainability Compensation Incentives	Is the senior executive's compensation linked to CSR/H&S/Sustainability targets?
Internal Audit Department Reporting	Does the internal audit department report to the audit committee of the board?