

# The Systemic Governance Influence of Universal Owners: Evidence from an Expectation Document

Finance Working Paper N° 625/2019

June 2020

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## Abstract

Universal owners can systemically diffuse their investment preferences to a large share of the market. We use the unexpected release of a corporate governance expectation document by Norway's sovereign wealth fund as a natural experiment to understand how active universal investors can influence firms. We introduce a new decomposition to explore the effectiveness of this distinct activism tool. We show how firms adapted to the fund's new portfolio-wide governance expectations and explore their heterogeneous response across ownership levels and firm characteristics. We also show how the fund changed its investment policy to meet its new stated preferences.

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Keywords: Corporate Governance; Institutional Ownership; Expectation Document

JEL Classifications: F30, G32, G34

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# **The systemic governance influence of universal owners: evidence from an expectation document**

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Institutional investors have multiple governance mechanisms to exert external control, whether it is via negotiations with the board, having board representation or launching proxy fights. These mechanisms tend to be costly and resource demanding (Gantchev, 2013). This cost is particularly relevant for universal owners, i.e., large, active long-term investors with a globally diversified investment portfolio. They are more constrained to perform costly monitoring, since they capture a significant part of the public market (thousands of companies). Initiating numerous aggressive individual company campaigns, like hedge funds do, is not cost effective for universal owners. Moreover, every universal owner who acts as an active owner faces a free-riding cost; as the benefits of their monitoring efforts are shared among all investors while they bear the full cost. One low cost and high reach strategy for universal owners has been to resort to expectation documents, a governance mechanism that systemically affects the entire portfolio of firms.

The systemic influence of expectation documents has not been studied in the finance literature nor we know about their effectiveness as an activism tool. Yet, their importance is growing as universal owners such as BlackRock, Vanguard, and State Street –collectively controlling over 80 percent of all indexed funds—increasingly use this mechanism to widen their influence on their portfolio firms. Some recent examples are the “Letters to CEOs” by BlackRock’s CEO Larry Fink requesting to disclose “company’s purpose beyond shareholder value maximization” or the Vanguard’s “Investment Stewardship Reports.”<sup>1</sup> Beyond these individual investor efforts, several platforms such as the Institutional Investors Group on Climate Change (IGCC), allow multiple investors to exert systemic influence by jointly adhering to collective expectation documents.<sup>2</sup> With stock ownership being increasingly concentrated in fewer hands which passively manage their positions (Appel, Gormley, and Keim, 2016), understanding the role of a cost-effective systemic

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<sup>1</sup> Another example is that of Japan’s Government Pension Investment Fund, the world’s largest public pension fund. They revised its investment principles in 2017 to incorporate ESG issues and have encouraged its portfolio companies to improve and disclose their carbon efficiency.

<sup>2</sup> Platforms that put together multiple investors share with large universal investors the limitations for active monitoring. IGCC has 230 members across 15 countries, with over €30 trillion in assets under management.

governance mechanism such as expectation documents is of paramount importance. This form of activism is particularly cost effective for owners that are both universal and active. In the case of universal owners, expectation documents only require the publication of a unique document which is applicable to all its portfolio firms. The owner publicly reveals its preferences to the entire market, which increases its credibility and implies commitment with the strategy disclosed, thus increasing the influence exerted to its investee firms. Moreover, this activism tool is more effective for active owners, since the announcement is complemented with a credible threat of exit (Levit, 2019).

We follow the governance practices of the Norwegian sovereign wealth fund to study the effectiveness of the systemic influence of active universal owners via expectation documents. Norges Bank Investment Management (NBIM) is the asset manager of the largest fund in this particular asset group of government-backed owners (sovereign wealth funds) and holds on average 1.1% of all listed stocks globally. In November 2012, NBIM unexpectedly released an expectation document (hereinafter “the Note”) presenting NBIM’s expectations on the corporate governance of all its investee firms.<sup>3</sup> The Note’s request was a call for the improvement of certain corporate governance aspects of all their investee firms. The argument was that effective corporate governance as defined by NBIM and which we measure with a governance score, will lead to better long-term financial performance. The Note is an early example of an expectation document for which we have detailed data. It is also explicit about the specific dimensions of corporate governance practices that it targets (more effective board monitoring and greater minority shareholder rights). These dimensions match well-established corporate governance practices such as board independence, board diversity, or dual leadership, making the Note useful when it comes to analyzing its effects on firms.

While there is a growing literature exploring the preferences and interactions between active owners and firms, isolating the direct systemic influence of active owners on investee firms’ policies has proved difficult, given that both the investors’ decisions and firms’ policies are jointly

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<sup>3</sup> <https://www.nbim.no/en/publications/discussion-notes/2012/corporate-governance/> 19 November 2012

codetermined.<sup>4</sup> A correlation between investor preferences and firm policies could be driven by the investment policy of the investor, by firms catering to the specific preferences of the investor or by the adjustment of the investor expectations to the characteristics of each firm. This correlation creates an inherent problem of endogeneity. To disentangle the causal impact of the investor's preferences on firm policies, one would need an unexpected change of investor preferences that operates across all firms in a systemic way. The unexpected nature of the Note, its importance, its applicability to the whole portfolio universe and its focus on specific dimensions on governance provides us with a valuable source of variation that can be considered exogenous from the point of view of the firm.<sup>5</sup>

Our setting offers an interesting opportunity to explore the impact of an expectation document which seeks to exert a systemic influence, at least, on three dimensions: it expects the adoption of a precise set of governance practices, it affects all companies in NBIM's portfolio, and given the universal reach of the NBIM holdings, it yields an economic influence to the entire market.

We first show, using a difference-in-differences estimation strategy, how, indeed, the overall governance of NBIM's portfolio became more aligned with the Note's expectations following the announcement. Next, our study tries to unpack whether and how the Note has an effective systemic influence both on the investee firms and on the fund itself, and how these effects co-evolve. To this end, we introduce a new quantitative decomposition to analyze the overall governance effect generated by the release of the Note. Indeed, we show that the overall increase in the governance score of the NBIM portfolio can be analytically decomposed into three components: i) the increase

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<sup>4</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 (2016) show theoretically how exit strategies that are incentive-compatible for investors can affect firms' actions. Bushee, Carter, and Gerakos (2014) and Aggarwal, Erel, Ferreira, and Matos (2011) provide evidence regarding how investors and firms match in terms of their policies and preferences. Dimson, Karakas, and Li (2015) find that institutional investor activism on specific firms leads to changes in the firms' CSR policies and is followed by positive abnormal stock returns.

<sup>5</sup> More generally, sovereign wealth funds provide useful evidence about shareholder influence, as they often have public, time-varying preferences on issues beyond stock returns. In this paper, we focus on the Norwegian sovereign wealth fund's fostering "good corporate governance" as part of our empirical strategy. Other examples are New Zealand's fund open stance towards environmentally friendly investments or United Arab Emirates' funds objective of diversifying the country's economy.

in the governance score of those firms that were already present in the fund's portfolio at the time of the announcement, ii) the change in the composition of the firms that integrate the fund's portfolio, that is, the entry or exit of firms in the NBIM portfolio, and iii) the new correlation between the firms' changes towards higher governance scores and the fund's changes in the investment weights.

By introducing this new quantitative decomposition of the overall effect of the Note, we lay out a useful analytical roadmap to empirically assess the consequences of expectation announcements made by other universal owners. This decomposition in three steps helps to analyze in a newly integral way the influence of universal owners. That is, it allows not only to understand the reaction of investee firms to the announcement, but also the simultaneous adaptation of the owner to its own expectations via its investment strategy, and finally, the interaction of the changes made by the universal owner to the changes observed in firms, and vice versa.

Thus, we firstly examine how firms, which were part of NBIM's portfolio at the time of the announcement, changed their corporate governance to meet NBIM's corporate governance expectations. We find that investee firms increased their governance score, thus aligning themselves better with the fund's new governance preferences. This increase in the governance score is clearly present in the extensive margin (i.e., firms inside versus outside of the portfolio). The firm's intensive margin also shows a monotonic influence. Firms for which NBIM represents a higher ownership fraction, react more intensely to the Note. In fact, firms in the lowest quartile of NBIM's ownership do not exhibit a significant change in governance after the Note. This suggests that a minimum threshold of ownership is necessary for the expectation document to have an effect on investee firms. Fich, Harford and Tran (2015), Kempf, Manconi, and Spalt (2017) and Liu et al (2020) show that investors rationally devote less monitoring time to firms that have a smaller weight in their portfolio. We also analyze how the effect of the expectation document varies with the fund's intensive margin (i.e., different levels of importance of the firm for NBIM). We find a weak monotonicity of the effect along this dimension. This implies that the effect of the Note does not strongly depend on the



importance of a firm within NBIM's portfolio. NBIM's influence is rather homogenous and independent of its portfolio weights. This is a distinctive feature of expectation documents, consistent with it being a unique Note that affects all firms equally and aims to achieve a systemic influence.

We further explore the heterogeneous reactions of investee firms according to different firm and institutional characteristics. We find that firms that are smaller, less liquid and exhibit worse financial performance, change more their governance characteristics to align with the stated preferences of the expectation document. Interestingly, smaller firms are precisely those for which it is less cost-effective for a universal owner to perform a firm-specific stewardship role. Less liquid firms, are also those for which the threat of exit is less credible (Edmans and Manso, 2011). Our results, therefore, suggest that expectation documents can help to offset some of the inherent limitations in the stewardship strategy of large universal owners.

We also show a complementarity between the country and pre-existing firm governance scores and the firms' reactions to the Note. Firms in countries where the quality of investor protection is below the median do not significantly improve their governance score following the Note. Moreover, within each country, firms in the lowest pre-existing governance score bracket react less to the NBIM announcement.

Second, we show that the fund changes its investment policy to meet the preferences released in the expectation document. The fund increased its investments in firms with higher pre-existing governance scores (i.e., inherently aligned to the fund's preferences) and decreased its investments in firms with lower governance scores (i.e., inherently less aligned to the fund's preferences). This effect is only significant when we focus on NBIM's discretionary investments and exclude the investments driven by NBIM's benchmark investment policy, demonstrating that this outcome was a deliberate shift in investment strategy. We also provide further evidence of NBIM's change in preferences by showing that NBIM is willing to accept lower financial returns in exchange of "better governance" following the release of the Note. This indicates that this change in investment

preferences is not entirely driven by the search of better financial returns. This set of results, which focus on corporate governance, are in line with other results in the literature showing that broader ESG measures matter in investors' preferences beyond returns (Bauer, Ruof, and Smeets, 2020; Hartzmark and Sussman, 2019; Riedl and Smeets, 2017).<sup>6</sup>

Finally, we explore the new correlations between the firms' changes in governance and the changes in the investment stance of the fund and uncover that, following the Note, the 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 systemic influence in the governance effectiveness of the fund. We are able to decompose quantitatively the relative influence of each component on the total governance score of NBIM's portfolio. The most important explanatory factor of the change in the NBIM's governance score is the reaction to the announcement of the Note by the firms in NBIM's portfolio.

Our work contributes to the existing literature in several ways. First, we analyze the effect of a systemic request of alignment in governance preferences of a universal active owner. We are able to causally estimate the investee firms' reaction to investor preferences that are exogenous to the individual firm's characteristics. This novel evidence reveals how governance expectations of universal active owners can change firms' policies in a systemic way. In this sense, we depart from most pre-existing studies analyzing specific interactions between given funds and firms which could be driven by the firms' particular needs or properties. Second, we introduce a decomposition methodology to evaluate the overall impact of expectation documents. We show evidence of reactions on both sides of the investment relationship following the announcement. That is, we observe how investee firms reacted to NBIM's new governance preferences and how NBIM effectively adapted its investment policies to fulfill its new stated preferences. Third, we explore the effectiveness of

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<sup>6</sup> Our findings are also in line with an announcement made by the chief investment officer of Japan's Government Pension Investment Fund: "as a universal owner, instead of trying to beat the market, our responsibility at GPIF is to make capital markets more sustainable."

portfolio-wide expectation documents as a key corporate governance mechanism. In doing so, we fill a gap in the literature, as the release of expectation documents is becoming part of the toolbox of shareholder influence and it has, so far, not attracted much scholarly attention.<sup>7</sup> We uncover an heterogeneous response of firms to the release of the Note, across ownership levels and firm characteristics, which helps us to understand the effectiveness of expectation documents. Finally, we shed some light on the dual objectives of universal owners to maximize financial returns and increase global influence. We show NBIM is indeed willing to sacrifice financial returns in the short-run to achieve its influence and increase the governance level of its portfolio in the long-run. These dual objectives may allow universal owners to affect global practices in a systemic way.

## **I. RELATED LITERATURE**

Institutional investors and their influence on firms has been studied extensively (i.e., Maug, 1998; Bushee, 2001; Gillan and Starks, 2003; Ferreira and Matos, 2008; Brav, Jiang, and Kim, 2010; Denes, Karpoff, and McWilliams, 2017). Some early work focuses on pension fund activism, such as the CalPERS' focus list, targeting specific companies (Smith, 1996; Del Guercio and Hawkins, 1999). However, most recently the attention has shifted to the highly vocal activist institutional investors, such as hedge funds, that accumulate substantive ownership and engage in aggressive shareholder activists' campaigns (Gillan and Starks, 2000; Klein and Zur, 2009; Bebchuk, Brav, and Jiang, 2015 and Brav, Jiang, and Kim, 2015). At the other end of the activism spectrum are institutional owners passively managing their broad portfolios, through index and exchange-traded funds. Hawley and Williams (2000) suggest a point of complementarity between these two forms of influence such as when passive investors can vote with activist investors to enact change (Appel, Gormley, and Keim,

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<sup>7</sup> By analyzing the effect of expectation documents, we depart from the literature that focuses on individual firm interventions that target firm-specific governance issues (as in Dimson, Karakas, and Li, 2015), firm's social and environmental issues (as in Smith, 1996, on CalPERS' targeted firms), or preferences that apply to sub-groups of firms within a portfolio (as in Barber, 2007).

2016). Somewhere in between these two poles, activists and passive investors, are those institutional investors who hold minority positions in hundreds or thousands of firms (universal owners) and with the potential to exert an influential role on portfolio firms via *active institutional ownership* (Aghion, Van Reenen, and Zingales, 2013).<sup>8</sup> These active owners often seek to enhance their portfolio firms' corporate governance practices because it is believed to lead to better firm financial performance (Appel, Gormley, and Kim, 2016; Dimson, Karakas, and Li, 2015).

The focus of our paper is on this active institutional owners. These investors tend to have long-term mandates in highly diversified minority holdings, and as such, they are incentivized to monitor managers and strengthen minority protection rights to increase the value of their assets under management (Del Guercio and Hawkins, 1999). Either directly or through proxy advisors, active owners vote, coordinate and engage with portfolio managers and boards to improve corporate governance practices, such as board independence, board diversity or minority shareholder protection (Gillan and Starks, 2000; Gompers, Ishii, and Metrick, 2003; Bebchuk, Cohen, and Ferrell, 2009). Indeed, active owners can exercise “voice” strategies in various ways, including formal engagements via proxy voting in general annual meetings, informal behind-the-scenes conversations with portfolio companies' managers and board members, or by releasing negative screening lists.<sup>9</sup>

Beyond these monitoring strategies, our paper focuses on another channel of active ownership: a universal and publicly announced corporate governance expectation document. This mechanism should benefit investors by reducing costly and resource-intensive monitoring interactions and proxy-voting (voice), as well as minimizing corporate reputational effects attached

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<sup>8</sup> Our paper may be included in the recent debate about the role of universal owners affecting systemic corporate governance. For example, Bebchuk and Hirst (2018) suggest that the renewed stewardship effort by Vanguard, BlackRock, and State Street should be insufficient due to their incentive structure. However, Fisch, Hamdani, and Davidoff Salomon (2018) suggest that the competition between passive and active managers for investors would foster stewardship among passive managers, as described by Appel, Gormley, and Kim (2016).

<sup>9</sup> These engagement strategies may vary across types of investors. For example, Briere, Pouget, and Ureche (2018) contrasts the voting behavior of NBIM with respect to that of BlackRock.

to exclusion lists (exit).<sup>10</sup> In our study, by analyzing the effectiveness of an expectation document, we differ from existing studies that have examined private interactions between investors and specific companies. This literature has taken advantage of access to private information (i.e., conversations, letters, phone calls) from a single investor (TIAA-CREF in the case of Carleton, Nelson, and Weisbach, 1998; a fund run by Hermes studied by Becht, Franks, Mayer, and Rossi, 2009; or an unidentified responsible investor studied by Dimson, Karakas, and Li, 2015) or survey data detailing the engagement mechanisms deployed by institutional investors behind-the-scenes (McCahery, Sautner, and Starks, 2016). Moreover, our paper expands existing research on CalPERS (Barber, 2007; Nelson, 2006; Smith, 1996), which focused on targeted firms and the negative screening effects on the financial performance of a few companies per year (the so-called “CalPERS effect”), by analyzing the response of thousands of companies to a positive expectation document. Our approach is unique in that we focus on a new portfolio-wide activism tool, we provide a general roadmap to decompose the “systemic” effects of an expectation document that affects the entire market, we analyze its effectiveness and unpack the heterogenous response of firms.

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

Sovereign Wealth Funds (SWFs) are government-owned investment funds without explicit liabilities that typically pursue long-term investment strategies (Aguilera, Capapé, and Santiso, 2016). An important characteristic of SWFs is that they often seek multiple objectives (Clark, Dixon, and Monk, 2013). These include financial returns—similar to other institutional investors—paired with broader economic and development returns for their countries, which are often motivated by the

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<sup>10</sup> An example of this is Larry Fink’s “Letter to CEOs” of 2019 and 2020, where the CEO of BlackRock, the world’s largest asset manager with over \$7 trillion in assets under management, asked companies to change specific governance and risk management issues. Specific changes were required in areas such as long-term strategy and purpose, board oversight responsibilities, and climate-change and sustainability reporting. Those who fail to comply will be signaled and face higher capital costs in the future (Fink, 2018 and 2019). Goldman Sachs (GS) provides another example of how universal owners and advisory firms may exert a systemic influence on corporates. With \$1.5 trillion in assets under management, the CEO of GS announced that the advisory firm will not take companies public if they have all-male corporate boards (Son, 2020).

government’s long-term policies (Bernstein, Lerner, and Schoar, 2013; Megginson and Fotak, 2015).

In this paper, we focus on NBIM, which manages the world’s largest SWF by assets under management, the Government Pension Fund – Global. In spite of the term “pension” in its name, it does not pay pensions, but instead it preserves and builds financial wealth for future generations to prepare for the time when oil and natural gas reserves are depleted. As of May 2020, NBIM has assets under management worth 10,347 billion Kroner (US\$ 1.05 trillion) and has minority positions in more than 9,200 companies in 74 countries. As of December 2019, equity investments represented more than 70% of its portfolio, and it owns, on average, 1.1% of all equities listed globally. NBIM fits nicely in the above description of an active owner, as it has no incentives to initiate costly and resource-consuming aggressive shareholder campaigns with underperforming portfolio firms yet it is able to engage in a systemic way with its investees by setting portfolio-wide corporate governance expectations.

NBIM has an explicit publicly disclosed investment strategy and it uses the FTSE Global Cap index as its benchmark. Norwegian firms are excluded from the index, and the fund also applies time-invariant country corrections that reweight each country to account for its links with the Norwegian economy. However, the fund can deviate from this investment benchmark by including, excluding, overweighting, or underweighting any firm in the portfolio. Moreover, the fund can drop firms based on lack of engagement with the fund or inconsistencies with the fund’s ethical guidelines.

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

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

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 in 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.  $\text{Stance}_{it}$  is the

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

This rich, well-defined investment strategy helps us to understand the logic behind NBIM's 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<sub>it</sub>, Engage<sub>it</sub> or Stance<sub>it</sub>) or from the mechanical rebalancing of the fund (FTSE Global<sub>it</sub> x Country<sub>c</sub>). We use these discretionary and automatic elements of NBIM's investment strategy as part of our identification strategy since they reveal the changes in investment that are exogenous or endogenous to NBIM's preferences.

## **II.A. A natural experiment: NBIM changes its focus on corporate governance in 2012**

NBIM's initial shareholder engagement efforts as an active owner started in 2004, it focused on the ethical targeted screening by the Council on Ethics, and it followed a negative screening approach, similar to that of CalPERS. Yet, the expectation document released by NBIM on November 19<sup>th</sup>, 2012, a Note titled *Corporate Governance*, stated that an effective corporate governance has a positive, direct and long-term impact on the value of companies. In this expectation document, NBIM explicitly declared that from that point onwards, it would request its portfolio firms to meet certain "corporate governance expectations."<sup>11</sup> The Note has two unique features. It is the first and last requirement for investee firms to adopt specific corporate governance practices during our sample period and it portrays an unequivocal universal expectation applicable to every single firm in which NBIM invests (NBIM, 2012: 7). The Note marks a critical turning point in NBIM's corporate

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<sup>11</sup> The language of the Note contains 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).

governance strategy, making it a relevant shift in internal preferences. Indeed, months before the announcement of the Note, NBIM dismantled its separate corporate governance unit, created in 2005, which had been supporting ethical issues, and incorporated governance professionals into its equity investment team. This illustrates that the Note marks a key turning point where an internal process of governance preferences became a legitimate signal for external stakeholders on NBIM's governance expectations.<sup>12</sup> It is important to stress that NBIM's shift in preferences was unanticipated, when we consider events occurring in an annual basis.

### **III. DATA**

#### **III.A. Sample and data sources**

Our sample consists of a full panel of all firms in the “Environmental, Social and Governance (ESG)” dataset from Eikon (Thomson Reuters), which provides firm-level governance, financial and accounting data. To determine which of these firms are part of NBIM's portfolio and the level of NBIM's investment, we merge the Eikon universe with NBIM's dataset. The NBIM dataset provides the yearly equity holdings of NBIM since its inception in December 1998. We complement these data with data on the constituents of the FTSE Global Cap Index from the FTSE Russell Help Desk.

The Eikon database provides firm-level ESG variables for more than 4,200 public companies, listed in multiple stock exchanges since 2002. 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),

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<sup>12</sup> In fact, the novelty of this strategy was covered by the financial media in the weeks that followed the Note release in November 2012. For example, CNBC wrote the following: “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, reported in the Financial Times stressed how the fund shifted into active ownership, as follows: “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).



in our main specifications, we use yearly data for the period of 2009-2015 (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 of 2009-2015. Given the availability of governance and financial data, we obtain a final sample of 4,200 companies per year.<sup>13</sup> All our yearly data is measured at the end of December.

As a measure of firm-level corporate governance quality, we use throughout the paper a single *governance index* that we obtain from Eikon ESG's management score. According to Eikon, the management score "measures a company's commitment and effectiveness towards following best practice corporate governance principles." It represents an equally weighted average of 34 corporate governance indicators, including board independence, CEO-Chairman separation, board diversity, board skills and background, staggered boards or the existence of audit, nomination, and compensation committees.<sup>14</sup> Each indicator is calculated as a "percentile score," which ranks companies according to each indicator, and then the *governance index* equally weights the 34 indicators to assign an overall governance score to each company. Since we employ differences in differences specifications (comparing treatment and control firms), a ranked index is even more suitable than an index in levels because it implicitly compares the firms within the index, and it ensures that our results are not driven by aggregate governance changes.<sup>15</sup>

Finally, we use some additional databases. We download data for national minority investor protection from the Doing Business report of the World Bank. To estimate abnormal returns, we

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<sup>13</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 governance index) during our main period of analysis (2009-2015). We are left with a sample of approximately 15,000 observations.

<sup>14</sup> Eikon provides index scores at the firm level, grouped in the following 3 categories: environmental, social and governance. Within the category of governance, Eikon provides 3 indexes, as follows: Management, Shareholders and CSR. We use the Management Score since it best matches the Note's focus on governance expectations, and it is Eikon's most complete index on governance (it includes 34 indicators). The other 2 indexes within the Governance category are Shareholders and CSR, which are more restrictive and only include 12 and 8 indicators, respectively. A detailed explanation on the construction of the *governance index* is provided in Table A.I of the Online Appendix.

<sup>15</sup> To have results on aggregate governance changes, we also construct a governance index in levels following Eikon's methodology. All information and results are included in Section V.B.2.

download stock price performance and market related data from Eikon, and the global factors (*RMRF*, *SMB*, *HML* and *UMD*) from Kenneth French's website. To construct monthly returns in U.S. dollars, we employ the *total return index* (which incorporates reinvested dividends) and prices (daily stock closing prices) from Eikon.

### **III.B. Descriptive statistics**

Table I reports the summary statistics for our main sample. The governance index takes scores from 0 to 100. The index ranks companies according to the quality of its corporate governance. Scores closer to 100 mean that the company has a high governance score (good governance quality) relative to all the companies in Eikon ESG. In our sample, the average company has a governance score of 52.8. The standard deviation is 28.7. The average weight of a firm in NBIM (what we define as the fund weight, which is the fraction of NBIM's portfolio represented by a firm's market value) is 0.04%. The average weight that NBIM represents in a firm (what we define as the firm weight, which is the fraction of the firm's market value held by NBIM) is 0.84%.

Table A.II in the Online 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. Table A.V reports summary statistics for firm characteristics, splitting the sample into those that belong to NBIM at the time of the announcement of the Note and those that do not. Finally, Tables A.VI and A.VII report the industry and country composition of our sample at the time of the announcement of the Note.

## **IV. A THREE-STEP DECOMPOSITION**

We propose a decomposition to analyze the effect of the expectation document on the aggregate governance of NBIM's portfolio. This decomposition can be applied to analyze the impact

of alternative expectation documents focused on other topics. We define  $G_{it}$  as an aggregate governance index 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 score of firm  $i$  at time  $t$ . The definition of  $G_{it}$  allows us to decompose the changes of  $G_{it}$  into three different elements. Higher (lower) levels of  $G_{it}$  can be interpreted as a better (worse) overall corporate governance quality of NBIM's portfolio according to the preferences stated by NBIM in the Note.

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

$$\Delta G_{it} = \sum_{i=0}^I w_{it+1}g_{it+1} - \sum_{i=0}^I w_{it}g_{it} \quad (2)$$

We define  $\Delta w_{it} = w_{it+1} - w_{it}$  and  $\Delta g_{it} = g_{it+1} - g_{it}$  to obtain the following expression:

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

Re-arranging terms, we can express the specification as follows:

$$\Delta G_{it} = \sum_{i=0}^I (w_{it}\Delta g_{it}) + \sum_{i=0}^I \Delta w_{it}g_{it} + \sum_{i=0}^I \Delta w_{it}\Delta g_{it} \quad (4)$$

Thus, the overall change in the governance quality of the NBIM portfolio ( $\Delta G_{it}$ ) can be decomposed into the three terms of equation (4). Each term has a clear economic interpretation that we analyze in the next section. The first term depends on the decision of the firms to change their governance, potentially to meet NBIM governance expectations. This term has fixed NBIM weights prior to the release of the Note and allows for the firm governance levels to change. Intuitively, it is similar to a standard intent to treat specification in which the treatment depends on fixed predetermined (2011) NBIM investment weights. Similarly, it can be interpreted as a reduced form of a regression, in which we instrument NBIM's post 2012 weights with a cross-sectional snapshot of pre-2012 weights. In this first term,  $G_{it}$  changes are driven by changes in the corporate governance

score of NBIM's investee companies. The second term is the reweighting conducted by NBIM following its new governance strategy. NBIM can exit (enter) firms with worse (better) governance or decrease (increase) its portfolio holdings of firms with worse (better) governance. In this second term, the firms' governance score is fixed prior to the release of the Note, and the changes in  $G_{it}$  are only driven by NBIM's investment strategy. Finally, the third term measures firms' changes in corporate governance that come with changes in NBIM's weights. In equilibrium, it can be that NBIM changes its holdings of a firm due to changes in the governance of the firm or vice-versa.

## **V. ANALYSIS**

We use the three way decomposition analysis to organize the remainder of the paper. That is, to analyze the impact of the Note on the governance score of NBIM's portfolio, we follow the econometric counterparts of the decomposition in equation (4) and analyze the terms one by one in the following sections. Before turning to each individual term, Section V.A explores the overall change in the governance score of the NBIM portfolio after the release of the Note. Section V.B, analyzes the first term in equation (4), fixing the NBIM weights prior to the release of the Note and allowing for the firm governance scores 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. Next, Section V.C focuses on the changes in the investment strategy of NBIM, our second term in equation (4). It takes the governance scores of each firm as given and predetermined, and explores the impact of the investment strategy changes in the overall change in governance. Section V.D explores the third term in equation (4) and shows how the correlation between the changes in governance scores and the changes in investment weights is altered by the Note. Finally, Section V.E analytically decomposes the overall effect onto its three components.

## V.A. Evidence on the overall change in the governance index of the NBIM portfolio

We first examine whether the governance score of firms included in the NBIM portfolio changes with the announcement relative to the governance score of firms outside the NBIM portfolio. For this purpose, we estimate for every year  $t$  the following cross-sectional regression from 2007 to 2015:

$$\text{Governance}_i = \alpha + \sigma \text{NBIM}_i + \varepsilon_i \quad (5)$$

where the dependent variable  $\text{Governance}_i$  is the governance score of firm  $i$  in year  $t$ , and  $\text{NBIM}_i$  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 II show our results. Before the event (2012), we find no significant governance differences across firms inside and outside the NBIM portfolio and no particular trend of this difference. However, the firms in the NBIM portfolio exhibit significantly higher governance scores in the period following the event (2012-2015) relative to the firms outside the portfolio. The difference between the periods is statistically significant and economically large, amounting to 4.8 to 7.5 score points in the governance index. That is, if there were 100 representative companies, the firms inside the NBIM portfolio would increase their governance rankings by 4.8 to 7.5 positions in the ranking of all firms, on average, after the announcement. As we discussed above, this positive overall effect on governance quality can be due to firms reacting to the NBIM's new governance preferences (the firms in the NBIM portfolio receive treatment and change their governance practices), or due to a "rebalancing" channel (NBIM drops firms with low governance scores and invests in firms with high governance scores). We explore these components in detail 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:

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

where  $\text{Governance}_{it}$  is analogous to that in equation (5),  $\text{NBIM\_Weight}_{it}$  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 (including those firms outside the NBIM portfolio with a weight of zero). The NBIM fund weight is the fraction that NBIM's holding of a given firm represents over the total NBIM portfolio. The NBIM firm weight is the fraction of the firm's market value held by NBIM. The results in Table III show how the portfolio of firms constructed with fund weights increases its average governance score after the announcement by an average of 9.5 percentile scores. This means that firms that increase their average governance score after the release of the Note gain more weight in NBIM's total portfolio. The results are not statistically significant when we focus on firm weights.

Taken together, this set of results shows that the overall governance characteristics of the NBIM portfolio became closer to NBIM's governance preferences after the 2012 announcement. In the next two sections, we analyze which part of this NBIM governance change can be attributed to changes in the governance characteristics of the firms in the NBIM portfolio and which part to changes in the investment strategy of NBIM.

## **V.B. Changes in the governance of NBIM portfolio firms**

### *V.B.1. The effect on the governance of NBIM portfolio firms*

In this section, we analyze the change in the governance of NBIM portfolio firms following the 2012 Note. To correctly estimate the effect of the announcement on the change in governance

score of the firms in the NBIM portfolio, we fix the portfolio weights of NBIM in 2011 (before the announcement). Otherwise, changes in the investment strategy of NBIM can act as a confounding factor for the changes in the governance of NBIM portfolio firms (for example, firms with a higher governance score are more likely to be added to the NBIM portfolio after the announcement).

In our estimation strategy, we use both reduced form regressions and two-stage least squares (2SLS) regressions. The reduced form results are informative about the effect of the announcement on the governance changes of firms in the portfolio of NBIM; however, only the 2SLS estimates can be quantitatively interpreted as the treatment on the treated firms. In the reduced form regressions, our treatment group is composed of the firms that belong to the portfolio of NBIM in December 2011 (a year before the release of the Note), and our control group includes firms that do not belong to the NBIM portfolio in December 2011.

The reduced form regression we use is as follows:

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

for firm  $i$ , in country  $z$ , at time  $t$ .  $\text{Governance}_{izt}$  and  $\text{Post}_{(t \geq 2012)}$  are defined as in equation (6).  $\text{NBIM}_{iz2011}$  is a dummy variable equal to one if firm  $i$  belongs to the NBIM portfolio in 2011, and zero otherwise.  $\delta_z$ ,  $\alpha_t$  and  $\mu_i$  are country, year and firm dummies, respectively.<sup>16</sup> For the 2SLS estimation, in the first stage, we instrument NBIM's actual holdings after the Note with NBIM's holdings in 2011.<sup>17</sup>

The results are shown in Table IV. The first two columns report results for reduced form regressions, and columns 3, 4 and 5 report results for 2SLS regressions. The results show a significant increase in the governance scores of firms' in the NBIM portfolio in 2011. On average, the 2SLS

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<sup>16</sup> Results are similar if we do not include  $\text{Post}_{(t \geq 2012)} * \delta_z$ , however it is appropriate to neutralize potential confounding country effects. A more saturated model with year dummies ( $\text{Year}_t * \delta_z$ ) yields similar results so we opt for the less saturated model with more degrees of freedom.

<sup>17</sup> See Table A.IV of the Online Appendix for first stage regressions showing that the relevance condition of our instrument is satisfied.

regression shows that firms in the NBIM portfolio enhance their governance score by 7 score points yearly after the disclosure of the Note relative to firms that are not in the NBIM portfolio. These results are directly interpretable in terms of magnitudes. Moreover, by interacting  $NBIM_i$  with year dummies (with 2009 as the omitted category) instead of  $POST_{(t \geq 2012)}$ , we are able to capture the lagged effects of the changes in governance. The magnitude of the difference in governance among the two groups increases quite sharply in 2012 but also monotonically increases with time after the Note. This momentum, post 2012, is consistent with the idea that some corporate governance changes take time to be implemented.

### *V.B.2. Validity of the empirical strategy and robustness tests*

In this section, we show further evidence that the firms' changes in governance are driven by the Note; validating our empirical strategy and ruling out alternative explanations. Some elements of the results in the previous section already support the validity of our natural experiment. The difference in governance scores between treated and control firms, exhibits no differential trend pre-2012, a sharp increase in 2012 and a monotonic increase for four consecutive years post 2012. The timing of these effects precisely matches the timing of the experiment and would be hard to reconcile with spurious effects or omitted variables.

In Table A.V of the Online Appendix we compare the average characteristics for NBIM and non-NBIM firms in 2010 and 2011. Overall, we find no significant differences between the two groups, evidencing that both groups are indeed comparable, and mitigating concerns that omitted variables could be driving our findings.<sup>18</sup> Next, given that NBIM partially tracks the FTSE Global Cap Index, we show that the results of the estimations in Table IV are not driven by global differential trends in governance practices. For this purpose, in Table V we classify firms in 2011 into the

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<sup>18</sup> In Tables A.VI and A.VII of the Online Appendix we also compare summary statistics by country and industry for NBIM and non-NBIM firms in 2011 and find a similar composition for both groups. Still, to account for heterogeneity at the country level, all our main specifications include Country\*Post-event fixed effects.



following four groups: firms in the portfolio of NBIM that are not in the FTSE Global Cap Index (discretionary portfolio of NBIM), firms in the FTSE Global Cap Index that belong to the NBIM portfolio (nondiscretionary firms, since NBIM's investment strategy follows this benchmark), firms in the FTSE Global Cap Index not held by NBIM, and firms excluded by NBIM's Ethics Council. The omitted group contains firms that do not belong to FTSE, neither to NBIM and have not been excluded by the NBIM's Ethics Council.<sup>19</sup> We observe that firms that significantly 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 scores of firms exclusively listed in the FTSE Global Cap Index. Only firms that are held by NBIM (independently of whether they are also in FTSE) exhibit improvements in governance. Overall, the results in Table V show that the general evolution of the governance score of the firms in the FTSE Global Cap Index is not a relevant confounding factor for our results.

We conduct a series of additional tests that add further robustness to the results in Table V. In Table A.IX of the Online Appendix, the weights of NBIM are fixed in 2010 to avoid potential biases caused by a reweighting of the NBIM portfolio in 2011 (the year before the event).<sup>20</sup> In Table A.X of the Online Appendix, we rebalance the number of firms in the control group to equal the number of firms in the treated group by using nearest-neighbor propensity score matching with replacement. The results in both Tables A.IX and A.X are very similar to those of Table V.

Moreover, it is important to point out that our dependent variable re-ranks firms every year, thus providing additional reassurance (beyond the difference-in-differences structure) that the results are not driven by aggregate governance changes. However, it is also interesting to replicate the results

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<sup>19</sup> Sample size for each group is 1,946 observations for OnlyNBIM<sub>11</sub>, 13,076 observations for NBIMFTSE<sub>11</sub>, 658 observations for OnlyFTSE<sub>11</sub>, 161 observations for Excluded-ethics<sub>11</sub>, and 1,547 observations for the omitted group.

<sup>20</sup> Fixing the weights in 2010 improves the exogeneity of the instrument (strengthens the validity of the exclusion restriction) but decreases its relevance. In column 5 of Table IV we observe a small and not statistically significant spike in 2011 because there might have been some pre-event moves by NBIM, but in Table A.IX of the Online Appendix we show that results are unchanged when we fix NBIM portfolio weights in 2010 as our treatment.

expressing the different governance elements of the index in levels (i.e., without transforming them into a ranking each year). In Table A.XI of the Online Appendix, we replicate our analysis but replace the ranked governance index provided by Eikon with a governance index in levels in which we do not re-rank firms every year. We find qualitatively similar results to those in Table V. After the Note, on average, firms in the NBIM portfolio in 2011 improve 0.75 governance provisions per year more than firms outside the NBIM portfolio in 2011.<sup>21</sup>

In Table A.XII of the Online Appendix we expand our sample years and include 2006, 2007 and 2008 in our analysis. We then replicate Table IV and confirm that there are no preexisting differential trends on a longer pre-period sample. The treatment and control groups follow parallel trends before the Note is released in 2012. Finally, in Table A.XIII of the Online Appendix we also conduct several placebo tests, defining the placebo pre- and post- periods within the period before the Note (2006-2011) and find no significant results.

All these results put together provide strong evidence that our findings are driven by the release of the Note and not by aggregate governance changes or other confounding factors. Moreover, in the next section (Section V.B.3), we also show that our main result is monotonically increasing in the importance that NBIM has for each firm and although weakly, also in the importance that each firm has for NBIM. Finally, in Section V.C, we demonstrate that NBIM effectively changed its strategy after the Note to match its new governance expectations. These two additional analyses lend further support to our identification strategy.

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<sup>21</sup> To construct a governance index in levels, we follow the methodology used by Eikon to construct indexes. However, instead of ranking the firms for each of the 34 provisions, each firm takes an absolute value between 0 and 1 for each provision (independently of other firms' governance), where 1 is good governance and 0 is poor governance. Eikon provides a value between 0 and 1 for 32 of the 34 provisions. For the other 2 provisions on executive compensation (values are reported in €), we linearly rescale and normalize the values to set them between 0 and 1. As in Eikon, the governance index is the equally weighted sum of the non-missing provisions, so a firm-year observation can take a value between 0 and 34. The weights are calculated excluding provisions with missing data. We drop firms with more than 10% of missing provisions. A detailed explanation of the 34 provisions and the construction of Eikon's index is provided in Table A.1 of the Online Appendix.

### V.B.3. Skin in the firm versus strong voice

Institutional investor monitoring is likely to depend on both, the fraction of the firm held by the institution and the fraction of the institution's portfolio represented by the firm (Fich, Harford, and Tran, 2015). In Table VI, we analyze whether the increase in the governance score after the announcement depends on an extensive margin (belonging or not to NBIM) and on an intensive margin that can either be the fraction of the firm held by NBIM or the fraction that the firm represents for NBIM.

We use a quantile specification of the following form:

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

for firm  $i$ , in country  $z$ , at time  $t$ .  $I_q$  are dummies allocated to the quartiles of the NBIM weights (zero weight is the omitted category) and  $\text{NBIM}_{\text{Weight}}_{iz2011}$  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 shown in columns 4 and 5 of Table VI.

In columns 1, 2 and 3 of Table VI, we use a linear regression model, and instead of using quartiles we include the continuous measure of  $\text{NBIM}_{\text{Weight}}_{iz2011}$ . The results with the linear specification seem to indicate a positive relation with the firm weights. The firms in which NBIM has a higher weight increase more their governance score after the announcement. However, the quantile specifications in Table VI reveal a much richer structure.<sup>22</sup>

When interacting  $\text{Post}$  with fund-level weights, the reaction of firms seems to be largely driven by the extensive margin. It makes a large difference (4.2 reduced-form score points) to be part of the NBIM portfolio, even if the firm represents a small part of NBIM's investments. This result

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<sup>22</sup> The thresholds for the firm weight quartiles are 0.062%, 0.654% and 0.972% respectively. The thresholds for the fund weight quartiles are 0.005%, 0.013%, and 0.033% respectively.

shows that the Note clearly had an effect on firms inside the portfolio of NBIM relative to firms outside the portfolio. The incremental effect of being more important within NBIM is positive, but quantitatively smaller than the extensive margin, reaching a 5.8 reduced-form rank points increase for the most important firms in the portfolio. This evidences that the influence of NBIM is quite similar across all its investee firms and does not depend on the weight that the firms have in their portfolio. This result matches the homogenous influence that would be expected from a unique expectation document applicable to NBIM's entire portfolio.

The analysis of firms' weights reveals a different pattern. The intensive margin effect seems much more relevant here. While firms in the bottom quantile (below 0.062%) of the participation of NBIM in their shareholdings do not significantly react to the announcement, the effect grows monotonically to 7.7 rank points for those firms in which NBIM has a substantial weight within its shareholders.<sup>23</sup> It seems that NBIM needs a minimum threshold of ownership to exert influence on their investee firms.

Overall, the results of this section suggest that NBIM has a significant and similar influence on firms that exhibit different levels of importance within its portfolio. However, the larger NBIM's shareholder presence, the larger the reaction of firms. This is in line with Appel, Gormley, and Kim (2016) which observe how increasing ownership by passive institutional investors, but active owners, accelerates changes in governance dimensions such as board independence or the removal of takeover defenses. It is worth to also stress that the monotonicity of the quantile coefficients lends further support to our hypothesis that the effects that we are capturing are driven by NBIM's holdings and not by other potential confounding factors.

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<sup>23</sup> We conduct Wald tests and find that the differences between the coefficient of the highest quartile and the other three lower quartiles are significant for the firm weights. For the fund weights, differences are not as monotonic, but we also find a significant difference for the fourth and second quartile.

#### V.B.4. Heterogeneous effects

We explore the heterogeneous reactions of the firms' response to the announcement, contingent on their characteristics 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 score, the minority investors protection score of the firm's country of incorporation and the firm's liquidity. 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 (8). The coefficients of interest are  $\vartheta_q$ , which indicate for each feature and quartile the average governance difference after 2011 between firms that belong to the NBIM portfolio in 2011 and firms that do not belong to the NBIM portfolio in 2011.

The results are shown in Table VII. We find heterogeneity in the reaction of firms to the Note, in fact, firms with certain characteristics do not appear to react to the release of the Note relative to the control group. This provides evidence that the influence of NBIM's expectation document may be heterogeneous depending on firms' characteristics.

In columns 1 and 2, we observe that the increase in the governance score after the announcement is larger for smaller firms. This is a desirable property of expectation documents, as smaller firms, representing a small fraction of the portfolio, are precisely those for which the cost of a specific intervention may not outweigh the benefits for the investor. This result suggests that expectation documents can serve as a tool to reach precisely those firms for which a more dedicated stewardship role is not cost-effective. Indeed, Schwartz-Ziv and Wermers (2020) argue that investors have limited capacity to monitor smaller firms and they focus on bigger firms. Interestingly, we find

that the largest firms in the portfolio (top quartile) show a statistically insignificant reaction to the expectation document.

In column 3, we notice that the firms with the worst pre-existing financial performance react more to NBIM's announcement and increase their governance score. This outcome suggests that poor performing firms change their governance characteristics to compensate for their poor results and to remain attractive to NBIM. Conversely, firms in the highest quartile of pre-existing financial performance do not significantly change their governance. This outcome is in line with the portfolio analysis that will be explained in Section V.C.I., where we observe that, after the announcement, a trade-off between returns and governance emerges in the investment strategy of NBIM. Moreover, these results complement the debate on whether owners should target and engage with profitable or poor performing firms (Klein and Zur, 2009; Becht et al 2009; Dimson, Karakas and Li, 2015).

In column 4, we find that firms in the two middle quartiles of pre-existing governance scores are the ones who react the most to the announcement. The firms in the lowest quartile of the past governance scores do not react to the expectation document. It may be more costly for these firms to improve their governance score, or they may find themselves too far from NBIM's newly expected standards. Similarly, firms in the highest quartile of the past governance scores react less. This reduced effect might occur either because there is small room to improve their governance score or because they already fulfill NBIM's expected governance standards.

In column 5 of Table VII, we observe that firms incorporated in countries with a weak national investor protection do not improve their governance scores, while the opposite is true for firms incorporated in countries with a stronger investor protection. These findings suggest that the influence of active owners on firm policies is contingent on the quality of the national investor protection where those firms are embedded (in line with Doidge, Karolyi, and Schultz, 2007) . It seems that there exists a minimum national threshold for active owners to have an influence. These results speak to whether the country or firm drives firm corporate governance changes. Note that, for

this reason, all the specifications in the paper include Country\*Post fixed effects, so our estimates capture changes in the firm's governance within a country.

Finally, the stock liquidity reported in column 6 also has an influence on the reaction of firms to NBIM's announcement. Firms with high liquidity do not react to the announcement, while firms with lower liquidity are much more sensitive to the announcement. This result suggests that firms with illiquid stocks have higher incentives to comply with active owner's expectation documents, as they would suffer a higher temporary price impact if NBIM decided to exit.

## **V.C. Changes in the investment strategy of NBIM**

We now turn to examine whether NBIM was active and it rebalanced its portfolio according to the new governance expectations stated in the expectation document. It is important to determine whether the announcement of NBIM was met with an effective change in its investment policy. We provide two independent sets of tests. First, we show that the governance level of firms becomes more relevant after the announcement in determining the entry and exit of firms in NBIM's portfolio. Second, we show that a trade-off between returns and governance arises after the announcement. NBIM is willing to sacrifice financial returns to achieve better governance. Throughout this section, we take advantage of the fact that some of NBIMs' investments are driven by its benchmark and determined by the composition and regular recompositions of the FTSEE Global Cap Index, while others are discretionary investments of NBIM.

### *V.C.1. Rebalancing of NBIM's portfolio*

We start by analyzing the entry and exit channel, this is, whether after the announcement NBIM invests in firms with higher governance scores and exits firms with lower governance scores. To analyze the entry channel, we estimate the following logistic model:

$$\text{Prob}(y_{it} = 1) = \frac{\exp(z_{it})}{1 + \exp(z_{it})} \quad (10)$$

where  $y_{it} = \text{NBIM\_entry}_{it}$ , which 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 two different control groups. We can compare the governance of firms that enter the portfolio of NBIM to the governance of firms that do not belong to the NBIM portfolio (*NonNBIM* control group) or to the firms that belong to the NBIM portfolio (NBIM control group). We estimate  $z_{it} = \sigma_1 \text{Post}_{(t \geq 2012)} * \text{Governance}_{i2011} + \sigma_2 \text{Governance}_{i2011} + \alpha_t + \varepsilon_{it}$  where  $\text{Governance}_{i2011}$  is the governance index score of firm  $i$  fixed in year 2011 (before the announcement), and  $\text{Post}_{(t \geq 2012)}$  is a dummy variable that takes a value of one after the Note's release (2012–2015) and is zero for previous years (2009–2011).

By keeping the governance index fixed at a point in time before the announcement (2011), we avoid the issue that endogenous changes in the governance of firms that are due to the announcement 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, as in the second term of the decomposition in equation (4).

We report odds ratios results in Table VIII.<sup>24</sup> Columns 1 and 2 use all the new entrants in NBIM. Each column corresponds to one of the control groups (NonNBIM firms and NBIM firms). The main variable of interest is  $\text{Post} * \text{Governance}_{2011}$ . Both coefficients are positive and statistically larger than one, indicating that the fund puts more weight on corporate governance when selecting entrants after the announcement. The effect is large and statistically significant. Being 10% higher in the governance score ranking increases the chances of entering the portfolio by 6% - 7%. The coefficient on  $\text{Governance}_{2011}$  is significantly below one in all columns. The coefficient is lower in

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<sup>24</sup> Table A.XVI in the Online Appendix shows the estimates from logistic regressions and average marginal effects that correspond to the odds ratios shown in Table VIII.



column 2 than in column 1 reflecting that, in general, the firms inside NBIM have higher scores than the firms outside NBIM.<sup>25</sup>

In columns 3 and 4 of Table VIII we exclude those entries that coincide with a change in the composition of the FTSE Global Cap index. The entries induced by the recomposition of the FTSE index are mechanical changes driven by the fund's benchmark. By excluding these exogenous changes, we keep only those entries that are more discretionary to the fund. These exogenous entries cannot be driven by the fund's new governance preferences, and act as noise that attenuates the results. Indeed, when we focus only on the discretionary entries selected by NBIM (Non-FTSE), we find stronger results. Being 10% higher in the score ranking increases the chances of entering the portfolio by 8% - 10%.<sup>26</sup>

In columns 5 and 6 we show the same analysis for those changes in the NBIM portfolio that occur simultaneously with FTSE reconstitutions. Although NBIM retains some discretion not to follow these reconstitutions, in general, reconstitutions of the index entail rebalancings of the NBIM portfolio that are less discretionary and more exogenous to the fund's preferences. Consistently, the results for this subsample do not show a significant effect on the  $\text{Post} * \text{Governance}_{2011}$  coefficient. This indicates that the results in columns 1 and 2 are driven by the Non-FTSE transitions analyzed in columns 3 and 4.

Overall, the results in Table VIII show that, on average throughout the whole sample (2009-2015), firms entering the NBIM portfolio tended to have lower governance scores than those inside or outside the portfolio. However, after the announcement of the Note, NBIM started to put more

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<sup>25</sup> This can also be seen in Table A.XIV in the Online Appendix, where we compare the average governance score, before and after the release of the Note, for firms inside and outside NBIM, and also for firms that enter and exit the NBIM portfolio. More importantly, when comparing the exits (entries) of NBIM before and after the release of the Note, we find that NBIM exits (enters) firms with lower (higher) average governance scores after the announcement.

<sup>26</sup> Table A.XV in the Online Appendix reports the yearly number of companies' entries and exits carried out by NBIM during our sample period. We further classify whether these entries and exits are discretionary or driven by the composition of the FTSE Global Cap Index.

weight on the inherent governance score of firms (i.e., fixed at 2011 levels) when deciding to include a firm inside the portfolio. This provides support for the thesis that the fund did indeed change its investment strategy after the announcement.<sup>27</sup>

We develop a similar analysis to test for exit effects. Again, we use the same structure as in equation (10) to estimate whether NBIM exits firms with poor governance scores 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 same two control groups used for  $NBIM\_entry_{it}$ . The results of odds ratios are shown in Table IX.<sup>28</sup>

Consistent with the entry analysis, after the announcement, a better governance score reduces the probability of exiting NBIM. The effect is quantitatively important; ten rank positions in the governance score reduce the probability of exit by about 7%. Again, once we focus on the more discretionary exits of the fund, this probability increases to 9%. Conversely, in columns 5 and 6 we focus on exits driven by NBIM's benchmark and show odds ratios that are statistically indistinguishable from one and in fact, exhibiting point estimates in the opposite direction. The effect of the governance ( $Governance_{2011}$ ) before the announcement is inconclusive.

Jointly, the results in Table VIII and IX show that NBIM puts more weight on the governance of firms when deciding which firms to include and exclude in its discretionary investments. This effect is driven by the more discretionary decisions of the fund and is not present in the more mechanical investments of NBIM driven by reconstitutions of its benchmark, the FTSE Global Cap Index.

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<sup>27</sup> This improvement occurs despite the large increase in the number of holdings of NBIM from 2011 to 2012 (see Table A.II in the Online Appendix), which would make cherry picking stocks with high governance scores after the announcement more difficult.

<sup>28</sup> Table A.XVII in the Online Appendix shows the estimates from logistic regressions and average marginal effects that correspond to the odds ratios shown in Table IX.

### *V.C.2. Trade-off between returns and governance*

Another way to examine NBIM's change in preferences is to explore whether the choices of NBIM's portfolio reflect a different trade-off between financial returns and governance after the announcement. That is, to test whether, after the announcement, NBIM is willing to forego some financial returns in exchange of governance characteristics that are more aligned with the preferences stated in the Note.

To explore this idea, we construct portfolios that track the past financial performance of NBIM's investments before and after the announcement. We assume that this is a good proxy of NBIM's expectation about future returns. Moreover, we decompose the investment portfolio of NBIM into non-discretionary (firms that also belong to the FTSE Global Cap Index) and discretionary (firms that do not belong to the FTSE Global Cap Index). Focusing on discretionary investments, we can compare the returns between high vs. low governance portfolios to understand whether NBIM is willing to trade-off returns in exchange of better corporate governance. The nondiscretionary portfolio is composed of firms where NBIM is mechanically forced to invest by its benchmark strategy and acts as a control group that captures the general evolution of the governance-returns trade-off in the economy.

We compute rolling monthly abnormal returns for each firm in the portfolio of NBIM following Carhart's (1997) four factor model. For each year  $t$ , we decompose the discretionary and non-discretionary portfolio of NBIM into five equal-sized portfolios by ranking firms according to their governance index. This implies we are decomposing the NBIM portfolio into a total of  $5 \times 2 = 10$  portfolios. For all the firms in each of the 10 portfolios, we average the monthly alphas and obtain the equally-weighted monthly alpha of each portfolio. Next, for each portfolio we average the equally-

weighted monthly alphas of periods 2009-2011 and report pre-event alphas and average the equally-weighted monthly alphas in the period 2012-2015 and report post-event alphas.<sup>29</sup>

The results are shown in Table X. The alphas of the low governance portfolio are reported in row 1. The alphas of the high governance portfolios are reported in row 5. We report the difference between the highest and lowest governance portfolio alphas in the last row. In columns 1 and 3 we do not appreciate any significant difference between the alphas in the low governance and high governance portfolio. This indicates that there is no particular trade-off between governance and returns for NBIM pre-announcement. Post announcement, non-discretionary investments exhibit a non-significant alpha differential of -0.036%. However, post announcement, discretionary investments exhibit a differential return between the high and the low governance portfolio of -0.793%. In fact, the alpha of the low-governance portfolio is positive and statistically significant (0.574%), indicating that NBIM is only willing to include low-governance firms in its discretionary portfolio if their returns are expected to be high. Moreover, the alpha of the high-governance portfolio post announcement is negative (-0.219%). Indicating that NBIM is willing to incorporate “better” governance firms into its portfolio, even if their expected abnormal returns are low. Results are qualitatively similar for the value-weighted portfolios.

To sum up, before the announcement of the Note we find no particular trade-off between governance and returns for NBIM in either group. However, post announcement, the discretionary investments exhibit a strong differential return between the high and the low governance portfolios suggesting that NBIM is only willing to invest in firms with low governance scores if their expected abnormal return exceeds the expected abnormal return of firms with high governance scores. These results are not part of a generalized trend, and, in particular, they do not hold for the non-discretionary part of NBIMs portfolio which tracks the FTSE Global Cap Index. Overall, these results suggest that

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<sup>29</sup> We also compute market value weighted results. Each month we calculate the average alpha of each portfolio and then we weight firms’ alphas with the market value weight that each firm has in the portfolio of NBIM.

the preferences of NBIM changed after the announcement with respect to the trade-off between returns and governance, with NBIM willing to give up some returns in exchange of the desired governance practices.

In conclusion, in Section V.C. we show that NBIM rebalanced its portfolio according to its new governance expectations. After the announcement, entrants in NBIM have better inherent governance and firms exiting NBIM have worse inherent governance. These effects are driven by the discretionary investment changes made by NBIM. Moreover, we provide insight into NBIM's change in preferences across returns and governance after the announcement. Jointly, these results validate the identification assumption that NBIM did indeed change its preferences following the 2012 event. In the next section, we analyze if the change in firms' governance is correlated to the change in NBIM's investment weights.

#### **V.D. Correlation of NBIM investment changes and governance changes**

In this section, we explore the third term in equation (4) and analyze whether the changes in firms' governance are linked to NBIM's investment changes. For this purpose, we estimate the following OLS pooled regression:

$$\Delta Governance_{iz(t+2,t)} = \sigma_1 Post_{(t \geq 2012)} * \Delta NBIM\_Weight_{iz(t+2,t)} + Post_{(t \geq 2012)} * \delta_z + \Delta NBIM\_Weight_{iz(t+2,t)} + \alpha_t + \varepsilon_{izt} \quad (11)$$

for firm  $i$ , in country  $z$ , at time  $t$ .  $\Delta Governance_{i(t+2,t)}$  is the difference between firm  $i$ 's governance 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  $t$ .<sup>30</sup>

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<sup>30</sup> Given that governance and weights are somewhat sticky, we allow for two year differences in all our variables to have more variation in our changes on changes analysis.

The regression analyzes whether there is a correlation between the changes in the governance of firms and the changes in the investments made by NBIM, and whether this correlation changes before and after the announcement. The results are shown in Table XI. The correlation between the 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>31</sup> We find that lagged changes in governance predict changes in fund weights after the announcement. The reverse effect is not statistically significant. These results provide evidence that NBIM's strategy reacts to positive changes in governance after the release of the Note. NBIM reweights 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. On the other hand, we do not find evidence that lagged changes in fund weights predict changes in firm's governance. This implies that firms do not react differently to the Note if their weight in NBIM's portfolio changes, which is consistent with a uniform activism provided by a unique expectation document.

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

#### **V.E. Analytical decomposition of the overall governance effect**

Using the measures of the fund weights (percentage that the firm represents in the NBIM fund per year) and the firm-level governance index, we can explicitly calculate the scores for each of the terms of the analytical decomposition in equation (4). We analyze the change in governance between the years 2010-2015. We choose 2010 and 2015 to have a long period before and after the

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<sup>31</sup> The results are shown in Table A.XIX of the Online Appendix.

release of the Note, but the results are consistent across different period choices. We show the results in Table XII.<sup>32</sup>

Overall, we find a positive increase of the governance score of the whole NBIM portfolio in the first two specifications. Analyzing the individual terms, the first term is constant and positive across the three specifications. This means that the firms owned by NBIM are, in fact, changing their governance significantly and clearly contributing to the increase in the aggregate governance score of the fund. The third term (the cross-product) is also always positive, which means that, on average, NBIM increases (decreases) its weights on firms that increase (decrease) their governance scores.

The second term focuses on the changes of the NBIM weights and it depends heavily on how we define the weights. Therefore, these results must be taken carefully. If we keep the weights and firms constant (specification 1), this term is strongly positive. However, if the market value of the 2010 weights is not kept constant (specification 2) or if we change the composition of firms (specification 3), the term is negative. The reason for this discrepancy is linked to the significant growth of the fund during this period (see Table A.II of the Online Appendix), almost doubling its size. From Table VIII and Table A.XIV in the Online Appendix we know that the firms that join NBIM have, on average, a lower governance score than those that were already inside NBIM and that this effect is only partially offset by the change in the preferences of the fund. Thus, this reversal in the terms is intuitive. We have seen that the effect of the announcement is an increase in the governance score of the firms that enter the portfolio of NBIM, however, the firms that enter have, in general, a lower baseline governance score. That is, marginal new firms have a lower governance score than pre-existing ones. We can conclude that the change in the governance preferences of the

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<sup>32</sup> We use three different specifications to define the denominator of the investment weights of NBIM in 2010 and in 2015. In the first specification (row 1), the denominator of the weights is fixed for 2010 and 2015 to the total value of the portfolio of NBIM in 2010. In the second specification (row 2), the set of firms is fixed for 2010 and 2015 to the set of firms that were already present in the portfolio of NBIM in 2010, but the value of the whole portfolio changes according to the market value of the 2010 firms in 2010 and in 2015. In the third specification (row 3), the denominator is the value of the total holdings of the NBIM portfolio in 2010, and the total holdings of the NBIM portfolio in 2015.

fund partially offsets the mechanical decrease in the governance levels induced by the fund's expansion. From an analytical perspective, the last row of Table XII is the least informative, as it includes important composition effects that are not related to the effects that we are measuring. However, it is still important to report it, as these are the actual numbers that a stakeholder in the fund should focus on.

Overall, regardless of the approach chosen, it is clear from this section that the main effect on the governance index comes from the improved governance of existing firms, the first term in equation (4).

## **VI. DISCUSSION AND CONCLUSION**

Understanding the scope and channels of influence of active owners, such as pension funds, mutual funds or SWFs, on firm policies continues to be an important and relevant topic in corporate governance, beyond looking at market value reactions. Institutional investors hold a large fraction of firm ownership globally, but they have been criticized for not being proactive enough regarding firm policies. Given their universal nature and their long-term investment horizons, it may not be cost-effective for universal investors to engage with many of their smaller investee firms. At the same time, active universal investors have the opportunity via expectation documents and portfolio-wide preferences to increase value by setting unique, systemic preferences for their diversified portfolios. In this paper, we use an early example of such expectation documents to estimate its effectiveness. More generally, estimating how active institutional investor's engagement results in effective or ineffective governance remains a key empirical question. Within this framework, SWFs can be useful, as they often have investment policies with preferences that depart from the solely standard maximization of short-term profits. Unanticipated 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, i.e., NBIM's expectation document in November 2012, which outlined what Norway's sovereign fund expected from its global portfolio companies in terms of corporate governance practices. We introduce an analytical decomposition that serves as a roadmap to explore expectation documents and deploy a difference-in-differences strategy to decompose the total change in the corporate governance of NBIM's portfolio. This decomposition is focused on three angles: the change in governance of the firms that are part of the fund (in an intent-to-treat structure), the change of the fund into the one-off reweighting of its portfolio and the change in the dynamics of the fund investment that follows the initial rebalancing.

We uncover the following results: i) the overall governance level (index score) of the fund increased following the announcement, ii) firms reacted to the fund's new policy by improving their governance score—these results are heterogeneous across firm characteristics and monotonically increasing in the fraction that the fund represents in the firm, iii) the investment stance of the fund changed, willing to sacrifice financial returns to achieve higher governance and focusing more on firms with high governance scores and less on firms with low-governance scores, and iv) following the announcement, the fund's marginal changes in investment weights became more reactive to the recent changes in the firms' governance scores. We decompose the overall improvement of the fund's governance quality and uncover that most of the effect comes from the reaction of investee firms.

Our findings shed light on the literature on shareholder activism and contribute to the debate on the monitoring role of universal active owners. 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. In particular, our study illustrates how through a cost-effective tool, expectation documents, large active owners can exert systemic influence and impact their investee firms' policies.

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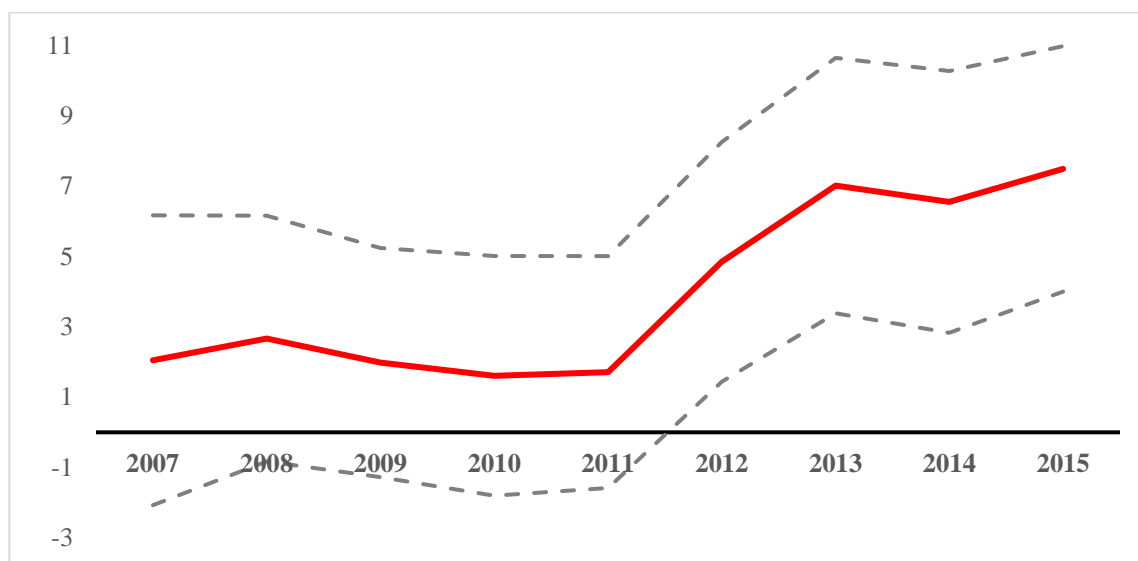
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## FIGURES & TABLES

**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 (see equation 5 in the paper). 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 I. 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.  $\Delta\text{Governance Index}_{(t+1,t)}$  measures the difference between the firm's score in t+1 and t.  $|\Delta\text{Governance Index}_{(t+1,t)}|$  measures the difference in absolute value between the firm's score in t+1 and t.

	Mean	Standard Deviation	25%	Median	75%	Obs.
Governance Index	52.849	28.68	28.424	53.880	78.125	17388
NBIM Weight (fund)	0.037	0.10	0.003	0.010	0.028	17388
NBIM Weight (firm)	0.842	1.23	0.008	0.513	0.907	17388
$\Delta\text{Governance Index}_{(t+1,t)}$	1.117	18.24	-8.351	0.379	10.655	14904
$ \Delta\text{Governance Index}_{(t+1,t)} $	13.195	12.64	3.632	9.386	18.881	14904

**Table II. Governance 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	2.048 (2.102)	2.667 (1.782)	1.983 (1.663)	1.606 (1.740)	1.714 (1.681)	4.845*** (1.739)	7.016*** (1.851)	6.548*** (1.899)	7.489*** (1.780)
Observations	1,422	2,123	2,484	2,484	2,484	2,484	2,484	2,484	2,484
R-squared	0.001	0.001	0.001	0.000	0.000	0.003	0.006	0.005	0.007

**Table III. Governance 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, but 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	37.652*** (2.280)	1.360*** (0.278)
Post*NBIM_Weight	9.483** (3.725)	-0.449 (0.355)
Observations	21,034	20,948
R-squared	0.030	0.007



**Table IV. The effect of NBIM on firm governance: instrumental variables**

This table reports instrumental variables estimates of the effect of the announcement on the governance of NBIM portfolio firms. The dependent variable is the Governance score measured at the firm level. Column 1 reports estimates of a pooled OLS regression. Columns 2 and 3 include firm fixed effects. NBIM (NBIM<sub>11</sub>) 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 columns 3 and 4, Post\*NBIM is instrumented with Post\*NBIM<sub>11</sub>. In column 5, year\* is a dummy variable for the years 2010, 2011, 2012, 2013, 2014 and 2015, the reference year is 2009. NBIM\*year2012, NBIM\*year2013, NBIM\*year2014 and NBIM\*year2015 are instrumented with NBIM<sub>11</sub>\*year2012, NBIM<sub>11</sub>\*year2013, NBIM<sub>11</sub>\*year2014 and NBIM<sub>11</sub>\*year2015. 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.

	Reduced form		2SLS		
	(1)	(2)	(3)	(4)	(5)
NBIM <sub>11</sub> *Post	4.798*** (1.255)	4.666*** (1.142)	7.437*** (1.677)	7.283*** (1.769)	
NBIM <sub>11</sub> *year2010					1.372 (1.342)
NBIM <sub>11</sub> *year2011					2.149 (1.379)
NBIM <sub>11</sub> *year2012					6.322*** (1.927)
NBIM <sub>11</sub> *year2013					7.379*** (2.460)
NBIM <sub>11</sub> *year2014					9.985*** (3.117)
NBIM <sub>11</sub> *year2015					14.269*** (3.474)
Year dummies	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	No	Yes	No	Yes	Yes
Post*Country dummies	Yes	Yes	Yes	Yes	Yes
Observations	17,388	17,388	17,388	17,388	17,388
R-squared	0.021	0.025	0.024	0.025	0.022

**Table V. The effect of NBIM on firm 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.  $NBIM_{11}$  is a dummy variable equal to one for firms in the portfolio of NBIM in 2011 and zero otherwise.  $FTSE_{11}$  is a dummy variable equal to one for firms in the FTSE in 2011 and zero otherwise.  $OnlyNBIM_{11}$  is a dummy variable equal to one for firms in the portfolio of NBIM in 2011 that do not belong to FTSE in 2011.  $OnlyFTSE_{11}$  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.  $NBIMFTSE_{11}$  is a dummy variable equal to one for firms both in the portfolio of NBIM in 2011 and in the FTSE in 2011.  $Excluded-ethics_{11}$  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)
$NBIM_{11} * Post$	4.666*** (1.142)		4.011*** (1.290)	
$FTSE_{11} * Post$		2.836*** (0.980)	1.215 (1.101)	
$OnlyNBIM_{11} * Post$				4.008** (1.736)
$NBIMFTSE_{11} * Post$				4.993*** (1.372)
$OnlyFTSE_{11} * Post$				1.562 (2.545)
$Excluded-ethics_{11} * Post$				-2.386 (3.918)
Firm & Year fixed effects	Yes	Yes	Yes	Yes
$Post * Country$ dummies	Yes	Yes	Yes	Yes
Observations	17,388	17,388	17,388	17,388
R-squared	0.025	0.023	0.025	0.025

**Table VI. 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.  $NBIM\_Weight_{11}(fund)$  is the fraction of the NBIM's portfolio represented by the firm's market value in 2011.  $NBIM\_Weight_{11}(firm)$  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,  $I(\% \text{ quartile } i)_{11}$  is a dummy variable equal to one for firms in the  $i$ th quartile of  $NBIM\_Weight_{11}(fund)$ . In column 5,  $I(\% \text{ quartile } i)_{11}$  is a dummy variable equal to one for firms in the  $i$ th quartile of  $NBIM\_Weight_{11}(firm)$ . 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>11</sub> (firm)		1.11*** (0.41)	1.15*** (0.42)		
Post* NBIM_Weight <sub>11</sub> (fund)	-0.66 (2.84)		-2.03 (2.78)		
Post* I(% quartile1) <sub>11</sub>				4.22*** (1.33)	2.01 (1.75)
Post* I(% quartile2) <sub>11</sub>				3.78*** (1.30)	3.40** (1.45)
Post* I(% quartile3) <sub>11</sub>				4.79*** (1.31)	4.92*** (1.51)
Post* I(% quartile4) <sub>11</sub>				5.81*** (1.30)	7.65*** (1.57)
Firm & Year fixed effects	Yes	Yes	Yes	Yes	Yes
Post*Country dummies	Yes	Yes	Yes	Yes	Yes
Observations	17,388	17,318	17,318	17,388	17,318
R-squared	0.02	0.02	0.02	0.02	0.03

**Table VII. 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<sub>11</sub> 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(% quartile<sup>i</sup>)<sub>11</sub> 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 score in protection of minority investors (World Bank). 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 Post\*NBIM\*Q(% quartile<sup>i</sup>)<sub>11</sub>. 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.

	Assets (1)	MV (2)	Performance (3)	Governance (4)	IP (5)	Liquidity (6)
Post*NBIM <sub>11</sub> *Q(% quartile1) <sub>11</sub>	7.37*** (2.72)	6.51** (2.56)	8.12*** (2.69)	2.78 (1.99)	2.56 (1.91)	6.34*** (2.08)
Post*NBIM <sub>11</sub> *Q(% quartile2) <sub>11</sub>	6.74*** (2.15)	7.45*** (2.22)	6.67*** (2.27)	6.79*** (2.16)	1.70 (1.77)	7.05*** (2.43)
Post*NBIM <sub>11</sub> *Q(% quartile3) <sub>11</sub>	4.47** (2.00)	4.07* (2.13)	4.19* (2.44)	6.22** (2.46)	5.23** (2.57)	4.22* (2.33)
Post*NBIM <sub>11</sub> *Q(% quartile4) <sub>11</sub>	0.58 (2.12)	0.23 (2.01)	3.12 (2.03)	4.13** (2.00)	5.37* (2.77)	0.09 (2.04)
Firm & Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Post*Country dummies	Yes	Yes	Yes	Yes	No	Yes
Post*Q(% quartile <sup>i</sup> )	Yes	Yes	Yes	Yes	Yes	Yes
Observations	17,367	17,318	15,890	17,388	17,381	17,073
R-squared	0.03	0.03	0.03	0.03	0.02	0.03

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

This table reports odds ratios from logistic regressions. The dependent 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. In column 1, 3 and 5, 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, 4 and 6, NBIM\_entry is equal to zero for firms that belong to the NBIM portfolio the previous and subsequent 2 years. The variable Governance<sub>2011</sub> is the Governance Index fixed in the year 2011. 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 interactions of the dummy Post and country dummies are included but not reported. In columns 1 and 2 we use the full sample of firms. In columns 3 and 4 we exclude the entries that are driven by entries in the FTSE Global Cap. In columns 5 and 6 we only include the entries that are driven by entries in the FTSE Global Cap. Standard errors clustered at the firm level are shown in parentheses. \*\*\*, \*\* and \* indicate statistical significance relative to a coefficient of 1 at the 1%, 5% and 10% level, respectively.

ENTRY	FULL SAMPLE		Non-FTSE		FTSE	
	(1) Vs-NonNBIM	(2) Vs-NBIM	(3) Vs-NonNBIM	(4) Vs-NBIM	(5) Vs-NonNBIM	(6) Vs-NBIM
Post * Governance <sub>2011</sub>	1.007** (0.003)	1.006** (0.003)	1.010** (0.005)	1.008** (0.004)	1.003 (0.005)	1.001 (0.005)
Governance <sub>2011</sub>	0.995** (0.002)	0.988*** (0.002)	0.994* (0.003)	0.987*** (0.003)	0.996 (0.003)	0.989*** (0.002)
Time & Post*Country dummies	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,687	14,307	2,366	13,471	2,110	13,185
Pseudo R-squared	0.0734	0.108	0.154	0.182	0.0309	0.0479

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

This table reports odds ratios from logistic regressions. The dependent variable is NBIM\_exit, a dummy equal to one for firms that belong to the NBIM portfolio in year t-1 and 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, 3 and 5, NBIM\_exit is equal to zero for firms that do not belong to the NBIM portfolio the previous and subsequent 2 years. In columns 2, 4 and 6, NBIM\_exit is equal to zero for firms that belong to the NBIM portfolio the previous and subsequent 2 years. The variable Governance<sub>2011</sub> is the Governance Index fixed in the year 2011. 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 interactions of the dummy Post and country dummies are included but not reported. In columns 1 and 2 we use the full sample of firms. In columns 3 and 4 we exclude the exits that are driven by exits in the FTSE Global Cap. In columns 5 and 6 we only include the exits that are driven by exits in the FTSE Global Cap. Standard errors clustered at the firm level are shown in parentheses. \*\*\*, \*\* and \* indicate statistical significance relative to a coefficient of 1 at the 1%, 5% and 10% level, respectively.

EXIT	FULL SAMPLE		Non-FTSE		FTSE	
	(1) Vs-NonNBIM	(2) Vs-NBIM	(3) Vs-NonNBIM	(4) Vs-NBIM	(5) Vs-NonNBIM	(6) Vs-NBIM
Post * Governance <sub>2011</sub>	0.993 (0.004)	0.993* (0.004)	0.991** (0.005)	0.991** (0.004)	1.014 (0.012)	1.012 (0.010)
Governance <sub>2011</sub>	1.002 (0.003)	0.996* (0.002)	1.003 (0.003)	0.996 (0.002)	1.000 (0.006)	0.992 (0.006)
Time & Post*Country dummies	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,347	13,491	2,308	13,449	1,697	10,793
Pseudo R-squared	0.149	0.131	0.164	0.142	0.0941	0.0799

**Table X. Governance-returns trade-off in NBIM's portfolio**

This table reports mean alphas (calculated through Carhart's (1997) four factor model) and standard errors in parentheses. The portfolio of NBIM is decomposed into non-discretionary (firms that belong to the FTSE Global Cap Index) and discretionary (firms that do not belong to the FTSE Global Cap Index). Pre-event is for the period 2009-2011. Post-Event is for the period 2012-2015. Panel A shows equally-weighted results. Panel B shows market value-weighted results. The last row reports differences between alphas in the high and low governance portfolios. \*\*\*, \*\* and \* indicate statistical significance of these differences at the 1%, 5% and 10% level, respectively.

## Panel A: Equally-weighted

Governance portfolios	Non-Discretionary		Discretionary	
	Pre-Event	Post-Event	Pre-Event	Post-Event
1 (Low)	0.299 (0.08)	-0.024 (0.05)	0.198 (0.25)	0.574 (0.20)
2	0.125 (0.09)	0.022 (0.05)	0.221 (0.23)	0.387 (0.23)
3	0.376 (0.08)	0.061 (0.05)	0.460 (0.21)	0.173 (0.18)
4	0.41 (0.07)	0.00 (0.05)	0.26 (0.23)	-0.24 (0.19)
5 (High)	0.230 (0.07)	-0.060 (0.05)	0.166 (0.24)	-0.219 (0.15)
Difference High-Low	-0.069	-0.036	-0.031	-0.793***

## Panel B: Value-weighted

Governance portfolios	Non-Discretionary		Discretionary	
	Pre-Event	Post-Event	Pre-Event	Post-Event
1 (Low)	0.421 (0.07)	0.117 (0.04)	0.328 (0.23)	0.590 (0.16)
2	0.289 (0.07)	0.029 (0.04)	0.171 (0.18)	-0.507 (0.14)
3	0.285 (0.06)	0.001 (0.04)	0.678 (0.15)	0.113 (0.11)
4	0.342 (0.06)	0.095 (0.04)	0.672 (0.17)	-0.518 (0.11)
5 (High)	0.190 (0.06)	-0.133 (0.04)	0.651 (0.16)	-0.594 (0.09)
Difference High-Low	-0.231	-0.250	0.323	-1.184***

**Table XI. 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* $\Delta\text{NBIM\_Weight}_{(t+2,t)}$	23.320** (10.379)	0.380 (0.548)
$\Delta\text{NBIM\_Weight}_{(t+2,t)}$	1.795 (6.270)	-0.017 (0.345)
Year dummies	Yes	Yes
Post*Country dummies	Yes	Yes
Observations	12,420	12,366
R-squared	0.010	0.010



**Table XII. Analytical decomposition of the overall governance effect**

This table presents the results from the analytical decomposition of the overall governance effect for the period 2010-2015.  $\Delta G$  is the overall change in the governance level of the NBIM portfolio from 2010 to 2015,  $g$  is the governance index of firm  $i$ ,  $w$  is the value of the holding that firm  $i$  represents in the total value of the portfolio of NBIM,  $\Delta g$  are changes in the governance index from 2010 to 2015 and  $\Delta w$  are changes in the value of the holdings from 2010 to 2015. The value of the holdings  $w_{it}$  is measured using 3 different denominators. In row 1 the denominator is constant, it is the total value of the portfolio of NBIM in 2010. In row 2, the set of firms is constant, it is the firms in the portfolio of NBIM in 2010. In row 3, the denominator is the total holdings of the NBIM portfolio. Subindex  $i$  is for each firm in the portfolio of NBIM, subindex  $t$  is for year 2010 and for year 2015.

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

## ONLINE APPENDIX. SECTION I. (Not for publication)

**Table A.I. Definitions of the 34 provisions included in the governance index and construction of the score.**

Source: Management Score of Eikon ESG.

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 members 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 retains 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?

## How Eikon ESG builds the score for the Governance Index

Source: Eikon ESG

We have collected information on the corporate governance practices of firms from Eikon's ESG dataset. The governance index measures a company's relative performance on 34 governance indicators listed in Table A.I, based on company-reported information. The index takes values from 0 to 100. We obtain one governance score per company and year.

Each indicator within the index 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 this equation:

$$\frac{\text{n.of companies with a worst value} + \frac{\text{n.of companies with the same value included in the current one}}{2}}{\text{n.of companies with a value}} \quad (A1)$$

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 this equation:

$$\text{average score} = \sum_{s=1}^S \text{score} / 34 \quad (A2)$$

The last step to obtain the governance index, takes the average scores for each company obtained in equation (A2) and repeats the formula in equation (A1), to rank again companies according to their average scores.

*Governance score* =

$$\frac{\text{n.of companies with a worst average score} + \frac{\text{n.of companies with the same average score included in the current one}}{2}}{\text{n.of companies with an average score}} \quad (A3)$$

**Table A.II. 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 3 by the value of column 2.

	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 A.III. Governance differences among NBIM and non-NBIM firms (weighted by size)**

This table presents estimates of yearly cross-sectional OLS 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	1.543 (2.133)	2.799 (1.808)	1.910 (1.689)	1.199 (1.760)	1.533 (1.685)	4.540*** (1.749)	6.688*** (1.874)	6.258*** (1.913)	7.084*** (1.798)
Observations	1,418	2,117	2,481	2,481	2,481	2,483	2,480	2,478	2,484
R-squared	0.000	0.001	0.001	0.000	0.000	0.003	0.005	0.004	0.006

**Table A.IV. 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.  $NBIM_{11}$  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)
$NBIM_{11} * Post$	0.642*** (0.022)	
$NBIM_{11} * year2012$		0.805*** (0.021)
$NBIM_{11} * year2013$		0.666*** (0.026)
$NBIM_{11} * year2014$		0.587*** (0.027)
$NBIM_{11} * year2015$		0.515*** (0.028)
Year dummies	Yes	Yes
Post*Country dummies	Yes	Yes
Observations	17,388	17,388
R-squared	0.951	0.952

**Table A.V. Summary statistics for Non NBIM and NBIM firms**

This table reports mean and standard deviation of several variables for firms that do not belong to NBIM in 2011 (676 observations) and firms that belong to NBIM in 2011 (4,292 observations). The last column shows the difference and the t-value for the difference in means between the non NBIM group and the NBIM group. The sample covers the period 2010 and 2011. \*\*\*, \*\* and \* indicate significance at the 1%, 5% and 10% level, respectively.

	Non NBIM	NBIM	Difference
Governance Index	51.00 (28.50)	52.08 (28.82)	-1.077 (-0.68)
Total Revenues (billions)	652.29 (4545.57)	600.26 (5329.86)	52.03 (0.18)
Total Assets (billions)	3741.01 (28420.18)	1743.48 (16026.61)	1997.5 (1.26)
Capital Structure (Liabilities over Equity)	3.91 (18.43)	2.51 (8.65)	1.400 (1.38)
Performance (EBITDA over Revenue)	0.16 (1.23)	-7.30 (470.54)	7.462 (1.00)
Return on Assets	0.07 (0.11)	0.07 (0.10)	-0.002 (-0.43)
Institutional Investors Ownership	66.72 (24.67)	66.64 (23.87)	0.082 (0.06)



**Table A.VI. 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.

Sector of Economic Activity	Non-NBIM	NBIM	Total
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 A.VII. 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	10	13	23
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 A.VIII. The effect of NBIM on governance (weighted by size)**

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.  $NBIM_{11}$  is a dummy variable equal to one for firms in the portfolio of NBIM in 2011 and zero otherwise.  $FTSE_{11}$  is a dummy variable equal to one for firms in the FTSE in 2011 and zero otherwise.  $OnlyNBIM_{11}$  is a dummy variable equal to one for firms in the portfolio of NBIM in 2011 that do not belong to FTSE in 2011.  $OnlyFTSE_{11}$  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.  $NBIMFTSE_{11}$  is a dummy variable equal to one for firms both in the portfolio of NBIM in 2011 and in the FTSE in 2011.  $Excluded-ethics_{11}$  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)
$NBIM_{11}*Post$	4.400*** (1.231)		3.673*** (1.391)	
$FTSE_{11}*Post$		2.865*** (1.070)	1.407 (1.204)	
$OnlyNBIM_{11}*Post$				3.815** (1.892)
$NBIMFTSE_{11}*Post$				4.913*** (1.494)
$OnlyFTSE_{11}*Post$				1.980 (2.807)
$Excluded-ethics_{11}*Post$				-1.917 (4.113)
Firm & Year fixed effects	Yes	Yes	Yes	Yes
$Post*Country$ dummies	Yes	Yes	Yes	Yes
Observations	17,368	17,368	17,368	17,368
R-squared	0.024	0.024	0.025	0.025

**Table A.IX. The effect of NBIM on governance (Investment categories fixed in 2010)**

This table reports estimates of panel regressions of the effect of the announcement on the governance of NBIM portfolio firms. The dependent variable is the Governance Index. NBIM10 is a dummy variable equal to one for firms in the portfolio of NBIM in 2010 and zero otherwise. FTSE<sub>10</sub> is a dummy variable equal to one for firms in the FTSE in 2010 and zero otherwise. OnlyNBIM<sub>10</sub> is a dummy variable equal to one for firms in the portfolio of NBIM in 2010 that do not belong to FTSE in 2010. OnlyFTSE<sub>10</sub> is a dummy variable equal to one for firms in the FTSE in 2010 that do not belong to NBIM in 2010 or have not been excluded by the ethics committee of NBIM in 2010. NBIMFTSE<sub>10</sub> is a dummy variable equal to one for firms both in the portfolio of NBIM in 2010 and in the FTSE in 2010. Excluded-ethics<sub>10</sub> is a dummy variable equal to one for firms that have been excluded from NBIM holdings by the ethics committee of NBIM by 2010. 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 <sub>10</sub> *Post	4.341*** (1.209)		3.741*** (1.416)	
FTSE <sub>10</sub> *Post		2.549*** (0.962)	0.968 (1.125)	
OnlyNBIM <sub>10</sub> *Post				3.000* (1.703)
NBIMFTSE <sub>10</sub> *Post				4.192*** (1.349)
OnlyFTSE <sub>10</sub> *Post				-1.057 (3.359)
Excluded-ethics <sub>10</sub> *Post				-2.404 (4.185)
Firm & Year fixed effects	Yes	Yes	Yes	Yes
Post*Country dummies	Yes	Yes	Yes	Yes
Observations	17,388	17,388	17,388	17,388
R-squared	0.024	0.023	0.024	0.024

**Table A.X. The effect of NBIM on governance – reweighting the control group**

This table reports estimates of the effect of the announcement on the governance of NBIM portfolio firms. The dependent variable is the Governance Index in levels. NBIM<sub>11</sub> is a dummy variable equal to one for firms in the portfolio of NBIM in 2011 (treatment) and zero otherwise (control). We use propensity score matching so that each treated observation has one nearest neighbor in the control group (with replacement). FTSE<sub>11</sub> is a dummy variable equal to one for firms in the FTSE in 2011 and zero otherwise. OnlyNBIM<sub>11</sub> 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<sub>11</sub> 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<sub>11</sub> 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<sub>11</sub> 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 <sub>11</sub> *Post	5.885*** (1.376)		6.132*** (1.700)	
FTSE <sub>11</sub> *Post		3.198** (1.456)	-0.420 (1.766)	
OnlyNBIM <sub>11</sub> *Post				5.621*** (2.039)
NBIMFTSE <sub>11</sub> *Post				5.226*** (1.581)
OnlyFTSE <sub>11</sub> *Post				-1.294 (2.865)
Excluded-ethics <sub>11</sub> *Post				-3.415 (4.759)
Firm & Year fixed effects	Yes	Yes	Yes	Yes
Post*Country dummies	Yes	Yes	Yes	Yes
Observations	26,712	26,712	26,712	26,712
R-squared	0.035	0.030	0.035	0.035

**Table A.XI. The effect of NBIM on governance in levels – non yearly ranked**

This table reports estimates of the effect of the announcement on the governance of NBIM portfolio firms. The dependent variable is the Governance score in levels (instead of using the yearly ranked scores provided by Eikon, we construct the index as the equally weighted sum of the 34 provisions contained in the index as provided by Eikon. Each provision takes a value between 0 and 1). NBIM<sub>11</sub> is a dummy variable equal to one for firms in the portfolio of NBIM in 2011 and zero otherwise. FTSE<sub>11</sub> is a dummy variable equal to one for firms in the FTSE in 2011 and zero otherwise. OnlyNBIM<sub>11</sub> 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<sub>11</sub> 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<sub>11</sub> 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<sub>11</sub> 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 <sub>11</sub> *Post	0.747** (0.302)		1.050*** (0.326)	
FTSE <sub>11</sub> *Post		-0.136 (0.237)	-0.539** (0.254)	
OnlyNBIM <sub>11</sub> *Post				0.972** (0.446)
NBIMFTSE <sub>11</sub> *Post				0.419 (0.371)
OnlyFTSE <sub>11</sub> *Post				-0.351 (0.602)
Excluded-ethics <sub>11</sub> *Post				-1.566* (0.935)
Firm & Year fixed effects	Yes	Yes	Yes	Yes
Post*Country dummies	Yes	Yes	Yes	Yes
Observations	11,070	11,070	11,070	11,070
R-squared	0.445	0.444	0.446	0.446

**Table A.XII The effect of NBIM on firm governance: instrumental variables (2006-2015)**

This table reports instrumental variables 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 (NBIM<sub>11</sub>) 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 columns 3 and 4, Post\*NBIM is instrumented with Post\*NBIM<sub>11</sub>. In column 5, year\* is a dummy variable for the years 2010, 2011, 2012, 2013, 2014 and 2015, the reference year is 2009. NBIM\*year2012, NBIM\*year2013, NBIM\*year2014 and NBIM\*year2015 are instrumented with NBIM<sub>11</sub>\*year2012, NBIM<sub>11</sub>\*year2013, NBIM<sub>11</sub>\*year2014 and NBIM<sub>11</sub>\*year2015. 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.

	Reduced form		2SLS		
	(1)	(2)	(3)	(4)	(5)
NBIM <sub>11</sub> *Post	4.915*** (1.321)	4.941*** (1.196)	7.710*** (1.782)	7.643*** (1.855)	
NBIM <sub>11</sub> *year2007					0.110 (2.051)
NBIM <sub>11</sub> *year2008					1.746 (1.846)
NBIM <sub>11</sub> *year2009					1.213 (1.731)
NBIM <sub>11</sub> *year2010					2.098 (1.864)
NBIM <sub>11</sub> *year2011					2.862 (1.760)
NBIM <sub>11</sub> *year2012					7.045*** (2.368)
NBIM <sub>11</sub> *year2013					8.261*** (2.977)
NBIM <sub>11</sub> *year2014					11.015*** (3.673)
NBIM <sub>11</sub> *year2015					15.540*** (4.155)
Year dummies	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	No	Yes	No	Yes	Yes
Post*Country dummies	Yes	Yes	Yes	Yes	Yes
Observations	21,034	21,034	21,034	21,034	21,034
R-squared	0.019	0.032	0.032	0.032	0.030

**Table A.XIII. The effect of NBIM on firm governance: placebo tests**

This table reports placebo tests for the pre-shock period 2006-2011. The dependent variable is the Governance Index measured at the firm level. Columns 1 and 2 report estimates of a pooled OLS regressions with firm and year fixed effects.  $NBIM_{08}$  ( $NBIM_{09}$ ) is a dummy variable equal to one for firms in the portfolio of NBIM in 2008 (in 2009) and zero otherwise.  $Post_{09-11}$  ( $Post_{10-11}$ ) is a dummy variable equal to one for the period 2009-2011 (2010-2011) and equal to zero for the period 2006-2008 (2006-2009). In column 3  $Post_{09-11} * NBIM$  is instrumented with  $Post_{09-11} * NBIM_{08}$  and in column 4  $Post_{10-11} * NBIM$  is instrumented with  $Post_{10-11} * NBIM_{09}$ . 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.

	Reduced form		2SLS	
	(1)	(2)	(3)	(4)
$Post_{09-11} * NBIM_{08}$	-1.063 (1.527)		-1.449 (2.083)	
$Post_{10-11} * NBIM_{09}$		0.707 (1.407)		0.905 (1.803)
Firm & Year fixed effects	Yes	Yes	Yes	Yes
Post*Country dummies	Yes	Yes	Yes	Yes
Observations	11,098	11,098	11,098	11,098
R-squared	0.032	0.030	0.031	0.030

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1



**Table A.XIV. Average governance for firms that enter and exit the NBIM portfolio**

These tables report means of the Governance Index for different sample groups and periods. 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. Non-NBIM are firms that do not belong to the NBIM portfolio. NBIM are firms that belong to NBIM. Entry are firms that enter the NBIM portfolio in year  $t$  and do not belong to the NBIM portfolio in year  $t-1$ . Exit are firms that belong to the NBIM portfolio in year  $t-1$  and exit the NBIM portfolio in year  $t$ .

Panel A: Governance Index not fixed in 2011

	Non-NBIM	NBIM	Entries	Exits
Period 2009-2011	47.79	50.69	42.72	48.63
Period 2012-2014	44.61	51.71	46.52	43.61

Panel B: Governance Index fixed in 2011

	Non-NBIM	NBIM	Entries	Exits
Period 2009-2011	46.23	51.26	42.34	48.73
Period 2012-2014	46.55	50.95	47.51	43.01

**Table A.XV. 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 (non FTSE)	Entries (non FTSE)
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 A.XVI. Governance differences for firms that enter the portfolio of NBIM**

This table reports estimates and average marginal effects (Mfx) from logistic regressions. The dependent 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. In columns 1, 3 and 5, NBIM\_entry is equal to zero for firms that do not belong to the NBIM portfolio the previous and subsequent 2 years. In columns 2, 4 and 6, NBIM\_entry is equal to zero for firms that belong to the NBIM portfolio the previous and subsequent 2 years. The variable Governance<sub>2011</sub> is the Governance Index fixed in the year 2011. 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 interactions of the dummy Post and country dummies are included but not reported. In columns 1 and 2 we use the full sample of firms. In columns 3 and 4 we exclude the entries that are driven by entries in the FTSE Global Cap. In columns 5 and 6 we only include the entries that are driven by entries in the FTSE Global Cap. The unconditional probability is described as the baseline predicted probability. Standard errors clustered at the firm level are shown in parentheses. \*\*\*, \*\* and \* indicate significance at the 1%, 5% and 10% level, respectively.

Panel A: Estimates from logistic regressions

ENTRY	FULL SAMPLE		Non-FTSE		FTSE	
	(1) Vs-NonNBIM	(2) Vs-NBIM	(3) Vs-NonNBIM	(4) Vs-NBIM	(5) Vs-NonNBIM	(6) Vs-NBIM
Post * Governance <sub>2011</sub>	0.0074** (0.0035)	0.0058** (0.0029)	0.0096** (0.0045)	0.0084** (0.0043)	0.0034 (0.0052)	0.0011 (0.0046)
Governance <sub>2011</sub>	-0.0050** (0.0024)	-0.0122*** (0.0020)	-0.0060* (0.0033)	-0.0134*** (0.0032)	-0.0043 (0.0027)	-0.0113*** (0.0024)
Time & Post*Country dummies	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,687	14,307	2,366	13,471	2,110	13,185
Pseudo R-squared	0.0734	0.108	0.154	0.182	0.0309	0.0479
Baseline Predicted Probability	0.234	0.056	0.132	0.032	0.136	0.027

Panel B: Average marginal effects (Mfx)

ENTRY	FULL SAMPLE		Non-FTSE		FTSE	
	(1) Vs-NonNBIM	(2) Vs-NBIM	(3) Vs-NonNBIM	(4) Vs-NBIM	(5) Vs-NonNBIM	(6) Vs-NBIM
Post * Governance <sub>2011</sub>	0.00140** (0.00065)	0.00019** (0.00010)	0.00116** (0.00055)	0.00013** (0.00007)	0.00040 (0.00061)	0.00002 (0.00008)
Governance <sub>2011</sub>	-0.00094** (0.00045)	-0.00040*** (0.00007)	-0.00073* (0.00040)	-0.00021*** (0.00005)	-0.00051 (0.00032)	-0.00020*** (0.00004)

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

This table reports estimates and average marginal effects (Mfx) from logistic regressions. The dependent variable is NBIM\_exit, a dummy equal to one for firms that exit the NBIM portfolio in year  $t$  and belong to the NBIM portfolio in year  $t-1$ . This dummy is equal to zero according to the control group selected. In columns 1, 3 and 5, NBIM\_exit is equal to zero for firms that do not belong to the NBIM portfolio the previous and subsequent 2 years. In columns 2, 4 and 6, NBIM\_exit is equal to zero for firms that belong to the NBIM portfolio the previous and subsequent 2 years. The variable Governance<sub>2011</sub> is the Governance Index fixed in the year 2011. 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 interactions of the dummy Post and country dummies are included but not reported. In columns 1 and 2 we use the full sample of firms. In columns 3 and 4 we exclude the exits that are driven by exits in the FTSE Global Cap. In columns 5 and 6 we only include the exits that are driven by exits in the FTSE Global Cap. The unconditional probability is described as the baseline predicted probability. Standard errors clustered at the firm level are shown in parentheses. \*\*\*, \*\* and \* indicate significance at the 1%, 5% and 10% level, respectively.

Panel A: Estimates from logistic regressions

EXIT	FULL SAMPLE		Non-FTSE		FTSE	
	(1) Vs-NonNBIM	(2) Vs-NBIM	(3) Vs-NonNBIM	(4) Vs-NBIM	(5) Vs-NonNBIM	(6) Vs-NBIM
Post * Governance <sub>2011</sub>	-0.0069 (0.0044)	-0.0067* (0.0038)	-0.0093** (0.0046)	-0.0091** (0.0040)	0.0137 (0.0114)	0.0119 (0.0099)
Governance <sub>2011</sub>	0.0024 (0.0027)	-0.0041* (0.0023)	0.0028 (0.0029)	-0.0037 (0.0025)	-0.0003 (0.0063)	-0.0077 (0.0061)
Time & Post*Country dummies	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,347	13,491	2,308	13,449	1,697	10,793
Pseudo R-squared	0.149	0.131	0.164	0.142	0.0941	0.0799
Baseline Predicted Probability	0.129	0.027	0.115	0.024	0.023	0.004

Panel B: Average marginal effects (Mfx)

EXIT	FULL SAMPLE		Non-FTSE		FTSE	
	(1) Vs-NonNBIM	(2) Vs-NBIM	(3) Vs-NonNBIM	(4) Vs-NBIM	(5) Vs-NonNBIM	(6) Vs-NBIM
Post * Governance <sub>2011</sub>	-0.00081 (0.00051)	-0.00011* (0.00006)	-0.00095** (0.00048)	-0.00012** (0.00006)	0.00024 (0.00020)	0.00003 (0.00003)
Governance <sub>2011</sub>	0.00029 (0.00032)	-0.00007* (0.00004)	0.00028 (0.00029)	-0.00005 (0.00003)	-0.00001 (0.00011)	-0.00002 (0.00002)

**Table A.XVIII. Governance differences for firms that exit the portfolio of NBIM (exclude 2011)**

This table reports odds ratios and average marginal effects (Mfx) from logistic regressions. The dependent variable is NBIM\_exit, a dummy equal to one for firms that exit the NBIM portfolio in year  $t$  and belong to the NBIM portfolio in year  $t-1$ . This dummy is equal to zero according to the control group selected. In columns 1, 3 and 5, NBIM\_exit is equal to zero for firms that do not belong to the NBIM portfolio the previous and subsequent 2 years. In columns 2, 4 and 6, NBIM\_exit is equal to zero for firms that belong to the NBIM portfolio the previous and subsequent 2 years. The variable Governance<sub>2011</sub> is the Governance Index fixed in the year 2011. Post is a dummy variable equal to one for the period 2012-2015 and equal to zero for the period 2009-2010. Year 2011 is excluded from the sample. Year dummies, and interactions of the dummy Post and country dummies are included but not reported. In columns 1 and 2 we use the full sample of firms. In columns 3 and 4 we exclude the exits that are driven by exits in the FTSE Global Cap. In columns 5 and 6 we only include the exits that are driven by exits in the FTSE Global Cap. Standard errors clustered at the firm level are shown in parentheses. \*\*\*, \*\* and \* indicate significance at the 1%, 5% and 10% level, respectively.

Panel A: Odds ratios from logistic regressions

EXIT	FULL SAMPLE		Non-FTSE		FTSE	
	(1) Vs-NonNBIM	(2) Vs-NBIM	(3) Vs-NonNBIM	(4) Vs-NBIM	(5) Vs-NonNBIM	(6) Vs-NBIM
Post * Governance <sub>2011</sub>	0.991 (0.006)	0.993 (0.005)	0.987** (0.006)	0.989* (0.006)	1.015 (0.013)	1.014 (0.011)
Governance <sub>2011</sub>	1.005 (0.005)	0.997 (0.004)	1.007 (0.005)	0.999 (0.005)	0.998 (0.008)	0.990 (0.008)
Time & Post*Country dummies	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,804	10,981	1,773	10,947	1,331	8,460
Pseudo R-squared	0.147	0.146	0.163	0.158	0.119	0.100

Panel B: Average marginal effects (Mfx)

EXIT	FULL SAMPLE		Non-FTSE		FTSE	
	(1) Vs-NonNBIM	(2) Vs-NBIM	(3) Vs-NonNBIM	(4) Vs-NBIM	(5) Vs-NonNBIM	(6) Vs-NBIM
Post * Governance <sub>2011</sub>	-0.00083 (0.00052)	-0.00009 (0.00006)	-0.00098** (0.00048)	-0.00011* (0.00006)	0.00026 (0.00021)	0.00003 (0.00003)
Governance <sub>2011</sub>	0.00043 (0.00040)	-0.00004 (0.00005)	0.00049 (0.00038)	-0.00001 (0.00005)	-0.00003 (0.00014)	-0.00002 (0.00002)

**Table A.XIX. 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 $\Delta\text{Governance}_{(t+1,t)}$	-0.197*** (0.019)	0.004** (0.002)	-0.203*** (0.013)	0.002 (0.002)
Lagged $\Delta\text{NBIM\_Weight}_{(t+1,t)}$	0.123 (0.139)	0.063 (0.075)	-0.008 (0.060)	-0.085** (0.035)
Observations	4,968	4,968	7,091	7,091

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

- Predicted by lagged  $\Delta\text{NBIM\_Weight}_{(t+1,t)}$  0.375

- 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  $\Delta\text{Governance}_{(t+1,t)}$  0.044

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

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