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## **WHO IS AFRAID OF BLACKROCK?**

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***FINANCIAL ECONOMICS***



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## Abstract

We use the merger of BlackRock with Barclays Global Investors to study how changes in ownership concentration affect the investment behavior of financial institutions and the cross-section of stocks worldwide. We find that other institutions begin avoiding stocks that experience a merger-related increase in ownership concentration. As a result, affected stocks experience a permanent and negative price, liquidity and volatility impact. We confirm these effects in a large sample of asset management mergers over a ten year period. The interpretation that institutions strategically avoid stocks with an elevated risk of future fragility enjoys the strongest support in the data.

JEL Classification: G11, G12, G14, G15, G23

Keywords: Strategic Interactions, Asset Management Merger, liquidity, Limits to Arbitrage

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## ABSTRACT

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*“In 25 years, BlackRock has become the world’s biggest investor. Is its dominance a problem?”* The Economist, December 7, 2013.

Despite the ominous title, the cover story of the December 7, 2013 issue of The Economist took quite a conciliatory tone arguing that “If the regulators’ concern is to avoid a repeat of the last crisis, they are barking up the wrong tree. Unlike banks, whose loans and deposits go on their balance-sheets as assets and liabilities, BlackRock is a mere manager of other people’s money. [...] Whereas banks tumble if their assets lose even a fraction of their value, BlackRock can pass on any shortfalls to its clients, and withstand far greater shocks. In fact, by being on hand to pick up assets cheaply from distressed sellers, an unleveraged asset manager arguably stabilizes markets rather than disrupting them.”

This logic is in line with the standard folk-theorem in finance. Since BlackRock’s investment is not levered, there is little reason to associate BlackRock with systemic risk. In fact, a large presence of BlackRock among the stockholders of a firm could have benefits that go beyond the stabilizing role that a large and unlevered asset manager can play. For example, BlackRock can use its clout to improve the quality of governance of the companies it holds in its portfolios.<sup>1</sup>

In this paper, we subject the Economist’s logic to an empirical test. Our main idea is to study the market implications of the rise of BlackRock as the world’s largest asset manager, focusing on the reaction of other institutional investors to deduce if this group shares the assessment of the Economist or not. More specifically, we investigate if other institutional investors change their investment behavior in different stocks in response to the announcement that BlackRock would acquire Barclays Global Investors (BGI) in 2009. That is, we study *strategic interactions* among investors who may act *in anticipation* of the possible implications the merger could have for financial markets. Subsequently, we examine the market implications of the event in terms of price, liquidity and volatility impact.

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<sup>1</sup> Indeed, this is what the BlackRock website states: “As a fiduciary asset manager, we have a duty to act in our clients’ best interests. This includes protecting and enhancing the value of our clients’ assets—that is, the companies in which we invest on their behalf—by promoting good corporate governance.” Accessed on August 17, 2015: <http://www.blackrock.com/corporate/en-hk/about-us/responsible-investment/engagement-and-proxy-voting>

However, the identification of such strategic interactions, or “peer effects”, is a topic plagued by endogeneity problems (Manski’s (1993) “reflection problem”<sup>2</sup>). Our focus on the merger between BlackRock and BGI in 2009 allows us to overcome these issues. The event is ideal because it fulfills all the criteria of a natural experiment to study how changes in ownership concentration affect the behavior of other investors (and ultimately the stock market). First, the merger is unprecedented in scale. The combined entity oversaw about \$2.7 trillion in assets under management at that time. This makes the event impactful. Second, the event affected a large number of global stocks to varying degrees, providing a necessary source of cross-sectional variation. We estimate that stocks representing over 60% of world market capitalization were directly affected because they were held in both BlackRock and BGI-managed portfolios prior to the merger. Third, the acquisition was exogenous to the characteristics of the stocks held in the portfolios of BlackRock and BGI funds. Barclays sold BGI in order to raise funds to strengthen its balance sheet in the wake of the 2008 global financial crisis to avoid a possible future bailout by the UK government. BlackRock acquired BGI in order to aggressively grow assets under management and to become a preeminent asset manager with a unique ability to tailor portfolios to client needs. This allows us to give a causal interpretation to the merger-induced changes in ownership concentration and to the associated peer and stock market effects.

We articulate our analysis in several steps. We start by documenting portfolio changes by institutional investors other than BlackRock or BGI in response to the merger between the two entities. We find that, upon the announcement of the merger in June 2009 (but before its completion), institutional investors re-balance away from stocks that are about to experience a large increase in ownership concentration due to the high institutional ownership attributable to funds managed by BGI *prior to the merger* that are about to be integrated into BlackRock (“BGI-ownership”). As a result, “residual institutional ownership” – i.e., institutional ownership attributable to all institutions except BlackRock or BGI – of stocks with high BGI-ownership drops relative to residual institutional ownership of stocks with low BGI-ownership.

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<sup>2</sup> The “reflection problem” captures the difficulty of identifying causality in peer behavior. For example, the behavior of an individual could be caused by the behavior of some peer group, or the reverse, or none at all if all behavior is caused by external, unobservable factors.

The effect is quantitatively sizeable. The growth rate of residual institutional ownership falls by about 2%-age points per standard deviation (STD) of BGI-ownership prior to the merger. This implies that residual institutional ownership for stocks with high BGI-ownership (“top quintile stocks”) grows more than twice as slow as residual institutional ownership for stocks with low BGI-ownership (“bottom quintile stocks”) after the deal is announced.<sup>3</sup> We confirm this result in cross-sectional regressions, a difference-in-difference design and various fixed effect specifications. We find no evidence that this relative drop in residual institutional ownership reverts following the completion of the merger, suggesting that the other institutional investors permanently change their investment attitude towards the stocks that are about to experience an increased presence of BlackRock among its shareholders. The effects are stronger in smaller-cap and illiquid stocks and only present in stocks also held by BlackRock funds prior to the merger.

We then examine the effects on the stock market. We focus on the impact on stock returns, liquidity, and volatility. The re-balancing away from stocks affected by the merger should lead to a negative price impact and may affect stock liquidity and volatility. To investigate these issues, we first refine our testing strategy. For the analysis of peer effects, we are constrained by semi-annual holdings information for global institutions. For the analysis of stock market effects, we do not face this restriction and therefore conduct the analysis at the monthly frequency. This allows us to more precisely identify the periods when any stock market effects manifest themselves. Therefore, we define three key moments in the evolution of the merger. The announcement in June 2009 that BlackRock is the designated buyer of BGI, the anti-trust approval by the European Commission in September 2009 and the completion of the merger in December 2009. In section I, we give a more detailed account of the evolution of the merger.

We find strong negative effects on returns, liquidity, and volatility of stocks that experience a large increase in ownership concentration due to the merger. These effects mostly take place once the merger receives anti-trust approval from the European Commission - i.e., they are concentrated in the period September to November 2009. The effects are also economically sizeable: Risk-adjusted returns (liquidity, volatility) fall by up to 97 bps per month (0.1 STD per month, 0.07 STD per month) per STD

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<sup>3</sup> One STD of BGI-ownership prior to the merger corresponds to about 1.2% of institutional ownership attributable to BGI funds. We find that residual institutional ownership grows on average in the second half of 2009, more details in section III.

of BGI-ownership prior to the merger in the period after the merger receives anti-trust approval and before it completes.

Again, none of these effects fully reverts after the merger completes. Also, the effects are robust to multiple fixed effect specifications, and, importantly, to controlling for the impact of (pre-merger) residual institutional ownership (for which BGI-ownership could be a noisy proxy) or the trading behavior of BlackRock funds (that could itself be impacted by the merger and lead to peer or stock market effects). Finally, consistent with the previous results, the effects are concentrated in stocks held by BlackRock funds prior to the merger and stronger in illiquid and smaller-cap stocks.

These results are hard to reconcile with the view outlined by the Economist. If an increased presence of BlackRock leads to more stability (or potentially improved corporate governance) for the affected stocks, then why do other investors avoid such stocks going forward? An alternative view would suggest that the market has a less benign interpretation of the consequences of the merger. We test what these consequences could be by formulating three alternative hypotheses. All three hypotheses are predicated on these first results that point to an overall negative impact of the merger. That is, we refrain from formulating alternatives that are based on an overall positive assessment of the merger. For example, the increase in BlackRock ownership could have been interpreted as an improvement in monitoring ability of BlackRock and, as a consequence, corporate governance of the affected stocks. Our first stylized results seem hard to reconcile with such an interpretation.

Our first hypothesis is based on a potentially negative implication of increased BlackRock ownership. This expected increase could allow BlackRock to have better access to inside firm information – e.g., by using its proxy voting power as a block holder. Such an influence could lead to informational advantages that could be used to improve the performance of actively-managed BlackRock funds.<sup>4</sup> If so, other institutional investors may want to avoid stocks with high BGI-ownership because of increased information asymmetries after the merger. We label this hypothesis the “informed trading hypothesis”.

Our second hypothesis is based on the literature of cross-trading in mutual fund families (e.g., Gaspar, Massa and Matos (2003), Goncalves-Pinto and Schmidt (2013), Bhattacharya, Lee and Pool

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<sup>4</sup> This would presumably constitute a violation of the “Chinese Walls” within BlackRock. However, the literature on financial conglomerates has documented that such violations have likely happened in the past (e.g., Massa and Rehman (2008), Ferreira, Matos and Pires (2016))

(2013), Chuprinin, Massa, and Schumacher (2015)) and a potential negative externality associated with it. The sheer size of BlackRock with its tremendous variety of funds allows it to carry out a large number of internal equity crossings among its funds if these experience opposite trading needs. Indeed, the ability to cross trades internally is advertised by BlackRock itself as part of its efforts to minimize trading costs.<sup>5</sup> However, while internal cross-trading can be an effective measure for internal liquidity provision, it may also reduce market liquidity. Indeed, if fewer such liquidity trades reach the public markets, overall market quality will deteriorate. If so, other institutional investors will respond by avoiding stocks with high BGI-ownership to avoid the lower future liquidity of such stocks. We label this hypothesis the “internal liquidity-provision hypothesis”.

Our third hypothesis is based on the literature on concentrated ownership and stock price fragility (e.g., Greenwood and Thesmar (2011)). This literature has linked the level of existing ownership concentration to prices and volatility when the concentrated investor base experiences shocks. The merger experiment complements this literature by investigating a situation with no such shocks but in which the concentration of ownership changes. Stocks with high BGI-ownership could be at an elevated risk of “future fragility” should BlackRock funds experience negative shocks going forward (e.g., large redemption requests, potentially including spillovers among affiliated funds). If other institutions are concerned with such a risk, they could respond by reducing their exposure to the involved stocks *ex ante* – i.e., when the merger is announced but the change in ownership has yet to take place. We label this hypothesis the “fragility hypothesis”.

We test each of the three hypotheses to assess the extent to which they explain the peer and stock market effects we have documented to this point. We start with the “informed trading” hypothesis. If the results are driven by other institutions’ fear of informed BlackRock trading, we expect that these other institutional investors will more strongly avoid stocks with high BGI-ownership when these stocks are held by the best-performing BlackRock funds prior to the merger – i.e., the BlackRock funds that are presumably better able to exploit the information advantages accruing from a bigger BlackRock stake. Our test shows the reverse – other institutions avoid such stocks especially when they are held by the

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<sup>5</sup> <https://www.blackrock.com/mobile-feeds/en-us/document/documents/web/corporate/newworld/en/mobile-feeds/brochure-managing-ishares-equity-en.pdf>. Page 1, section “Minimizing Costs”. Accessed on May 16, 2016.

lower-performing BlackRock funds.<sup>6</sup> Next, we examine the performance evolution of actively-managed BlackRock funds after the mergers. The hypothesis suggests that the better access to inside information should be beneficial to BlackRock funds, especially when they hold many stocks with high BGI-ownership for which overall BlackRock will increase as a result of the merger. We therefore examine the holding returns of active BlackRock funds but find no evidence of improved fund performance in the post-merger period.

Finally, we perform a matching test where we compare the behavior of other institutions in stocks not held by BlackRock funds prior to the merger to stocks held by BlackRock funds that have the *same level of post-merger combined BlackRock ownership* and are comparable in terms of other characteristics. This allows us to distinguish whether the effects we document are associated with the simple transfer of ownership from Barclays to BlackRock or with the increase in ownership concentration. We find that institutions only avoid stocks that experience an increase in ownership concentration, not stocks that experience a pure transfer of ownership. This is difficult to reconcile with the “informed trading hypothesis” where the expected post-merger level of combined BlackRock ownership should proxy for the post-merger information advantages of BlackRock funds.

Next, we focus on the “internal liquidity-provision hypothesis”. We implement the standard test of cross-trading performed in the literature (e.g., Gaspar, Massa and Matos (2003)). This allows us to establish an upper bound of possible cross-trades and to examine if movements in this upper bound are related to the increase in ownership concentration due to the merger. However, we find no such evidence. Therefore, we examine another implication of the “internal liquidity-provision” hypothesis. If BlackRock funds can trade more efficiently after the merger because of more internal equity crossings, than this should allow them to lower their own liquidity buffers, i.e., their cash holdings, especially when they hold many stocks with high BGI-ownership. Again, we find no supporting evidence.<sup>7</sup>

Finally, we turn to the “fragility hypothesis”. We first investigate the degree of heterogeneity in how aggressively different institutional investors respond to the merger-induced changes in ownership

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<sup>6</sup> We will interpret this result further when we test the “fragility hypothesis” below.

<sup>7</sup> In a further test, reported in the Internet Appendix, we generally test if the post-merger trading behavior of active BlackRock funds in a stock is related to the pre-merger ownership of BGI-funds, i.e., if BlackRock funds re-balance towards the stocks, but find no such effect.

concentration. The “fragility hypothesis” suggests that institutions vulnerable to negative shocks themselves or that hold a stock for liquidity rather than information reasons, should avoid stocks with high BGI-ownership more strongly. For example, Chen, Goldstein and Jiang (2010) show that funds with illiquid portfolios and performance-sensitive flows could suffer from strategic complementarities that can lead to financial fragility. In our situation, institutional investors with volatile flows could also be concerned of strategic complementarities if a negative shock to BlackRock funds spills over because of the associated price impact and their own volatile flows or because other institutions try to pre-empt a negative spillover by selling first. We confirm this idea and find that the effect is stronger among institutional investors with more volatile flows, higher flow-performance sensitivities and a higher portfolio overlap with the pre-merger BlackRock-BGI portfolio. We also find that larger funds respond more to the merger than smaller funds, consistent with larger funds being generally more exposed to liquidity shocks and slower to re-balance than others if need be. Further, better performing funds on average respond less aggressively than lower performing ones. This indicates that investors who react to the merger are primarily the ones that hold the stock for liquidity, rather than information, reasons.

Finally, to connect to the result that other institutions primarily avoid stocks with high BGI-ownership when they are held by lower-performing BlackRock funds, we test if they avoid stocks held by BlackRock funds with more volatile flows. And indeed, we do find supporting evidence: lower-performing BlackRock funds face higher redemption risks, suggesting that these funds could be a bigger source of future fragility.

Overall, these tests give the strongest support to the “fragility hypothesis”. This helps us interpret the stock market effects. Indeed, the motive to strategically re-balance away from stocks affected by the merger should lead to a negative price impact, consistent with our results. Further, in line with the market microstructure literature, since institutions who hold the affected stocks for liquidity reasons appear to show a stronger response to the merger, we expect a reduced presence of such “liquidity traders” to be associated with lower liquidity (because they trade for liquidity reasons and not based on information)

and lower volatility (because price changes due to liquidity trades impact volatility rather than the mean of stock returns).<sup>8</sup> The findings are supportive of this interpretation.

In a last step, we extend the analysis to a large sample of asset management mergers in the period 2002 to 2012. To separate the analysis from the impact of the BlackRock-BGI merger, we exclude the period 2008 to 2010 from the analysis. While these other mergers are considerably smaller in magnitude and scale, the analysis is helpful for at least two reasons. First, it clarifies to what extent the results from the BlackRock-BGI transaction are unique to this one merger that was (and still is) unprecedented in scale or to what extent the results generalize to a broader setting that includes the asset management industry in general. Second, it addresses any residual concern that the results we document are impacted by the financial crisis of 2008 and the subsequent market recovery that took place during the BlackRock-BGI merger period.

We find that the effects in this extended sample are consistent with the ones from the BlackRock-BGI merger. We confirm a strong negative effect of pre-merger target ownership on changes in residual institutional ownership - i.e., institutional ownership by institutions unaffiliated with both the bidder and the target. The growth rate of residual institutions ownership falls by 0.9% to 1.2%-age points per STD of pre-merger ownership by target funds. In terms of economic magnitude, this is about one third to one half the effect we document for the BlackRock-BGI merger. Likewise, we find that affected stocks experience negative returns and become less liquid and volatile during these periods. In economic terms, the effects we document for returns, liquidity and volatility are meaningful but an order of magnitude smaller compared to the impact of the BlackRock-BGI deal (on average 10% to 25% of the corresponding effect we estimate for the BlackRock-BGI deal). Given that the BlackRock-BGI merger was so much larger in scale compared to an average deal in the industry, we would also expect to observe quantitatively smaller peer and stock market effects for an average asset management merger, which is what we find.

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<sup>8</sup> Indeed, as in Kyle (1985) as well as in later studies (e.g., Kim and Verrecchia (1994)), asymmetric information reduces stock liquidity. But equally, volatility is directly linked to price changes induced by noise traders while informed investors largely affect the drift of the stock (e.g., Kyle (1985), Back (1992), Back, Cao and Willard (2000)). Indeed, as Black (1986) points out: “noise trading is trading on noise as if it were information.” The intuition is also very similar to the traditional microstructure literature’s intuition on “strategic liquidity trading” (e.g., Subrahmanyam (1991), Spiegel and Subrahmanyam (1992), Chordia and Subrahmanyam (2004)).

Our results contribute to several strands of the literature. First, we contribute to the literature on strategic interactions in financial markets including the literature on strategic complementarities and global games (e.g., Carlsson and Van Damme (1993), Morris and Shin (1998), Corsetti et al. (2004), Rochet and Vives (2004), Dasgupta (2004), Goldstein and Pauzner (2004, 2005)) as well as the literature on financial runs (e.g., Diamond and Dybvig (1983), Bernardo and Welch (2004)). We provide *direct* evidence on strategic interactions that are empirically notoriously difficult to identify, as acknowledged by Chen, Goldstein and Jiang (2010) who provide *indirect* evidence using mutual fund flows.

Second, we contribute to the literature on the role of institutional ownership, and especially concentrated ownership. Our experiment based on the merger between BlackRock and BGI provides an exogenous source of variation of ownership concentration in a global cross-section of stocks. This allows us to give a causal interpretation to the documented effects and contributes to the debate on how concentrated ownership affects stock markets. More importantly, the fact that we are able to observe the *ex-ante* strategic behavior of other investors (i.e., before any negative shocks to BlackRock occur and when ownership changes have yet to occur) allows us to identify the *ex-ante* impact of concentrated ownership on stock markets, clearly differentiating this paper from the literature on financial fragility that focuses on the impact of actual shocks, once they happen. For example, Ben-David et al. (2015) provide evidence that the trading behavior of concentrated owners increases stock volatility, especially when the actual trading is triggered by institution-level idiosyncratic news and is channeled through large trades.

Third, we contribute to the literature on the industrial organization of the asset management industry. He and Huang (2014) and Azar, Schmalz and Tecu (2015) analyze the impact of common ownership on product market policies of portfolio firms and use asset management mergers as a source of variation in cross-ownership and ownership concentration. Luo, Manconi and Schumacher (2015) study internal corporate reorganizations and organizational learning during asset management mergers. Huang (2013) uses asset management mergers to study the impact of shareholder coordination on firm value. He finds a positive effect of improved shareholder coordination on firm value (relating it to differences in governance changes) as well as a negative effect of ownership concentration on firm value, consistent with our results. However, he does not analyze the behavior of other institutions or any other market externalities associated with the merger.

Finally, our results have important normative implications. On the one hand, they suggest that concentrated ownership need not exacerbate stock volatility but may in fact cause the opposite at the cost of lower liquidity. On the other hand, they suggest that large asset managers may contribute to systemic risk and that other market participants are aware of it and condition their actions accordingly.

## **I. The BlackRock-BGI Merger**

In the wake of the 2008 financial crisis, the initial owner of Barclays Global Investors (“BGI”), the UK-based bank Barclays PLC (“Barclays”), had to sustain large loan losses that substantially weakened the bank’s balance sheet. In order to strengthen the bank’s capital ratios, calm investors, and avoid risking a bailout by the UK government, Barclays announced on March 16, 2009 its intention to sell the iShares unit of BGI. This unit was (and still is) the leading global provider of exchange-traded funds (“ETFs”). On April 9, 2009, Barclays announced the sale of the iShares unit to the private equity group CVC Capital (“CVC”) for \$4.4 billion. However, the deal included a “go shop” provision that would allow another bidder to make a higher offer for iShares within 45 days in exchange for a \$175 million break-up fee to be paid to CVC. On June 11, 2009, BlackRock Inc. (“BlackRock”) announced that it had agreed to acquire all of BGI for \$13.5 billion. The deal would make BlackRock the world’s largest money manager with assets under management of \$2.7 trillion at that time. According to the “go shop” provision, the announcement left an additional 5 days to CVC to make a counter offer with no additional bidder being allowed to submit another competing offer. On June 18, 2009, the “go-shop” period expired without a counter-offer from CVC. On September 23, 2009, the European Commission cleared the proposed acquisition under the EU Merger Regulation concluding “that the transaction would not significantly impede effective competition in the European Economic Area (EEA) or any substantial part of it”. On December 1, 2009, BlackRock announced the completion of the merger with BGI.

The main strategic reasons for the merger, according to the BlackRock press release from June 11, 2009, were to “bring together market leaders in active and index strategies to create the preeminent asset management firm” with the “unique ability to combine active, quantitative and index strategies to develop investment solutions for institutional clients worldwide” and to offer “BlackRock’s global mutual funds

alongside iShares [to] create an unmatched ability to tailor portfolios for retail investors”. Further, “the combined firm will have unparalleled talent, analytical tools, and scale to deliver liquidity, global presence, and local market insight to clients.” These considerations are summarized by BlackRock Chairman and CEO Laurence D. Fink when he says that “We are incredibly excited about the potential to significantly expand the scale and scope of our work with investors throughout the world.”

Indeed, from these quotes, it is clear that the main drivers behind the acquisition for BlackRock were strategic motives to expand into the fast-growing segment of ETFs (for which iShares was and still is the leading platform worldwide), to establish a more global presence as a firm and to reap economies of scale by aggressively growing assets under management.

## **II. Data, Main Variables and Empirical Design**

### *A. Data Sources*

We obtain our data from several sources. We collect semi-annual (January to June and July to December) institutional holdings from the FactSet Ownership database. FactSet reports stock-level holdings for a large variety of institutional investors, such as mutual funds, insurance funds, ETFs and pension funds as well as the portfolio management company and the ultimate parent company for every fund. For each semi-annual period, we identify all BlackRock funds as the funds with ultimate parent “BlackRock Inc.” and Barclays funds as those with ultimate parent “Barclays PLC”.<sup>9</sup> To identify the BGI funds that are involved in the merger, we select all the funds with ultimate parent “Barclays PLC” in December 2009 in FactSet that change affiliation and appear with ultimate parent “BlackRock Inc.” in June 2010. We call these funds “BGI funds” and we cross-check their portfolio management companies in FactSet in December 2009. We find that all funds are managed in one of eight management companies with “Barclays Global Investors” in the company name.<sup>10</sup> All other institutions and funds are defined to

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<sup>9</sup> We also verify all the direct and indirect subsidiaries of BlackRock using the annual report of subsidiaries of registrant “BlackRock Inc.” from the SEC Edgar database.

<sup>10</sup> Since management company and ultimate parent information is static in FactSet, we rely on multiple downloads of the database in the years 2008, 2009 and 2010 to identify the correct affiliations over time. The eight management

be unaffiliated with either BlackRock or BGI, we refer to them as “residual institutions” or “residual funds” and our measures of “residual institutional ownership” are based on this universe.

We complement the holdings information from FactSet with fund-level characteristics from the Morningstar Global database, section global open-ended funds. The link between FactSet and Morningstar is as in Chuprinin, Massa, and Schumacher (2015) and updated for the newer sample used here. From Morningstar, we primarily rely on information on individual fund flows and performance that we use in the construction of certain variables and tests that are described below.

Finally, we collect information on global stock returns, trading volume and accounting information from the Thomson DataStream and WorldScope databases. For stock returns and trading volume, we collect both daily and monthly information that we use in the construction of the different outcome and explanatory variables.

### *B. Main Variables*

For each stock held by BGI funds prior to the merger, we construct several measures of institutional ownership. The institutional ownership attributable to BGI funds,  $IO\ BGI_{j,t}$ , is the total number of shares of stock  $j$  held by BGI funds in period  $t$  divided by shares outstanding of stock  $j$  in period  $t$ . The variable is updated every semi-annual period up to June 2009 but constant afterwards for every stock to capture the pre-merger institutional ownership of BGI funds. We refer to this variable as “BGI-ownership”.

We then compute various measures of residual institutional ownership for stock  $j$ . For each residual fund in each semi-annual period, we compute the change in portfolio weight in stock  $j$  as the difference in portfolio weights between two periods scaled by the average values in these two periods. To aggregate these portfolio-weight changes to the stock-level, we compute the weighted-average changes in portfolio weights across all residual funds for each stock. We employ two alternative weighting schemes. First, we compute the Total Net Asset (TNA)-weighted-average of portfolio weight changes of all residual funds (*Change Avg. Port. Weight<sub>j,t</sub> (TNA weighted)*). Alternatively, we compute the fund-flow-volatility-weighted-average of portfolio weight changes of all residual funds

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companies with “Barclays Global Investors” in the company name are different regional subsidiaries (e.g., North America, UK, Germany, etc.).

( *Change Avg.Port.Weight<sub>j,t</sub> (flow weighted)* ). Finally, we compute the changes in residual institutional ownership of each stock as the difference in residual institutional ownership (i.e., institutional ownership across all institutions and funds excluding those affiliated with either BlackRock or BGI) between two periods scaled by the average values of the two periods (*Change Residual IO<sub>j,t</sub>*).

When we analyze stock market effects in section IV, we define a number of stock-level measures for returns, liquidity, and volatility. We consider three measures of stock returns. First, *Market adjusted Stock Returns<sub>j,t</sub>* are defined as the per-period stock return of stock  $j$  in excess of the domestic market return over the same period. Second, *Market Industry adjusted Stock Returns<sub>j,t</sub>* are defined as the per-period stock return of stock  $j$  in excess of the return of a domestic industry portfolio that contains all stocks from the same country of origin and industry as stock  $j$ . We use the standard DataStream industry classification to assign stocks to industries as in Bekaert et al. (2007, 2011). Third, *DGTW adjusted Stock Returns<sub>j,t</sub>* are defined as the per-period stock return of stock  $j$  in excess of a domestic characteristics-matched portfolio based on size, value and momentum as in Daniel et al. (1997).

Next, we consider three measures of stock liquidity. First, *Amihud<sub>j,t</sub>* is defined as the Amihud (2002) measure of stock illiquidity that is computed from daily volume, price and returns data. Second, *Log Trading Volume<sub>j,t</sub>* is defined as the log of total number of shares traded for stock  $j$  in period  $t$  multiplied by the beginning of period stock price. Third, *Turnover<sub>j,t</sub>* is defined as the total number of shares traded for stock  $j$  in period  $t$  divided by the beginning of period shares outstanding.

Finally, for stock volatility, we consider two measures. First, *Volatility<sub>j,t</sub>* is defined as the standard deviation of daily stock returns of stock  $j$  in period  $t$ . Second, *Idiosyncratic Volatility<sub>j,t</sub>* is defined as the standard deviation of daily residuals from a first-stage regression of daily excess stock returns on domestic market, size, value and momentum factors.

We also construct a number of stock level control variables as follows. *Change IO BlackRock<sub>j,t</sub>* is defined as change in institutional ownership in stock  $j$  in period  $t$  attributable to trades by BlackRock funds (where BlackRock affiliation is established prior to the merger). *Log MCap<sub>j,t</sub>* is the log of the beginning of period market capitalization of stock  $j$ . *Pastreturn<sub>j,t</sub>* is the 6-month trailing return of stock  $j$ . *Log BTM<sub>j,t</sub>* is the log of the book-to-market ratio of stock  $j$  where we divide book value of equity of the

most recent fiscal year end (at least one quarter lagged) by the beginning of period market capitalization.  $Dividend Yield_{j,t}$  is computed as the percentage dividend yield of stock  $j$ .  $ROE_{j,t}$  is the return on equity of stock  $j$ ,  $Leverage_{j,t}$  is the total leverage of firm  $j$ , and  $Cash_{j,t}$  are the total cash holdings of firm  $j$  divided by total assets. For some tests, we construct further variables and we describe these in the corresponding section.

**[Table I here]**

### *C. Descriptive statistics*

In table I, we present descriptive statistics for the sample. In panel A, we provide descriptive statistics on the holdings coverage we can obtain for both BlackRock and BGI funds as of June 2009, prior to the merger. For BlackRock, we are able to include 308 different investment funds in the sample. Out of these, only a small proportion is classified as “ETFs” (30), the rest are classified as non-passive products (278), consistent with the perception that BlackRock was predominantly a manager of active investment products prior to the merger. For BGI, we are able to include 333 funds, 302 of which are classified as “ETFs” in FactSet and only 31 as non-ETFs, in line with the reasoning that BlackRock acquired BGI in order to establish a foothold in the fast-growing market for passive investment products.

In terms of assets under management (“AUM”), our coverage of BlackRock funds represents almost \$160 billion as of June 2009. Compared to BlackRock’s annual report, these \$160 billion represent about 79% of end-of-2008 equity assets under BlackRock’s custody. For BGI, we capture \$306 billion in equity AUM, representing about 31% of end-of-2008 equity assets under BGI’s custody. Focusing only on passive AUM associated with ETFs (iShare funds), we capture \$267 billion, or about 90% of the June 2009 equity AUM of the iShares unit. This demonstrates that while our data allow us to primarily capture BGI-ownership due to ETF holdings, BGI also contributed significant non-ETF AUM to BlackRock.

While we can capture the majority of BlackRock’s equity AUM via FactSet, we only capture about a third of all BGI equity AUM via FactSet. Therefore, we verify this estimate using the 13F filings from Thomson Reuters and we find the following. For BlackRock, we can capture only \$125 billion AUM as of June 2009 by using 13F filings, so we have a better global coverage of BlackRock holdings using FactSet. For BGI, we find that BGI is not a filer in 13F. Instead, we can only identify Barclays PLC and

Barclays Bank as 13F filers. Combining these two entities, we are able to capture \$530 billion AUM as of June 2009 for Barclays as a whole.

Inspecting the time-series of Barclays AUM in 13F, we observe a drop in AUM of about \$643 billion over the course of 2010 with an almost symmetric increase in AUM for BlackRock in the same period, suggesting that a large fraction of the reported Barclays AUM in 13F is indeed managed by BGI. However, while the total AUM of Barclays in 13F is about twice as large as the AUM of BGI in FactSet, the number of distinct stocks that is covered in 13F is substantially smaller.

By using 13F holdings, we are only able to cover 4,664 stocks with Barclays / BGI-ownership as of June 2009 while our sample based on FactSet ownership covers over 7,300 stocks. The difference is primarily on the international dimension that we would lose when restricting ourselves to the 13F universe of stocks. In addition, we find that our measure of BGI-ownership from FactSet holdings is 75% correlated with the same measure constructed from 13F information in the overlapping sample of stocks covered by both data sources. This indicates that the difference in coverage mostly affects the *level* of institutional ownership, not the cross-sectional distribution. Consequently, we use the FactSet universe of ownership and stocks in our baseline analysis and we present robustness tests of the main results using 13F data in section VII. Overall, we believe that our level of coverage is sufficiently broad to represent the changes in ownership concentration that have taken place due to the merger.

In panel B, we report the stock ownership covered by WorldScope, BlackRock and/or BGI funds prior to the merger. As of June 2009, we have WorldScope information on 36,660 stocks worldwide; we declare these stocks to be the world market portfolio for comparison purposes. 7,348 stocks are held by BGI funds prior to the merger (representing about 69% of world market capitalization), 6,476 stocks are held by BlackRock funds prior to the merger (representing about 65% of world market capitalization), and 5,497 stocks are held both by BlackRock and BGI funds prior to the merger (representing about 63% of world market capitalization), all according to the holdings that we can capture via FactSet. The global 7,348 stocks held by BGI funds prior to the merger form the main sample on which we perform our tests.

In panel C, we report average stock characteristics – i.e., market capitalization, book-to-market ratio, daily trading volume and monthly return volatility – over the sample period from June 2008 to June 2010 for all the stocks covered in WorldScope, the stocks held by BGI funds, the stocks held by BlackRock

funds, or the stocks held both by BGI and BlackRock funds. Comparing with an average stock in the complete WorldScope universe, we find that the stocks held by either BlackRock funds or BGI funds exhibit similar characteristics but are substantially larger, more heavily traded and somewhat less volatile compared to the average stock in WorldScope.

The average stock in the WorldScope universe has a market capitalization of \$1.3 billion while the average stock held by BGI (BlackRock) funds has a market capitalization of \$4.2 billion (\$4.5 billion). Likewise, the average WorldScope stock has a daily trading volume of \$24 million while the stocks held by BGI or BlackRock funds are more heavily traded with an average daily volume of \$70 million and \$78 million respectively. For return volatility, the difference is not as pronounced. The average WorldScope stock has a monthly return volatility of 4.1% while the average stock held by either BGI or BlackRock funds has a monthly return volatility of about 3.5%-3.6%. Overall, our baseline sample of stocks is tilted towards global, liquid, large-cap stocks. For the sub-sample of stocks held by both BGI and BlackRock funds, we find that this universe is even more tilted towards large, liquid stocks. The average stock in that sample has a market capitalization of \$5.0 billion and an average daily trading volume of \$88 million.

Finally, in panel D, we present descriptive statistics on the institutional ownership of the stocks held by BGI funds prior to the merger. The average (median) stock in that sample has about 1% (0.7%) of institutional ownership attributable to BGI funds with a standard deviation of 1.2% prior to the merger. The average institutional ownership attributable to BlackRock funds (other, i.e., “residual”, institutions) is lower (higher), standing at around 0.4% (18.8%). This reflects that first, BlackRock was much smaller compared to BGI in terms of AUM prior to the merger and second, the group of other institutional investors that we label “residual institutions” is naturally much larger than BlackRock and / or BGI.

#### *D. Empirical Design*

The main empirical design we employ in this study is a difference-in-difference estimation with a continuous treatment variable. The unit of observation is a stock in a given time period and the treatment is defined as institutional ownership attributable to BGI funds prior to the merger – i.e., as of June 2009 in the baseline specification. In its most general form, we estimate the following model:

$$y_{j,t} = \beta_1 IO_{j,BGI,2009} + \beta_2 D_t + \beta_3 IO_{j,BGI,2009} \times D_t + \gamma_1' X_{j,t} + \gamma_2' (X_{j,t} \times D_t) + \alpha_t + \alpha_j + \epsilon_{j,t}. \quad (1)$$

The variable  $y_{i,t}$  is the outcome variable of interest for stock  $j$  in period  $t$ . These include measures of residual institutional ownership, returns, liquidity, and volatility. The main explanatory variable is  $IO_{j,BGI,2009}$ , the institutional ownership attributable to BGI funds (“BGI-ownership”). The variable is measured period-by-period at semi-annual frequency up to June 2009. For all observations following June 2009, the variable remains constant for every stock  $j$  (see explanation below). When the outcome variable is a measure of institutional ownership, equation (1) is estimated at the semi-annual frequency because holdings are available only every six months. When the outcome variable is another stock characteristic, equation (1) is estimated at the monthly frequency.

The variable  $D_t$  is a dummy (or a set of dummies) that indicate the different stages in the merger process. Depending on the test, we define these periods with different degrees of granularity. Specifically, to operationalize the timeline of events that led to the merger, we define a number of event periods that we use in our regression designs. Figure I summarizes these different stages in the merger process.

**[Figure I here]**

In section III, where we examine the portfolio decisions of institutions other than BlackRock and BGI and where we rely on semi-annual portfolio holdings, we use timelines 1 and 2 in the figure that are based on semi-annual observations. In the coarsest specification (timeline 1), we split the time-series into two equal parts in June 2009. We call the period prior to June 2009 the “Pre-merger” period and the period after the “Post-merger” period. We refine timeline 1 by splitting both the pre- and the post-merger periods in two equal parts. We label the period from June 2008 to December 2008 the “Pre-CVC” period, the following six months to June 2009 the “CVC” period, the following six months to December 2009 the “Merger” period and the final six months to June 2010 the “Completion” period.

In section IV, where we examine the impact of the merger on global stock characteristics at the monthly frequency, we employ a more granular definition to capture the evolution of events. Timeline 3 in figure I displays this definition. We code the period from June 2008 to February 2009 as the “Pre-merger” period, the month of March 2009 as the “iShares for Sale” period, the period of April 2009 to May 2009 as the “CVC” period, the period from June 2009 to August 2009 as the “BlackRock offer”

period, the period September 2009 to November 2009 as the “Anti-trust approval” period, and the period starting December 2009 until the end of the sample as the “Completion” period.

This granular specification will allow us to exactly capture when the different stock market effects manifest themselves and to control for the evolution of market expectations as the nature of the likely buyer and the resulting implications changed from the first designated buyer CVC (a private equity firm) to the second and final buyer BlackRock (an asset management firm).

Since the BlackRock-BGI merger took place in 2009 and evolved over a period of almost 9 months, we choose a baseline event window of 2 years (June 2008 to June 2010) for the estimation. This assures that we have a meaningful pre-event period (June 2008 to March 2009) that is not contaminated by the merger as well as a post event period (December 2009 to June 2009) that is sufficiently long to examine post-event reversals. Choosing a shorter event window is likely problematic because of the lengthy merger process and the need to compare the merger effects to a pre-merger period. In contrast, longer event windows can be informative because a) the pre-merger period includes beginning of the 2008 financial crisis and b) any post-merger reversals could take more time to manifest themselves. We therefore experiment with alternative event windows of either 3 years (January 2008 to December 2010) or 5 years (January 2007 to December 2011). Our main conclusions are unchanged in these tests.

The main coefficient of interest in equation (1) is  $\beta_3$ , the coefficient on the interaction term  $IO_{j,BGI,2009} \times D_t$ . It measures the treatment effect. In the estimation, we also include a number of covariates as control variables in the vector  $X_{j,t}$  as well as the interaction terms between these covariates and the event indicators  $D_t$ . We add these interactions to control for the possibility that BGI-ownership is correlated with other stock characteristics that could have period-specific effects on the outcome variables. We also augment the specification with different fixed effects (time  $t$ , stock  $j$  or, alternatively, country  $c$  and industry  $i$ ) to ensure we are not measuring generic differences in the outcome variables across stocks (or countries / industries) or time periods. Finally, to control for the impact of residual, unobservable shocks that may affect stocks, we draw inference from standard errors that are clustered at the stock level. These are all effective ways of controlling that any measured effect can be attributed to the main variable of interest.

The main treatment variable  $IO_{j,BGI,2009}$ , the institutional ownership attributable to BGI funds prior to the merger, remains constant for every stock  $j$  after June 2009. We do this for a number of reasons. First, we use the pre-merger value of this variable to capture the information that was likely available to market participants at the time in order to assess the impact of the change in ownership concentration that will take place once the merger completes. The institutional ownership attributable to BGI funds is perhaps the most direct estimate by how much the institutional ownership of BlackRock in stock  $j$  is going to increase after the merger.

Moreover, econometrically, the use of the pre-merger value of  $IO_{j,BGI}$  is further desirable because the variable is pre-determined and does not vary with common, unobservable shocks to the outcome variable of stock  $j$ . This is especially useful in our analysis of peer effects in which the outcome variables are measures of institutional ownership that exclude the ownership attributable to BGI or BlackRock. As pointed out by Manski (1993), regressing group behavior on individual behavior (or vice versa) gives rise to the reflection problem. Using a pre-determined regressor is one part of our strategy to address this problem (Angrist and Pischke (2008), section 4.6.2).

However, the most important part of our identification strategy is the exclusion restriction that BlackRock did not acquire BGI in order to increase its institutional ownership in the stocks common to BlackRock and BGI portfolios (e.g., to indirectly establish control over firms commonly held), or in anticipation of the investment behavior of competing investors or the evolution of the stock characteristics that we examine. We believe that this is a plausible claim, and informal conversations with people familiar with the merger proceedings confirm this, as the main driver of the acquisition was Barclays' need to raise capital and BlackRock's motive to enter the growing market for passive investment products (ETFs). Therefore, we argue that the merger between BlackRock and BGI was exogenous to the aggregate portfolio holdings and the characteristics of these holdings, allowing us to give a causal interpretation to the effects we describe in this study.

**[Figure II here]**

As a primer of whether the merger between BlackRock and BGI likely impacted stock markets, we plot the impact of the institutional ownership of BGI funds ("BGI-ownership") on changes in institutional

ownership of funds different from BlackRock or BGI (“residual institutional ownership”), stock returns, liquidity and volatility over the course of the merger in figure II. We follow the methodology of Gormley and Matsa (2011) and report the point estimates of the impact of BGI-ownership throughout the merger process on these outcome variables. Specifically, in each graph, the solid black line displays the estimated per period impact per 1% BGI-ownership prior to the merger and the grey lines display the 95% confidence interval around the estimate.<sup>11</sup> The vertical bars indicate key event dates.

In panel A, we focus on the impact on changes in residual institutional ownership and find a strong drop in the growth rate of institutional ownership following the BlackRock offer for BGI. In panel B, we focus on risk-adjusted returns. While we estimate a positive effect of BGI-ownership on stock returns in the pre-merger period, the impact sharply drops and turns negative when the merger receives anti-trust approval. In the post-merger period, there is no significant effect suggesting that the negative effect does not revert. In panel C, we document that BGI-ownership has an increasingly negative effect on stock liquidity and panel D shows how BGI-ownership has a negative impact on stock volatility once BlackRock makes the offer for BGI. These results indicate a strong market impact of the merger that we will analyze in detail.

### **III. Peer Effects: The Responses of Institutional Investors to the Merger**

We start by analyzing the investment responses of institutional investors to the BlackRock-BGI merger to deduce if other institutional investors share the assessment of The Economist that the presence of a large BlackRock is a source of stability in financial markets.

Before estimating the full specification of equation (1), we start with a simple cross-sectional analysis, in which we regress changes in residual institutional ownership for each stock  $j$  over the second half of 2009 (June to December) on the level of institutional ownership attributable to BGI funds prior to the merger (i.e., as of June 2009), a set of control variables, as well as fixed effects.

**[Table II here]**

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<sup>11</sup> The full estimates are presented in the tables below.

The results are reported in table II, panel A. We find a strong negative correlation between the change in institutional ownership around the event and the level of BGI-ownership prior to the merger. This holds across specifications and is robust to the inclusion of control variables (column 2), fixed effects (column 3) and different measures of residual institutional ownership (columns 4 and 5). These simple specifications already indicate significant economic peer effects in the investment behavior of institutional investors. The rate of change in the average portfolio weights of stocks falls by about 3.6 (column 3) to 4.7%-age points (column 4) points per STD of BGI-ownership prior to the merger. This leads to a fall in the growth rate or residual institutional ownership of 2%-age points per STD of BGI-ownership prior to the merger (column 6).

In panel B of table II, we estimate a full difference-in-difference specification of equation (1) on a semi-annual panel. This panel regression includes four semi-annual periods and we employ timeline 1 of figure I to split the time series into two equal parts. Specifically, the indicator variable  $D_t$  is labelled “Post-Merger” and equals 1 for the two semi-annual periods after the merger (i.e., June 2009 to June 2010) and 0 otherwise. The estimates confirm and strengthen the results in panel A. We find that the interaction term  $IO\ BGI \times Post-Merger$  is negative and highly significant in all specifications. The estimates in column (1) include interacted controls with the *Post-Merger* dummy, country and industry fixed effects and confirm the effects from panel A. The rate of change in the average portfolio weights of stocks falls by about 4.3%-age points per STD of BGI-ownership prior to the merger.

In column 2, we add time fixed effects to the specification in column 1. In column 3, we also interact the country and industry fixed effects with the *Post-Merger* dummy in order to assess if the changes in the post-merger period are not stock-specific but country- or industry-specific. Alternatively, BGI-ownership could be correlated with country- or industry-affiliation of the stock. Therefore, adding these interaction terms (in addition to the interacted control variables) further mitigates the concern that the regressions pick up specific sector- or country-rotation strategies that institutions could have engaged in at the time. In column 4, we replace the country and industry fixed effects by stock fixed effects. The results hold.

Taken together, these results suggest that our findings are not driven by generic differences across stocks, industries, countries or time periods. In column 5, when we use the flow-weighted measure of institutional ownership, we find a fall in the rate of change of average portfolio weight of 7.2%-age points

per STD of BGI-ownership prior to the merger. Finally, column 6 shows that this translates into a 1.5%-age points lower growth rate of residual institutional ownership, significant at the 1%-level.

In the Internet Appendix, table IA.I, we re-estimate equation (1) using the more granular timeline 2 of figure I in order to better identify the period when the reduction in residual institutional ownership mostly takes place. Across all the specifications, we find that the interaction term *IO BGI x Merger* is negative and highly significant in all specifications. This is robust to different fixed effects specifications (columns 1 to 4) and different measures of residual institutional ownership (columns 5 and 6).

In the same table, we also test for reversals in institutional ownership by including the interaction term *IO BGI x Completion*. Any evidence of reversals in residual institutional ownership could imply that the documented effects are driven by e.g., front-running of competing institutions in anticipation of merger-related rebalancing of BlackRock (e.g., motivated by internal risk-management reasons). We find no evidence that the drop in residual institutional ownership reverts in the first six months of 2010, the interaction term *IO BGI x Completion* is either negative or insignificant. Therefore, front running of competing institutions in anticipation of possibly risk-management induced sales by BlackRock after merger do not seem to explain our results.<sup>12</sup>

**[Table III here]**

We perform a number sample splits to dig deeper and report the results in table III. In columns 1 and 2, we split the sample based on pre-merger ownership by BlackRock funds and find that the effect is concentrated in stocks that are also held by BlackRock funds prior to the merger; there is no significant effect in stocks that are not held by BlackRock funds prior to the merger.<sup>13</sup> This indicates that other institutions begin avoiding stocks that experience an increase in ownership concentration, rather than a simple transfer of ownership from Barclays to BlackRock.

In columns 3 and 4, we split the sample by the stocks in which BlackRock funds increased (did not increase) their position prior the merger. We find that the effects are concentrated in the stocks that are not bought by BlackRock before the merger, which gives additional credibility to our exclusion restriction

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<sup>12</sup> We directly test whether such merger-related re-balancing likely took place within BlackRock in section VII.

<sup>13</sup> However, upon inspection, we find that while the effect is strongly significant in column 1 and insignificant in column 2, the point estimates in both columns of the sample are almost identical. We return to this observation in section V.

that BlackRock did not acquire BGI in anticipation of any capital market effects of the stocks held in BGI portfolios or to indirectly establish control over portfolio firms.

We further split our sample on the basis of median stock liquidity (measured by stock turnover) or market capitalization. The relative change in portfolio weights is concentrated in illiquid stocks with low stock turnover (column 5 and column 6) and in small-cap stocks (column 7 and column 8).

## IV. Stock Market Effects: Returns, Liquidity, and Volatility

In this section, we examine the effects of the BlackRock-BGI merger on the stock market. The peer effects we document in the previous section lead us to suggest that the re-balancing of other institutions exerts negative price pressure on stocks with high BGI-ownership. We also examine if the same stocks experience changes in liquidity and volatility.

Before carrying out these tests, we modify equation (1) in three ways. First, we expand our panel to the monthly frequency since we can observe global stock characteristics at a higher frequency. Second, we employ the more granular monthly timeline 3 (see figure I) to more precisely capture the evolution of events. Third, we use as outcome variables measures of stock returns, liquidity, and volatility.

### A. Return Effects

The first stock characteristics that we study are risk-adjusted returns. We ask if the strategic re-balancing away from affected stocks exerts negative price pressure on those stocks. To test the conjecture, we use risk-adjusted stock returns as dependent variable in equation (1). We adjust monthly stock returns by either subtracting domestic market returns (the variable *Market-adjusted Stock Return*), the return on a domestic size-value-momentum characteristic-matched benchmark portfolio (the variable *DGTW-adjusted Return*) or the return on a domestic industry portfolio (the variable *Market-Industry adjusted Return*).<sup>14</sup>

[Table IV here]

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<sup>14</sup> Gormley and Matsa (2014) argue that this practice can bias the estimated effects and recommend the use of fixed effects. In unreported results, we implement their suggested specification and find that our results are unchanged.

We present the results in table IV. Panel A uses the full sample of stocks. We find a strong negative effect of the variable *IO BGI* in the months after the merger receives anti-trust approval (the coefficient on *IO BGI x Anti-trust* is highly significant and negative). The effect is robust to country and industry fixed effects (column 1), alternative stock fixed effects (column 2), as well as additional time fixed effects (columns 3 and 4). This again means we are not picking up general differences in returns across countries, industries, stocks, or time periods.

In column 5, we control for the impact of (pre-merger) residual institutional ownership on stock returns throughout the merger. This is an important control because our main variable of interest (*Pre-merger*) *IO BGI* could simply be a noisy proxy for high overall institutional ownership in the stocks or be correlated with other stock characteristics (beyond the ones we explicitly control for). If this were the case, the significance on the interaction terms should migrate to the newly added control variables. We find that this is not the case; the impact of the BlackRock-BGI merger on stock returns is robust.

In column 6, we test if the return effect is permanent in nature or if it reverts once the merger completes. We add to the specification the interaction term *IO BGI x Completion* to test for potential reversals in the period after the merger is completed. We find that returns do not significantly recover in the period after the merger.

In column 7, we use the full set of event indicators, starting from the initial Barclays announcement that the iShares unit is for sale up to the completion of the merger. Even this full set of controls does not change the result that returns of high BGI-ownership stocks are low in the months after the merger receives anti-trust approval from the European Commission.

Also, we find the effect not only statistically but also economically significant. From the estimates of column 7, 8, or 9, we estimate an abnormal negative risk-adjusted return of between 65 bps and 97 bps per month in the three months following the anti-trust approval per STD of BGI-ownership prior to the merger. This corresponds to a cumulative abnormal negative return of up to 3% over a three-month period that does not fully revert in the months following the completion of the merger.

In panel B of table IV, we present the same sample splits as in table III. The negative return effect is entirely concentrated in stocks that were held by BlackRock funds prior to the merger (column 1 and column 2), is present for stocks both bought and not bought by BlackRock funds prior to the merger

(columns 3 and 4) but almost twice as strong in illiquid stocks (columns 5 and 6) and marginally stronger in small-cap vs large-cap stocks (columns 7 and 8).

### *B. Liquidity Effects*

We now turn to the effect of the merger on stock liquidity. As baseline measure of stock liquidity, we use the Amihud (2002) measure of illiquidity that we construct using daily stock returns and trading volume data. Alternatively, we use variable *Turnover*, defined as the total number of shares traded of stock  $j$  in month  $t$  divided by beginning-of-month shares outstanding, or the log of total monthly dollar trading volume in stock  $j$  in month  $t$  (the variable *Log Trading Volume*).

#### **[Table V here]**

Table V presents the results. Panel A shows that stock liquidity deteriorates markedly over the course of the merger for stocks that experience a large increase in ownership concentration. The coefficients on the interaction terms *IO BGI x BR Offer* and *IO BGI x Anti-trust* are positive and highly statistically significant, indicating higher levels of stock illiquidity based on the Amihud (2002) measure.

As before, this effect is robust to all the fixed effect specifications, controls of residual institutional ownership or the most granular event timeline. In columns 8 and 9, we replace the measure of stock liquidity and use stock turnover or trading volume as alternative measures. The two measures give consistent results. Stock liquidity deteriorates during the merger process, primarily once BlackRock enters the merger process. None of the measures detect any evidence of reversals in stock liquidity after the merger completes.

The liquidity effects we estimate are not only statistically but also economically significant. The estimates from columns 7 to 9 imply that liquidity deteriorates by about 0.10 STDs (column 7, liquidity measure is *Amihud*), 0.04 STDs (column 8, liquidity measures is *Turnover*), or 0.05 STDs (column 8, liquidity measures is *Log Trading Volume*) per STD of BGI-ownership prior to the merger.

In panel B of table V, we perform the same sample splits as before. In columns 1 and 2, we split the sample on pre-merger institutional ownership attributable to BlackRock funds. We find that the deterioration in stock liquidity is only present in stocks for which there is overlap in the pre-merger portfolios of BlackRock and BGI funds and for which ownership concentration effectively increased as a

result of the merger. For stocks not held by BlackRock funds prior to the merger, we find no effect on stock liquidity. In columns 3 and 4, we split the sample by the stocks in which BlackRock funds increased their position prior the merger. We find a negative liquidity effect in both subsamples. In the remaining columns, we split the sample into high and low liquidity stocks (columns 5 and 6) and small- and large-cap stocks (columns 7 and 8) with again stronger effects for small-cap and less liquid stocks.

[Table VI here]

### C. *Volatility Effects*

Finally, we turn to the third stock characteristic: volatility and present the result in table VI. Columns 1 to 5 in panel A use as dependent variable *Volatility*, defined as the standard deviation of daily stock returns during the month, while columns 6 to 9 use *Idiosyncratic Volatility*, defined as the standard deviation of residuals from a regression of daily excess stock returns on domestic market, size, value and momentum factors.

Volatility declines markedly throughout the merger process, and especially once BlackRock enters the picture in the second half of 2009. The specifications we present mirror the ones of the previous subsection. The negative effect of the merger on the volatility of stocks that experience an exogenous increase in ownership concentration is robust to the inclusion of fixed effects (country, industry, stock, or time), to controlling for residual institutional ownership, possible reversals after the merger is completed, the granular definition of the event timeline and to both measures of stock volatility.

The economic effect associated with the estimates in panel A is again economically sizeable. From the estimates of column 5 (9), we estimate a 0.03 STDs (0.07 STDs) decrease in volatility (idiosyncratic volatility) in the months after the merger receives anti-trust approval per STD of BGI-ownership prior to the merger. However, the effect is already detectable in the two months prior to that when BlackRock announces its offer to buy BGI.

In panel B of table VI, we present the same sample splits as in the previous table and find the same patterns. The effect is concentrated in the stocks also held by BlackRock funds prior to the merger, is

present in both stocks that BlackRock funds bought or sold prior to the merger and is stronger in illiquid and small-cap stocks.<sup>15</sup>

## V. What Explains these Results? Three Alternative Hypotheses

We now go more in depth on the economic intuition behind our results. We formulate and test three alternative hypotheses.

### A. The “informed trading hypothesis”

Our first hypothesis, which we label the “informed trading hypothesis”, is based on a potentially elevated concern of insider trading in financial markets. The transfer of ownership from Barclays to BlackRock places BlackRock among the largest shareholders for a large number of firms, making the firm a large insider. This could give BlackRock better access to firm-specific information that it may use to improve the performance of its actively managed funds.

In this case, other institutional investors may want to avoid stocks with high BGI-ownership because of increased information asymmetries and adverse selection in those stocks after the merger. As a consequence, affected stocks would experience negative returns. Also, since BlackRock funds would become more informed, the balance of informed vs. uninformed traders would change in the market. This could lead to lower liquidity and lower volatility.

To test the hypothesis and to separate it from the alternatives, we formulate three distinct predictions. First, if the impact of the merger is due to the creation of a large insider, we expect that other institutional investors will more strongly avoid stocks with high BGI-ownership when these stocks are held by the best-performing BlackRock funds prior to the merger – i.e., the BlackRock funds that are presumably most able to exploit possible information advantages that stem from an improved access to the firms they

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<sup>15</sup> It is worth noting that we capture the strategic reaction of other institutional investors to the event – i.e., the *ex-ante* effect based on the *pre-merger* ownership of BGI. When we examine, for example, the actual trading behavior of BlackRock funds, the impact on volatility is positive in the post-merger period. This is consistent with Ben-David et al. (2015) who show that the impact of the trading behavior of BlackRock on stock volatility is positive and the impact of the combined entity on volatility is larger once the merger completes. We control for the trading behavior of BlackRock throughout the merger process (the variable *Change IO BlackRock*) in all our specifications and when we analyze the impact on volatility, we also find a positive significant effect of this control variable on volatility.

hold. Second, if the concern is about informed trading of active BlackRock funds, then we expect that the performance of active BlackRock funds improves after the completion of the merger and especially when these funds hold stocks with high BGI-ownership prior to the merger. Third, the hypothesis does not rest on an increase in ownership concentration but on the final combined ownership of BlackRock once the merger completes. In fact, we would expect the impact to be strongest for the stocks with high BGI-ownership but no BlackRock ownership prior to the merger as the access to firm-specific information increases the most for those stocks. We now test these predictions.

**[Table VII here]**

In table VII, panel A, we split the stocks on the basis of the risk-adjusted holding returns of the BlackRock funds that hold the stocks. For every stock, we compute the average holding return of all BlackRock funds that hold it prior to the merger. The average is either weighted by the TNA or the ownership stake of the fund. We consider both market-adjusted (columns 1 to 4) and market-industry adjusted holding returns (columns 5 and 6). In all cases, the tests reject the hypothesis – other institutions avoid stocks with high BGI-ownership when they are held by lower-performing BlackRock funds.<sup>16</sup>

In panel B of the same table, we perform a fund-level test and examine if BlackRock funds on average improve their performance once the merger is completed. We present fund-level regressions in event-time that use the risk-adjusted holding returns computed for the test in panel A as the dependent variable and we regress these returns on the *Post-Merger* indicator, the fund-level average BGI-ownership, defined as the average BGI-ownership across all the stocks held in the portfolio in every period (either equally- or position-weighted) to capture which BlackRock funds would likely benefit most better access to firm-specific information, the interaction as well as fund and time fixed effects. Under the hypothesis, we would expect a positive and significant interaction effect. However, we find no evidence that changes in the performance of BlackRock funds are related to their pre-merger holdings of stock with high BGI-ownership.

In panel C of the same table, we perform a matching stock analysis. The “informed trading hypothesis” relies on the post-merger combined BlackRock ownership, not necessarily on the increase in

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<sup>16</sup> Indeed, these lower performing funds could be facing larger redemptions and may therefore be a greater source of future financial fragility. As we will see in the following section V.C, we indeed see that other institutions avoid stocks with high BGI-ownership when they are held by the BlackRock funds with above-median flow-volatility.

ownership concentration. As such, changes in residual ownership should be equally present for stocks that experience a transfer of ownership, but no increase in ownership concentration.

In sections III and IV, we have already presented sample splits where we conditioned on the pre-merger ownership of BlackRock funds and found no significant effects in the sample of stocks not owned by BlackRock funds prior to the merger. However, upon inspection, we also found that while the effect was strongly significant in column 1 and insignificant in column 2 of table III, the point estimates in both parts of the sample were almost identical. We therefore investigate the question further. One issue with the sample split in the previous tables is that the stocks not owned by BlackRock are not a random sample of the stocks held by BGI funds. For example, the average stock not held by BlackRock is a smaller-cap stock compared to the average stock held by BlackRock funds prior to the merger. Given that we find stronger peer- and stock-market effects in smaller-cap stocks, a fair comparison would compare the stocks not held by BlackRock funds but held by BGI funds prior the merger to a matched sample of stocks that are held by both BlackRock and BGI funds prior to the merger that is comparable in terms of stock characteristics.

We implement this matching test in panel C of table VII. For every stock not held by BlackRock funds but held by BGI funds prior to the merger, we select a matching stock based on three different algorithms. “MATCH 1” selects the matching stock from the pool of stocks held by both BlackRock and BGI funds prior the merger, from the same country of origin that is closest in terms of expected post-merger combined BlackRock ownership (defined as the sum of pre-merger BGI- and BlackRock-ownership). We match on the combined ownership to increase the power to reject the hypothesis that the peer effects are driven by the increase in ownership concentration. Indeed, stocks not held by BlackRock funds but with a similar post-merger combined ownership will experience a large transfer of ownership but no increase in ownership concentration while the reverse is true for the matching stock. “MATCH 2” augments “MATCH 1” by adding market capitalization to the selection algorithm and by selecting the matching stock based on a distance measure<sup>17</sup> and “MATCH 3” augments “MATCH 2” by adding the book-to-market ratio to the distance measure. The results show that, across matching algorithms, the

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<sup>17</sup> The distance measure for MATCH 2 is computed as follows,  $D = \frac{(Size_s - Size_m)^2}{0.5 \times (Size_s + Size_m)} + \frac{(Total IO_s - Total IO_m)^2}{0.5 \times (Total IO_s + Total IO_m)}$ .

matched stocks experience strong and significant peer effects but the stocks not held by BlackRock funds prior to the merger do not. This is difficult to reconcile with the “informed trading” hypothesis” as stocks not held by BlackRock funds prior to the merger that experience a large transfer of ownership should be particularly affected. Indeed, these stocks should be more affected than the matching stocks that have a comparable level of post-merger combined BlackRock ownership. All in all, we fail to find supporting evidence for the “informed trading hypothesis”.

*B. The “internal liquidity-provision hypothesis”*

Our second hypothesis, which we label the “internal liquidity-provision hypothesis”, is based on the literature of cross-trading in mutual fund families and a potential negative externality associated with it. As indicated in footnote 5, BlackRock advertises that part of its strategy to minimize trading costs and trade execution risk is to take advantage of the possibility to cross opposite trades that different fund may wish to carry out within the fund family as opposed to bringing them to the market. We speculate that this form of (legitimate) internal liquidity provision could have adverse consequences for the stock market.

Given the sheer size of the combined entities of BlackRock and BGI and the large variety of funds with different clienteles, the volume of such internal equity crossings could be substantial. Moreover, such internal equity crossings are only possible when affiliated funds have opposite and largely uninformed “liquidity” needs. Indeed, since all funds managed within BlackRock after the merger have presumably similar access to firm-internal resources and information sources, a situation in which a large number of funds wants to simultaneously invest or divest from a stock would not lead internal equity crossings. This implies that if a large number of liquidity trades are cleared within BlackRock, liquidity in the market will suffer. Other institutional investors could also respond by avoiding stocks with high BGI-ownership to take this externality into account. This will generate negative stock market effects.

To separate the hypothesis from our alternatives, we examine two unique predictions. First, since the argument is based on internal cross-trades, we test if such cross-trades indeed increased after the merger in proportion with the pre-merger ownership of BGI funds. Second, since improved internal liquidity provision lowers trade execution risk (as advertised by BlackRock), we test if BlackRock funds in response lower their own liquidity buffers, i.e., their cash holdings, to take advantage of it.

We first examine cross-trades at the stock level. In the absence of detailed trade-level data including the identity of counterparties, we perform a standard test of cross-trading. For every stock  $i$  held by both BGI and BlackRock funds prior to the merger, we aggregate share positions across all BlackRock and all BGI funds respectively. Then, for every period  $t$ , we compute the changes in the number of shares held by all BlackRock or BGI funds. Stocks in which BlackRock funds (BGI funds) increase or decrease the positions are refereed as “BR buys” or “BR sales” (“BGI buys” or “BGI sales”). Next, we consider all stocks sold by BlackRock and purchased by BGI or verse visa. For every such stock, we calculate the largest possible number of shares that could have been traded between BlackRock and BGI as the minimum between the number of shares sold by BlackRock and number of shares bought by BGI. We multiply this figure by the beginning-of-period stock price and normalize the trading volume by the sum of beginning-of-period total TNA of BlackRock and BGI. Specifically, the cross trading variables are defined as follows:  $CrossSales_{i,t} = \frac{P_{i,t-1} \times \min(BR\ sales_{i,t}, BGI\ buys_{i,t})}{(BR\ TNA_{t-1} + BGI\ TNA_{t-1})}$ ,  $CrossBuys_{i,t} = \frac{P_{i,t-1} \times \min(BR\ buys_{i,t}, BGI\ sales_{i,t})}{(BR\ TNA_{t-1} + BGI\ TNA_{t-1})}$ ,  $CrossTrades_{i,t} = CrossSales_{i,t} + CrossBuys_{i,t}$ .

[Table VIII here]

We use these variables as dependent variables and report the results in table VIII, panel A. Depending on the fixed effect specification, we either find an insignificant interaction effect between the *Post-Merger* indicator and (*Pre-Merger*) *IO BGI* or in some cases a negative interaction effect while the hypothesis predicts a positive one. As such, we at least find no evidence that the maximum number of possible cross-trades has increased in the post-merger period for stocks with higher BGI-ownership.

Next, we perform a complementary test in panel B of the same table where we investigate if active BlackRock funds reduce their cash holdings in response to allegedly improved trade execution risk. We test this conjecture on the fund-level. For every active BlackRock fund in sample, we compute semi-annual cash holdings (either in log or as a fraction of TNA) and regress them on the fund-level average BGI-ownership defined in the previous sub-section, the *Post-Merger* indicator, the interaction as well as fund and time fixed effects. Under the hypothesis, we would expect a negative and significant coefficient on the interaction term because funds that own stocks with high BGI-ownership should benefit more from internal liquidity provision in the future and could therefore afford to reduce their cash holdings more

than other funds. However, the results in panel B show no changes in cash holdings. As such, we find no support for the conjecture<sup>18</sup> or the overall hypothesis.

### C. The “fragility hypothesis”

Our third hypothesis builds on the literature on concentrated ownership and stock price fragility (e.g., Greenwood and Thesmar (2011), Ben-David et al. (2015)). This literature shows that stocks with concentrated ownership are more “fragile” because their returns are, for example, more volatile. Fragility is typically attributed to the fact that idiosyncratic shocks to the ownership base are only imperfectly diversified when the ownership base is concentrated. As such, higher volatility is not attributed to fundamentals of the stocks but to its ownership base. Idiosyncratic shocks are, for example, large redemptions leading to large sales (“fire sales”) that need not be related to a given stock itself.

While idiosyncratic shocks causing such large redemption requests do not occur frequently, the industry has seen a number of such episodes. For example, Kisin (2011) estimates that the 2003 “Late Trading Scandal” triggered average outflows of 14% (24%) of assets under management over the following year (2 years) for the implicated mutual fund families, and Anton and Polk (2014) show that this event had a significant impact on the stocks commonly held by implicated funds. In addition, the industry has seen a number of firm-specific scandals triggered by e.g., rogue-traders and internal governance failures (e.g., the 2008 incident at Société Générale or the 2012 “London Whale”), massive sales due to malfunctioning computer algorithms (e.g., the 2012 episode triggered by an algorithm of the firm Knight Capital) or large-scale redemptions due to the departure of a star manager (e.g., the departure of Bill Gross from PIMCO) to name just a few examples. Any such shock to BlackRock could lead to large redemption requests across products if investors lose confidence in the firm and the literature on spillover effects in mutual fund families (e.g., Nanda, Wang and Zhang (2004), Sialm and Tham (2015)) suggests that such spillovers could be significant. As such, we speculate that institutional investors take their possibility into account and condition their behavior *ex-ante*.

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<sup>18</sup> In section VII, we analyze the aggregate trading behavior of active BlackRock funds in the post-merger period to rule out that the peer effects we document are effectively front-running ahead of anticipated BlackRock sales. We find that it is uncorrelated with BGI-ownership. In other words, we also find no evidence that active BlackRock funds rotate towards stocks with high BGI-ownership in order to benefit from internal liquidity provision in the future.

We interpret the merger between BlackRock and BGI as an event that exogenously changes the concentration of ownership in the cross-section of stocks worldwide. If concentrated ownership is related to stock price fragility, then an exogenous change in ownership concentration should lead to a higher risk of future fragility. We speculate that this will lead to strategic interactions among investors in financial markets that take into account the possibility of future negative shocks and the potential strategic complementarities associated with them.

Such complementarities arise when the actions of market players reinforce each other.<sup>19</sup> For example, they are at the core of models on bank runs (e.g., Diamond and Dybvig (1983)) where the decision of one depositor to withdraw funds induces other depositors to withdraw funds first for fear of depleting bank reserves, leading to a bank run. The same intuition extends to asset management if a concentrated investor experiences an idiosyncratic shock (e.g., large redemption requests) that induces a fire sale. Such a situation can lead to strategic complementarities if other investors try to pre-empt the sale by selling first or if the price impact of the initial sale forces other investors to follow suit. Therefore, a change in ownership concentration could induce other investors to re-balance away from the affected stocks in order to hedge the risk of future fragility. This could lead to the negative price impact that we have documented in previous sections.

To separate the hypothesis from the alternative, we again formulate and test its unique predictions. First, the motive to re-balance should be stronger when the other investors face constraints (e.g., margin constraints, volatile flows, etc., Shleifer and Vishny (1997))<sup>20</sup> that impede their ability to buffer liquidity shocks. Such investors should be particularly exposed to the risk of future fragility. Second, investors who hold the affected stocks primarily for liquidity reasons (i.e., when these other investors are “liquidity” or “noise traders”) should be more likely to re-balance compared to investors hold the affected stocks for information reasons (“informed investors”). For informed investors, re-balancing would mean

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<sup>19</sup> The decisions of two or more players are strategic complements if they mutually reinforce one another, and they are strategic substitutes if they mutually offset one another (Bulow, Geanakoplos, and Klemperer (1985)). For example, production decisions are strategic complements if an increase in the production of one company increases the marginal revenues of the others, incentivizing them to increase production as well. In contrast, production decisions are strategic substitutes if an increase in the production of one company decreases the marginal revenues of the others, reducing their incentive to produce.

<sup>20</sup> A large variety of institutional investors is subject to such constraints. For example, the open-end structure of mutual funds makes them vulnerable to fire sale problems as their structure imposes an externality on all the investors in the fund should the fund face redemption requests.

giving up information. Third, the hypothesis implies that other investors should re-balance away more strongly from stocks with high BGI-ownership when those stocks are held by BlackRock funds with more volatile flows as these BlackRock funds could constitute a more significant source of future fragility.

To operationalize these conjectures, we define different proxies for an investors' sensitivity to future fragility and the level of informedness. To capture other institutional investors that have stronger demand for liquidity, we use four measures: the volatility of fund flows, the flow-performance-sensitivity the portfolio overlap in liquid stocks and fund size, all of which proxy for the vulnerability to the risk of future fragility. Fund-flow-volatility is computed as the standard deviation of fund flows over the past 12 months. Flow-performance-sensitivity is estimated fund-by-fund by regressing monthly flows on lagged fund performance (in excess of the benchmark), squared lagged fund performance and standard fund controls. Our measure of flow-performance sensitivity is the coefficient on lagged fund performance from these regressions. We measure the portfolio overlap with the pre-merger BlackRock-BGI portfolio as follows. We sort the stocks in the portfolios of institutional investors into quartiles based on stock turnover prior to the merger. The measure of overlap is the total value of stocks in the most liquid quartile that are also held by both BlackRock and BGI-funds prior to the merger divided by fund TNA. These stocks likely serve as a "liquidity buffer" for funds. Therefore, if their liquidity drops because of the merger impact, the funds become more vulnerable to liquidity shocks and need to re-balance. Finally, fund size is simply the TNA of the fund. We measure the informedness of institutional investors by fund alpha. Fund alpha is computed with respect to an international Fama-French-Charhart model as in Chuprinin, Massa and Schumacher (2015). We split institutions based on the median of all these measures.

**[Table IX here]**

We present the results in table IX. The top panel shows that institutional investors with higher fund-flow-volatility re-balance away more aggressively from the affected stocks. For institutional investors with above-median volatility of flows, the negative effect of BGI-ownership on changes in portfolio weights is more than twice as strong in the post-merger period compared to institutions with below-median volatility of flows. In columns 3 and 4, we split institutional investors by their flow-performance sensitivity to capture the same intuition. In line with our expectations, we find that institutional investors

with high flow-performance sensitivity respond more aggressively to changes in ownership concentration in their portfolios. For such investors, the effect is over 50% stronger than for those with below-median levels of flow-performance sensitivity. In column 5 and 6, we separate funds by their portfolio overlap with BlackRock-BGI stocks. Consistent with our expectation, we find that institutions with higher portfolio overlap re-balance away more aggressively from the affected stocks. In columns 7 and 8, we split the funds based on their size and find the effect concentrated in larger funds. Smaller funds do not exhibit a significant effect indicating a greater need to be cautious for large funds as the difficulty to re-balance could increase in fund size. In columns 9 and 10, we find that the re-balancing effect is concentrated in the sample of institutions with lower fund alpha, supporting the idea that investors that are more likely “informed” respond less strongly to the merger.

These results suggest that changes in ownership concentration lead primarily to a reduced presence of investors who assign a high importance to liquidity considerations. This implies that the merger not only has an impact of the level of institutional ownership but also on the composition of ownership because institutions who assign a high importance to liquidity considerations respond more strongly to the merger than others.

This can explain the documented stock market effects: the motive to strategically re-balance away from stocks affected by the merger should lead to a negative price impact, consistent with our results. Also, since institutions who hold the affected stocks for liquidity reasons appear to show a stronger response to the merger, the reduced presence of such “liquidity traders” should be associated with lower liquidity (because they trade for liquidity reasons and not based on information) and lower volatility (because price changes due to liquidity trades impact volatility rather than the mean of stock returns).

Finally, in panel B of table IX, to connect to the result in table VII, panel A, that other institutions primarily avoid stocks with high BGI-ownership when they are held by lower-performing BlackRock funds, we test if they avoid stocks held by BlackRock funds with more volatile flows and find supporting evidence. Indeed, lower-performing BlackRock funds face higher redemption risks, suggesting that these funds could be a bigger source of future fragility.

## VI. Beyond BlackRock

In this section, we extend the analysis to a large sample of asset management mergers in the period 2002 to 2012. To separate the analysis from the impact of the BlackRock-BGI merger, we exclude the period 2008 to 2010 from the analysis. While these other mergers are considerably smaller in magnitude and scale, the analysis is helpful for at least two reasons. First, it clarifies to what extent the results from the BlackRock-BGI merger generalize to a broader setting. Second, it addresses any residual concern that the results we document are impacted by the financial crisis of 2008 and the subsequent market recovery that took place during the BlackRock-BGI merger period.

We begin with the sample of asset management mergers in the period 2002 to 2012 from Luo, Manconi and Schumacher (2015). These mergers are collected from the SDC Platinum and Zephyr-Bureau van Dijk merger and acquisition databases and hand-matched to the FactSet ownership database. We restrict the sample to majority acquisitions in the periods 2002 to 2007 and 2011 to 2012. This gives us 79 mergers between asset managers for which we can collect holdings information from FactSet. The average target in these mergers has \$2.7 billion assets under management, the average acquirer has about \$21.6 billion assets under management, and the average institutional ownership due to target funds is 0.25%, illustrating how much larger in impact the BlackRock-BGI transaction is in comparison with an average deal in the industry.

Since a given stock could be impacted by more than one merger per period, for every period, we only keep the one observation per stock from the merger which the highest target ownership in the stock (the highest value of *(Pre-Merger) IO Target* per stock per period). This filter ultimately removes 2 mergers from the sample because the target has never the largest ownership stake in a stock compared to another target in the same period.

Similar to the BlackRock-BGI merger, we start by focusing on the behavior of other asset managers around merger events. Following our difference-in-difference specification in table 2, panel B for BlackRock-BGI merger, we regress the changes in residual institutional ownership of funds unaffiliated with acquirer or target on the level of institutional ownership attributable to target funds in each stock one period prior to the merger (the variable *(Pre-Merger) IO Target*). The variable *Post-Merger* is a dummy

equal to one for the two semi-annual periods after the merger and zero for the two semi-annual periods before the merger. The variable of interest is the interaction term *IO Target \* Post-Merger*. We define the changes in ownership and control variables as in our previous specifications.

**[Table X here]**

We report the results in table X, panel A. Columns 1 to 3 use the average change in the portfolio weight of affected stocks as the dependent variable; columns 4 to 6 use the change in residual institutional ownership as the dependent variable. Across the different specifications, the results confirm the findings from the BlackRock-BGI merger. We find a strong negative relationship between changes in institutional ownership and pre-merger target ownership – the interaction term *IO Target \* Post-Merger* is consistently negative and statistically significant. In terms of economic magnitude however, the peer effects we document in this extended sample are about one third to one half the size compared to the effects of the BlackRock-BGI merger, consistent with the observation that the mergers in this sample are an order of magnitude smaller in scale. Specifically, the change in portfolio weight by the other asset managers (change in residual institutional ownership) ranging falls by 0.8% to 1.3% (0.9% to 1.2%) per STD increase in (*Pre-Merger*) *IO Target*.<sup>21</sup>

Next, we focus on stock market effects. We expand the panel used in panel A to the monthly frequency as we did for the BlackRock-BGI transaction and use stock returns, liquidity and volatility as dependent variables. To make the analysis comparable to the previous one, we include 2 event-time indicators. We label the 6-month period leading to the merger completion date the *Merger-Process* period (a dummy equal to one in these months and zero otherwise) and the period following the completion date the *Post-Merger* period. For the BlackRock-BGI merger, we find that the stock market effects manifested themselves either when BlackRock entered the merger process or when the deal received anti-trust approval but before the actual completion date. We want to allow for similar dynamics in the extended sample because stock market effects are likely priced-in over the course of the merger process. Since we are not able to re-construct the exact evolution of every merger in the sample the way we did for the

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<sup>21</sup> The explanatory variable (*Pre-Merger*) *IO Target* has less variation (1 STD = 0.5%) compared to (*Pre-Merger*) *IO BGI* (1 STD = 1.2%) leading to overall smaller economic effects.

BlackRock-BGI case, we simply grant a 6-month period leading to the completion date and investigate if and to what extent we can detect stock market effects in this period.

We report the results in table X, panel B. All specifications control for the impact of *(Pre-Merger) Residual IO* on the outcome variables and the variables of interest are the interaction terms between *(Pre-merger) IO Target* and the event-time indicators.

Across the specifications, we find the same effects on stock returns, liquidity and volatility that we found in the BlackRock-BGI case. Target institutional ownership prior to the merger has a negative effect on stock returns, liquidity and volatility. As before, the effects concentrate in the period leading to the merger completion date and we find no consistent evidence that the negative effects revert in the post-merger period (only for volatility, we find mild evidence of a positive effect after the merger is completed, potentially already indicating the positive effect of actual idiosyncratic shocks in the post-merger periods).

As indicated above, the average deal in this extended sample is substantially smaller compared to the BlackRock-BGI deal. This is reflected in both statistical and economic significance of the effects. While most stock market effects are statistically significant (in a few specifications, the results fall short of conventional levels or are at the borderline), the economic magnitudes of the effects are substantially smaller compared to the BlackRock-BGI effects. Across the specifications, the effects in the extended sample are about 10% to 25% in magnitude compared to the corresponding effects measured for the BlackRock-BGI case. We argue that this is to be expected as no other merger led to the same increase in ownership concentration

## VII. Discussion and Robustness Tests

In this section, we present additional robustness tests and further discuss our results.

### A. *Replication using 13F ownership information*

As discussed in section II, we construct alternative proxies for institutional ownership due to BlackRock or BGI funds using 13F filings. However, doing so has a few drawbacks. First, we have lower

coverage of BlackRock AUM in 13F relative to FactSet. Second, BGI itself is not a filer in 13F, only its parent Barclays PLC (and Barclays Bank) that has various subsidiaries that could have holdings that are not impacted by the merger. Third, the universe of stocks with Barclays-ownership as of June 2009 covered in 13F is substantially smaller compared to our global sample from FactSet (4,664 stocks vs. over 7,300 stocks), primarily due to the lack of coverage of international stocks in 13F.

However, these alternative proxies also have potential benefits: the AUM of Barclays that we can capture via 13F is about twice the AUM of BGI that we can capture via FactSet. Also, the time-series of Barclays AUM in 13F suggests that most of the Barclays AUM can be attributed to institutional holdings of BGI because Barclays AUM drops sharply in 2010 with an almost symmetric increase in BlackRock's AUM. Therefore, conditional on the stocks covered in 13F, we estimate a higher level of institutional ownership (about twice as high given that we capture about twice the AUM), presumably because 13F filings include all institutional holdings (including special and institutional accounts) while FactSet mostly covers the holdings of iShares funds and a few active products.

However, as indicated in section II, we find that our measure of BGI-ownership constructed from 13F filings is 75% correlated with the same measure constructed from FactSet holdings. So the difference between the two is largely in the level of ownership, suggesting that there is no systematic bias in the composition ownership conditional on the stocks covered in 13F.

We present the results based on this alternative data source in the internet appendix, table IA.II. We present estimates on the overlapping sample between the universe of stocks we capture via FactSet and the universe we capture via 13F (3,299 stocks or about 82% of the market cap of the 13F sample of BGI-held stock as of June 2009).<sup>22</sup> We find that all our main conclusions hold.

#### *B. Impact on the level of institutional ownership.*

Our main specifications on the impact of the BlackRock-BGI merger on institutional ownership focus on how the change in ownership concentration due to the merger (captured by our dependent variable *IO BGI*) impacts the change in residual institutional ownership. In the internet appendix, table

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<sup>22</sup> The sample of stocks with BGI-ownership in 13F filings that we do not cover with FactSet holdings is tilted towards small-cap stocks. Since all our sample splits indicate the results are stronger for small-cap stocks, we believe that this robustness test is conservative.

IA.III, we re-estimate the main specifications of table II, panel B but use the level of institutional ownership as the dependent variable. The results confirm the negative effect of BGI-ownership on the level of residual institutional ownership across specifications.

### *C. Migration of Institutional Ownership*

In this section, we investigate a question that could follow from the results in table II. If other institutions avoid stocks with high BGI-ownership, where do these institutions migrate to? Institutional investors are frequently subject to a mandate to stay invested and many are benchmarked to broad market indices. This suggests that residual institutional ownership is likely re-allocated to comparable stocks that were not held by BGI funds prior to the merger. In table IA.IV, we employ multiple selection algorithms, but now to identify potential matching stocks for the stocks affected by the merger (i.e., the matching stocks are selected from the pool of stocks not held by BGI funds prior to the merger).

Panel A of table IA.IV shows a univariate comparison of actual stocks and matched stocks. We first sort all stocks held by BGI funds prior to the merger into five quintiles based on the level of BGI-ownership and then we compare the average semi-annual change (from June 2009 to December 2009) in each measure of residual institutional ownership of stocks held by BGI funds with that of the matching stocks. In the column “Actual Stocks”, we report the results of the average semi-annual change in residual institutional ownership for all stocks held by BGI funds, for the quintile of lowest BGI-ownership and the quintile of highest BGI-ownership. The columns entitled “Matched Stock” display the same average change for the matching stocks. Then, we test the difference of change in residual ownership between “Actual Stocks” and “Matched Stocks” and report the testing results in the column “Match – Actual”.

The results show that institutional ownership generally increases in the second half of 2009, presumably in the aftermath of the financial crisis when institutional investors started re-balancing back into stock markets overall. However, matching stocks on average experience a much sharper increase in ownership than “Actual Stocks” around the BlackRock-BGI merger (from June 2009 to December 2009). The tests confirm that the differences between matched stocks and actual stocks (“Match – Actual”) are overwhelmingly positive and statistically significant across the six matches. The average difference in the

rate of change of residual institutional ownership between matched stocks and BGI stocks reaches up to 6.7%-age points.

Furthermore, the differences between the two groups are mostly concentrated in the top quintile of actual BGI-ownership (i.e., the rows labelled “High BGI IO Quintile”). For those stocks, the differences range from 8.1 to 22.2%-age points, suggesting that institutional investors re-balance away more aggressively from stocks in the top quintile of BGI-ownership than from those in the bottom quintile of BGI-ownership (for which we detect no differences in the changes in residual institutional ownership).

Panel B complements the results in panel A by running a multivariate test that controls for imperfections in the matching algorithms. Despite our best efforts, we find that the matching stocks we chose are generally smaller-cap stocks compared to the actual stocks that are affected by the merger. This is likely due to the fact that BlackRock and / or BGI funds have positions in virtually every large-cap stock in the world, suggesting that the pool of possible matching stocks differs on the size (and related) dimension. For this reason, we complement the univariate test in panel A with a multivariate one here.

We stack actual and matched stocks in a column vector and regress the change in portfolio weight of residual institutional investors ( $Change\ Avg.\ Port.\ Weight_{j,t}$  (TNA weighted)) on *Pre-Merger IO BGI*, a treated dummy (*Treated*) equal to one for an affected stock and zero for a matched stock, an interaction between *Treated* and *Pre-Merge IO BGI* and a set of control variables as in table II. We also include industry fixed effect, country fixed effect and interactions between control variables and treated dummy. The variable of interest is the interaction term between *Treated* and *Pre-Merge IO BGI*, which measures how other institutional investors adjust their portfolio holdings of affected BGI stocks and matching stocks with different levels of *Pre-Merge IO BGI*. In column 1 to 6, we show the multivariate analysis of six matching algorithms. The interaction terms show consistently negative and significant coefficients, which is consistent with our conjecture that the rest institutional investors rebalance away from the affected stocks with higher *Pre-Merge IO BGI* and migrate into comparable stocks with only small changes to their overall asset allocation strategy.

*D. Alternative specification using the hypothetical change in Herfindahl index as explanatory variable.*

Throughout the analysis, we have used the pre-merger institutional ownership attributable to BGI funds as our proxy for the changes in ownership concentration that are expected to occur because of the merger and we have argued that it is the change in ownership concentration rather than the transfer of ownership that drives our results. In this section, we explore an alternative specification where we replace our main explanatory variable (*Pre-Merger*) *IO BGI* with an alternative variable that captures the increase in the Herfindahl index of ownership concentration. We label this variable *Delta Herfindahl*, it is defined as  $Delta\ Herfindahl_{j,2009} = (IO_{j,BR,2009} + IO_{j,BGI,2009})^2 - (IO_{j,BR,2009}^2 + IO_{j,BGI,2009}^2)$ . In other words, it is the difference in the Herfindahl index of stock  $j$  for the case when BlackRock and BGI are combined (the square of the sum of BlackRock and BGI ownership) versus the case when the two entities are separate (the sum of squares of BlackRock and BGI ownership), holding everything else (i.e., pre-merger ownership by other institutions) constant. In table IA.V, we replicate the main results on both peer and stock market effects using this alternative explanatory variable, keeping all other specifications constant. This gives further support to our argument that changes in ownership concentration drive our results.

*E. Testing for merger-related re-balancing of BlackRock*

To address any residual concerns that our results could be driven by front-running of competing institutions in anticipation of merger-related re-balancing of BlackRock funds (e.g., because of internal risk-management limits), we re-estimate our main specification using the aggregate holdings and holding changes of BlackRock funds as the dependent variables. We present the results in the internet appendix, table IA.VI. We find no robust significant relationship between pre-merger BGI-ownership and changes in the holdings or trading behavior of BlackRock funds in the post-merger period. This suggests that merger-related re-balancing at least did not occur on a very systematic basis.

This test also rules out that BlackRock funds systematically re-balance towards stocks with high BGI-ownership which could be consistent with the “informed trading hypothesis”.

## VIII. Conclusion

We study how changes in the degree of ownership concentration lead to strategic reactions by institutional investors who change their investment behavior and how this affects the stock market. We argue that investors are careful to hold stocks with concentrated ownership as these expose them to idiosyncratic shocks of the large owner. Such positions expose investors to the risk of future fragility. This precautionary behavior is particularly pronounced for liquidity-driven investors who have a stronger motive to re-balance away from such stocks. This leads to lower stock prices, liquidity, and volatility.

We test this hypothesis using the acquisition of Barclays Global Investors by BlackRock as an event that exogenously changes the degree of ownership concentration in the global cross-section of stocks. We provide evidence consistent with strategic investment behavior and its associated impact on the stock market. We contrast our hypothesis against two alternatives for which we fail to find support in the data. Our results suggest that large asset managers may have a systemic impact on financial market of which other institutional investors are aware. This opens up avenues for future research to understand if and how, for example, individual firms are affected by the industrial organization of the asset management industry.

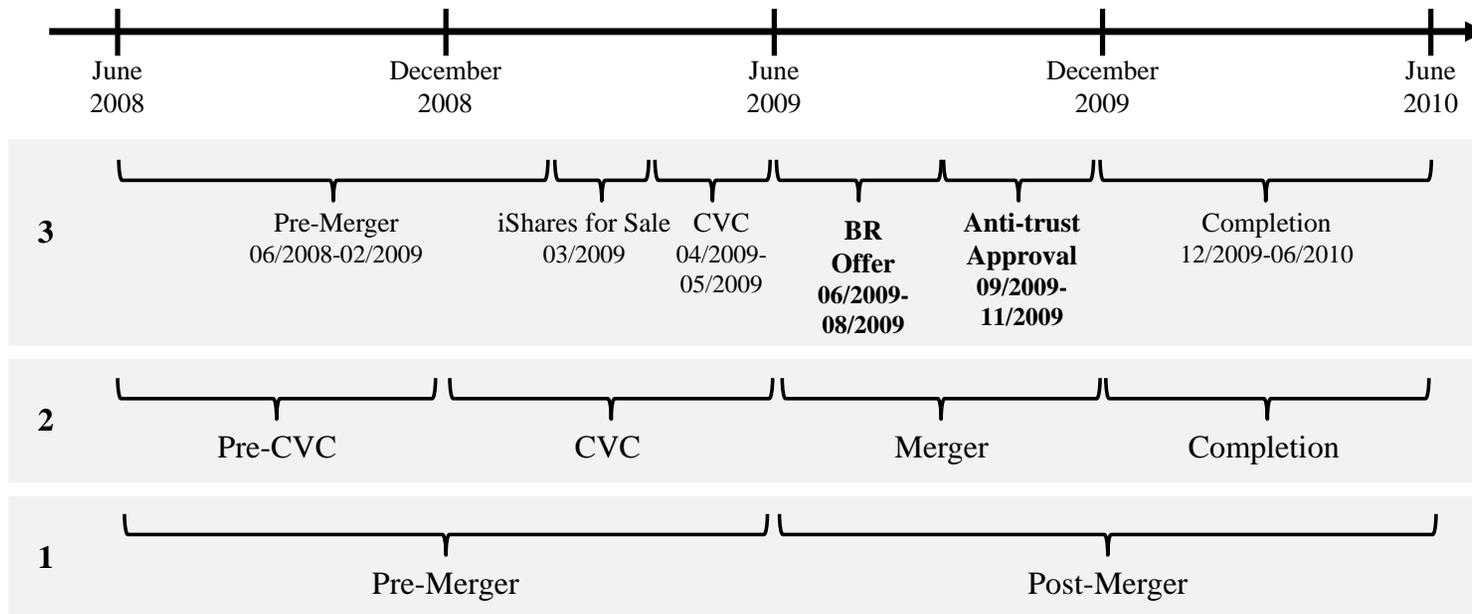
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**FIGURE I: TIMELINE OF THE BLACKROCK-BGI MERGER**

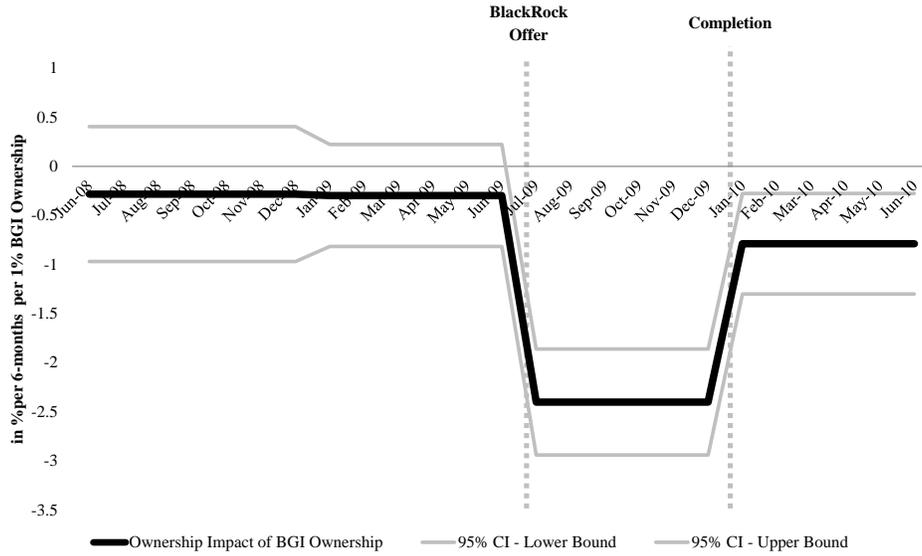
This figure presents the timeline of the evolution of the merger of BlackRock with BGI. Depending on the frequency of the data used in the different tables, we use 3 different timelines that differ in the degree of granularity and the level of detail. Timeline 1 is the coarsest timeline and only splits the event window in a “Pre-” and a “Post-Merger” period as of June 2009. Timeline 2 is more granular and considers every semi-annual period in the event window separately. Both the pre- and the post-merger period are split into equal parts. The pre-merger period is separated into the “Pre-CVC” and the “CVC” periods, the post-merger period is separated into the “Merger” and “Completion” period. Timeline 3 is the most granular one and used in all regressions that are run at monthly frequency. Timeline 3 takes detailed account of the evolution of events month by month. We define the “Pre-Merger” period as the period from June 2008 to February 2009, the “iShares for Sale” period as March 2009, the “CVC” period as April 2009 to May 2009, the “BlackRock Offer” period as June 2009 to August 2009, the “Anti-trust Approval” period as September 2009 to November 2009 and the “Completion” period as December 2009 to the end of the event window.



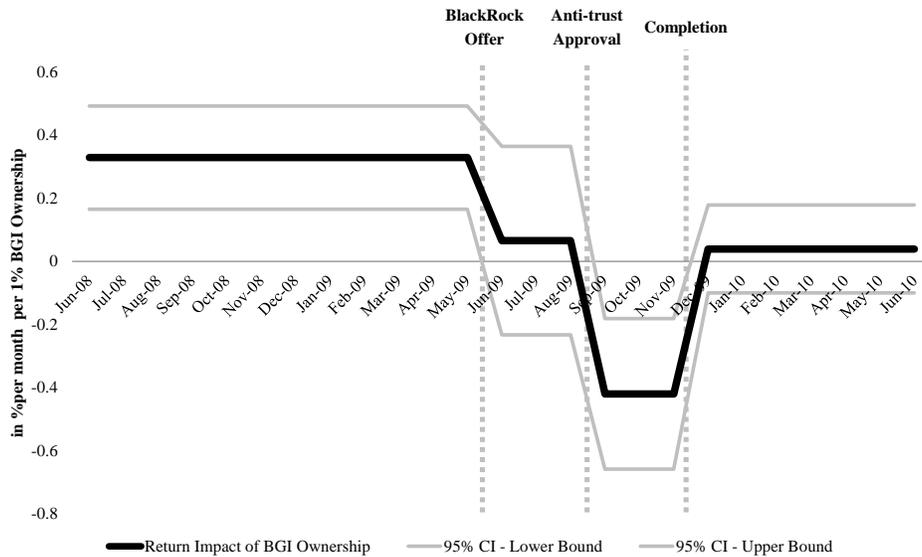
**FIGURE II: CAPITAL MARKET IMPACT IN EVENT TIME**

This figure presents the evolution of the capital market impact of institutional ownership by BGI funds over the course of the merger. The solid black line displays the estimated impact per period per 1% institutional ownership of BGI funds (“BGI ownership”) prior to the merger and the grey lines display the 95% confidence interval around the estimate. Panel A displays the impact on changes in residual institutional ownership, panel B displays the impact on size-value-momentum-adjusted stock returns, panel C on stock illiquidity as measured by the *Amihud* measure of illiquidity and panel D on stock volatility. The full estimates are presented in subsequent tables. The vertical bars indicate key event dates.

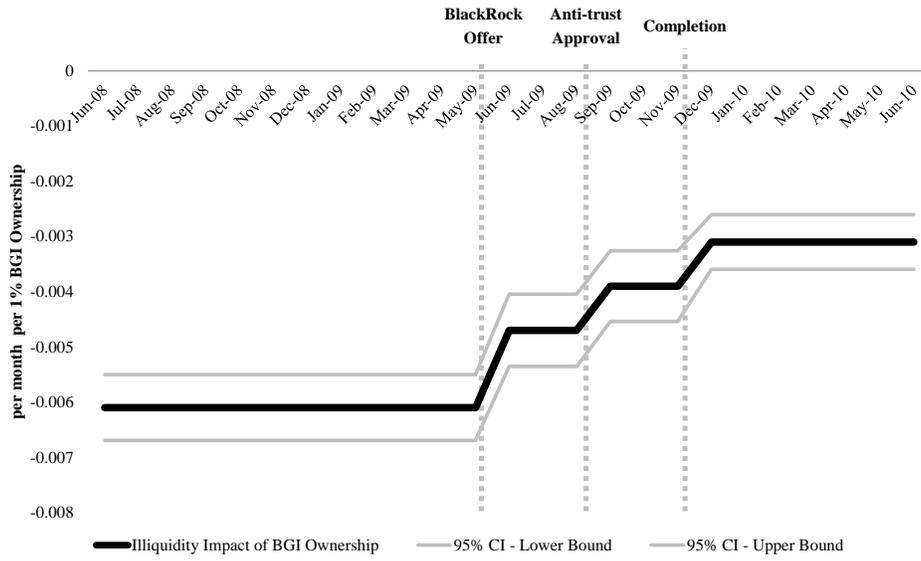
*Panel A: Residual Institutional Ownership Impact of BGI Ownership*



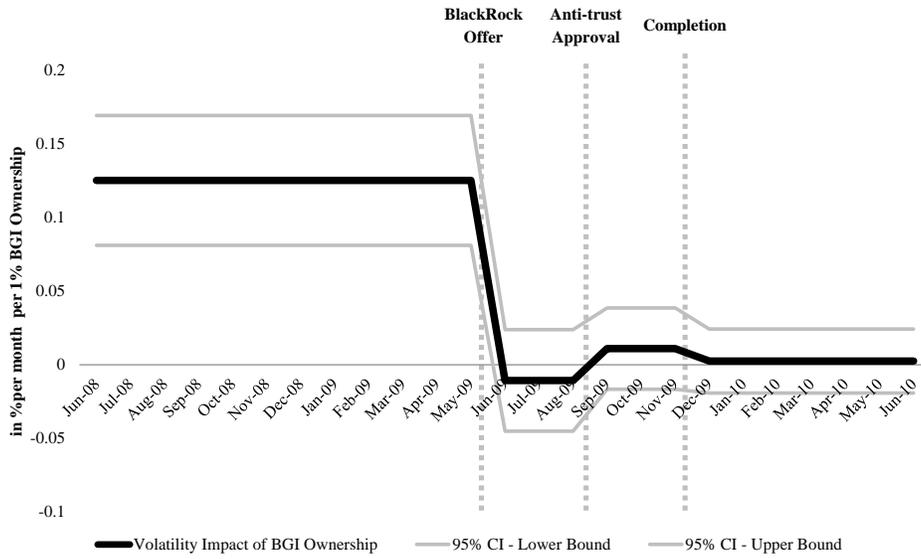
*Panel B: Return Impact of BGI Ownership*



Panel C: Illiquidity Impact of BGI Ownership



Panel D: Volatility Impact of BGI Ownership



**TABLE I: DESCRIPTIVE STATISTICS**

This table presents descriptive statistics on the sample. Panel A reports summary statistics on the coverage of holdings of both BlackRock and BGI funds as of June 2009. The panel reports the number of distinct funds that are managed by BlackRock or BGI, the number of exchange-traded funds (ETFs) and non-ETFs, the total assets under management (AUM) of those covered funds and the percentage these assets under management represent out of the estimated total Equity AUM (or alternatively passive Equity AUM) that are obtained from the annual reports of BlackRock and Barclays. Panel B reports stock ownership covered in the sample. Column 1 reports the number of distinct, active stocks in the WorldScope database prior to the merger (as of June 2009). Column 2 displays the number of distinct stocks held by BGI funds as of June 2009 and the percentage of world market capitalization this corresponds to. Column 3 reports the same statistics for distinct stocks held by BlackRock funds as of June 2009 and column 4 reports the statistics for the stocks held by both BlackRock and BGI funds as of June 2009. Panel C reports average stock characteristics over the entire sample period for the same four subsamples as in panel A. Panel D reports summary statistics for stock ownership as a percentage of shares outstanding by BGI funds, BlackRock funds as well as all other institutions investors (“Residual IO”) as of June 2009 for the sample of stocks held by BGI funds prior to the merger.

*Panel A: Coverage of BlackRock and BGI holdings as of June 2009*

	<b>BlackRock funds</b>	<b>BGI funds</b>
Number of Funds covered	308	333
Out of which ETFs	30	302
Out of which non-ETFs	278	31
Total Assets under Management (AUM, \$ billion)	159.8	306.3
Relative to 2008 Equity AUM <sup>1</sup>	79%	31%
ETF AUM relative to 6/2009 iShares equity AUM <sup>2</sup>		90%

*Panel B: Stock Ownership by BlackRock and BGI funds prior to the merger (as of June 2009)*

	<b>WorldScope</b>	<b>BGI funds</b>	<b>BlackRock funds</b>	<b>BlackRock &amp; BGI funds</b>
Number of distinct stocks	36,660	7,348	6,476	5,497
% of WorldScope World Market Cap.	100%	69%	65%	63%

*Panel C: Stock characteristics*

	<b>Mean</b>	<b>Median</b>	<b>STD</b>	<b>P25</b>	<b>P75</b>
<i>Sample: WorldScope</i>					
Market Capitalization (\$ million)	1,340.9	96.4	7,835.9	24.3	457.2
Book-to-Market Ratio	1.15	0.83	1.52	0.46	1.40
Daily Trading Volume (\$ million)	24.27	0.37	2,702.5	0.04	4.24
Volatility (%)	4.1	3.2	3.4	2.2	4.8
<i>Sample: Stocks held by BGI funds prior to the merger</i>					
Market Capitalization (\$ million)	4,222.8	800.8	14,675.0	294.4	2,607.3
Book-to-Market Ratio	0.90	0.72	0.81	0.44	1.13
Daily Trading Volume (\$ million)	69.97	4.14	4,892.8	0.96	19.04
Volatility (%)	3.5	2.9	2.3	2.0	4.2
<i>Sample: Stocks held by BlackRock funds prior to the merger</i>					
Market Capitalization (\$ million)	4,500.3	879.2	14,844.9	253.0	2,968.8
Book-to-Market Ratio	0.89	0.69	0.88	0.42	1.09
Daily Trading Volume (\$ million)	77.92	4.96	5,204.9	0.88	22.11
Volatility (%)	3.6	2.9	2.5	2.0	4.4
<i>Sample: Stocks held by both BlackRock and BGI funds prior to the merger</i>					
Market Capitalization (\$ million)	5,016.6	1,102.0	15,590.5	335.8	3,434.8
Book-to-Market Ratio	0.85	0.68	0.79	0.41	1.05
Daily Trading Volume (\$ million)	88.09	6.64	5,548.8	1.42	26.75
Volatility (%)	3.6	2.9	2.4	2.0	4.3

<sup>1</sup> These figures are calculated as follows: 2008 equity AUM for BlackRock, according to the BlackRock 2009 Annual Report amounted to \$203.3 billion. We cover \$159.8 billion equity AUM via FactSet, or approximately 159.8/203.3=78.6%. We estimate 2008 equity AUM for BGI by applying the asset mix that BGI contributed to BlackRock in the 2009 Annual Report to the total AUM of BGI that is reported in the Barclays 2008 Annual Report and which amounted to \$1.495 trillion as of December 2008 (p. 13 of the Barclays 2008 Annual Report, no break-up by asset class reported). The BlackRock 2008 Annual Report states that the BGI transaction added \$1.188 trillion in equity assets (p. 14), \$517 billion in fixed income assets (p. 16), \$49 billion in alternative assets (p. 18), and \$59 billion in cash assets (p. 20) amounting to \$1.813 trillion in total out of which 65.5% are equity. Applying the same product mix to the 2008 AUM of BGI, we obtain an estimate of 2008 BGI equity AUM of 65.5% \* \$1.495 trillion = \$979 billion of which we cover \$306.3/\$979=31.2%.

<sup>2</sup> This figure is calculated as follows. The BlackRock 2009 Annual report states, on page 13, \$495.5 billion AUM for iShares products, 77% (\$495.5\*0.77=\$381.5 billion) of which in equity offerings. Total iShares AUM grew by \$169.6 between December 2008 and December 2009. Assuming linear growth in the same proportions for the different asset classes gives a June 2009 estimate for equity AUM in iShares products of \$381.5 - 0.5\*\$169.6 = \$296.7 billion out of which we capture \$266.8 billion with the FactSet data, or 89.6%.

Panel D: Institutional ownership of stocks held by BGI funds prior to the merger

	Mean	Median	STD	P25	P75
IO BGI (%)	1.095	0.702	1.201	0.118	1.735
IO BlackRock (%)	0.398	0.111	0.842	0.000	0.358
Residual IO (%)	18.822	15.737	13.458	7.198	29.568

**TABLE II: INSTITUTIONAL OWNERSHIP CHANGES AROUND THE BLACKROCK-BGI MERGER**

This table presents regressions of changes in institutional ownership at the stock level around the BlackRock-BGI merger. The sample includes all stocks that are held by at least one BGI fund prior to the merger. Panel A presents a single cross-sectional regression where the dependent variables are different measures of changes in institutional ownership of institutions excluding BlackRock or BGI (and their affiliates) over the second half of 2009 (June to December). The dependent variables are defined as follows: *Change Avg. Port. Weight* is the average change in the portfolio weight of the stocks across all funds from institutions different from BlackRock or BGI (and their affiliates) in the FactSet database. The average is weighted either by the TNA of the fund or by fund flow volatility. *Change Residual IO* is the change in residual institutional ownership of the stock. Residual institutional ownership is defined as total institutional ownership excluding the institutional ownership associated with BlackRock or BGI funds. The main explanatory variable is *(Pre-Merger) IO BGI* which is the level of institutional ownership in the stock attributable to BGI funds prior to the merger with BlackRock (i.e., as of June 2009). Additional control variables include *Change IO BlackRock*, defined as changes in portfolio weight of the stocks across all Blackrock funds, *Log MCap* as the log of beginning of period market capitalization of the stock, *Pastreturn* as the 6-month trailing stock return, *Log BTM* as the log of the book-to-market ratio, *Dividend Yield* as the percentage dividend yield of the stock, *ROE* as the return on equity, *Leverage* as total leverage, and *Cash* as the total cash holdings divided by total assets. Panel B presents a difference-in-difference specification using a semi-annual panel including four semi-annual periods: 2 periods before the event and 2 periods after the event (timeline 1 in figure I). In panel B, the variable *Post-Merger* is a dummy that equals one for the post-merger period in the regression and the variable of interest is the interaction between *(Pre-merger) IO BGI* and *Post-Merger*. A specification that uses the more granular timeline 2 of figure I is presented in the Internet Appendix, table IA.I. The regressions include unreported interactions between the different event-time indicators and the remaining control variables (including interactions between the event-time indicators and the industry or country fixed effects) as indicated at the bottom of the panels. The use of fixed effects is indicated in every panel, \* / \*\* / \*\*\* indicate statistical significance at the 10% / 5% / 1% level respectively, computed from standard errors that allow for clustering at the stock level.

Panel A: Single cross-sectional regression around the merger event (semi-annual holdings)

Dependent Variable:	(1)	(2)	(3)	(4)	(5)
		<i>Change Avg. Port. Weight</i> (TNA weighted)		<i>Change Avg. Port. Weight</i> (flow weighted)	<i>Change Residual IO</i>
<i>(Pre-Merger) IO BGI</i>	-1.9186*** (-5.13)	-1.2631*** (-3.04)	-3.0103*** (-5.74)	-3.9298*** (-4.24)	-1.6811*** (-5.17)
<i>Change IO BlackRock</i>		2.2873** (2.50)	1.6787* (1.92)	1.0173 (0.78)	0.6305 (1.35)
<i>Log MCap</i>		-0.0193*** (-5.55)	-0.0131*** (-3.80)	0.0019 (0.31)	-0.0067** (-2.45)
<i>Pastreturn</i>		0.1573*** (11.13)	0.0650*** (4.63)	0.0863*** (4.00)	0.0662*** (7.35)
<i>Log BTM</i>		0.0431*** (4.80)	0.0872*** (9.39)	0.1305*** (8.23)	0.0060 (0.84)
<i>Dividend Yield</i>		0.0046** (2.19)	-0.0010 (-0.43)	0.0035 (0.87)	0.0001 (0.04)
<i>ROE</i>		0.0007** (2.55)	0.0007** (2.47)	-0.0004 (-1.00)	0.0001 (0.41)
<i>Leverage</i>		0.0201 (0.72)	0.1724*** (6.22)	0.1977*** (4.06)	0.0224 (1.12)
<i>Cash</i>		0.0999** (2.53)	0.1861*** (4.60)	0.1171 (1.62)	0.0685** (2.20)
Industry F.E.:	N	N	Y	Y	Y
Country F.E.:	N	N	Y	Y	Y
Observations	7,321	5,651	5,651	5,639	5,202
Adjusted R <sup>2</sup>	0.00	0.06	0.23	0.12	0.11

Panel B: Difference-in-difference regression around the merger event (semi-annual holdings)

Dependent Variable:	(1)	(2)	(3)	(4)	(5)	(6)
		Change Avg. Port. Weight (TNA weighted)			Change Avg. Port. Weight (flow weighted)	Change Residual IO
<i>(Pre-Merger) IO BGI</i>	1.5440*** (3.66)	1.0038** (2.35)	0.7444 (1.53)	-5.3047*** (-4.37)	3.0660*** (5.07)	-0.3481 (-1.62)
<i>Post-Merger</i>	0.3200*** (8.98)					
<i>IO BGI * Post-Merger</i>	-3.5619*** (-7.31)	-3.1599*** (-6.43)	-2.3645*** (-3.82)	-2.8731*** (-5.51)	-5.9701*** (-7.62)	-1.2286*** (-4.99)
<i>Change IO BlackRock</i>	3.7251*** (4.29)	3.4847*** (4.02)	3.0704*** (3.59)	1.9168** (2.05)	4.0383*** (3.54)	1.5420*** (3.89)
<i>Log MCap</i>	0.0168*** (5.48)	0.0171*** (5.67)	0.0166*** (5.62)	-0.5936*** (-16.26)	0.0001 (0.02)	0.0099*** (5.45)
<i>Pastreturn</i>	-0.1577*** (-9.11)	-0.1032*** (-5.01)	-0.1769*** (-8.54)	0.1876*** (6.96)	-0.1390*** (-4.52)	0.0920*** (8.36)
<i>Log BTM</i>	0.1093*** (13.79)	0.1052*** (13.43)	0.0875*** (10.84)	0.2781*** (7.60)	0.0801*** (7.47)	-0.0036 (-0.85)
<i>Dividend Yield</i>	-0.0041** (-2.44)	-0.0049*** (-2.89)	-0.0001 (-0.04)	-0.0108*** (-3.62)	-0.0010 (-0.39)	-0.0023** (-2.10)
<i>ROE</i>	0.0018*** (8.57)	0.0017*** (8.26)	0.0019*** (9.22)	0.0007** (2.32)	0.0023*** (8.75)	0.0005*** (5.12)
<i>Leverage</i>	0.0344 (1.44)	0.0343 (1.46)	-0.0175 (-0.73)	0.1061 (0.81)	0.0181 (0.53)	-0.0053 (-0.39)
<i>Cash</i>	0.3442*** (10.18)	0.3366*** (10.13)	0.2559*** (7.47)	0.6316*** (6.77)	0.3100*** (6.70)	0.0628*** (3.38)
Interacted Controls:	Y	Y	Y	Y	Y	Y
Interacted F.E.:	N	N	Y	N	N	N
Country & Industry F.E.:	Y	Y	Y	N	Y	Y
Stock F.E.:	N	N	N	Y	N	N
Time F.E.:	N	Y	Y	Y	Y	Y
Observations	22,296	22,296	22,296	22,296	22,224	20,343
Adjusted R <sup>2</sup>	0.09	0.10	0.15	0.50	0.04	0.06

**TABLE III: INSTITUTIONAL OWNERSHIP CHANGES AROUND THE BLACKROCK-BGI MERGER – SAMPLE SPLITS BY STOCK CHARACTERISTICS**

This table presents sample splits of the regression presented in table II, panel B, column 3 based on stock characteristics. In column 1(2), the sample includes only stocks that are also held (not held) by BlackRock funds prior to the merger with BGI. In column 3(4), the sample includes only stocks in which BlackRock funds increased (did not increase) their holdings in the period prior to the merger with BGI. In column 5(6), the sample includes stocks with above (below) monthly turnover in sample and in column 7(8), the sample includes stocks with above (below) median market capitalization in sample. All regressions include unreported control variables, country, industry and time fixed effects as well as interactions between *Post-Merger* and the control variables, the country and the industry fixed effects. \* / \*\* / \*\*\* indicate statistical significance at the 10% / 5% / 1% level respectively, computed from standard errors that allow for clustering at the stock level.

Sample Split:	Held by BlackRock pre-merger?		Bought by BlackRock pre-merger?		Stock Turnover		Stock Market Cap.	
	Yes (1)	No (2)	Yes (3)	No (4)	High (5)	Low (6)	Large (7)	Small (8)
<i>Dependent Variable:</i>					<i>Change Avg. Port. Weight (TNA weighted)</i>			
<i>(Pre-Merger) IO BGI</i>	0.5295 (1.04)	-0.7937 (-0.24)	-0.5018 (-0.88)	0.6612 (0.78)	-0.9944 (-1.47)	3.3298*** (3.06)	0.7674 (1.11)	1.3182* (1.66)
<i>IO BGI * Post-Merger</i>	-2.1207*** (-3.28)	-2.7567 (-0.71)	-0.7186 (-0.96)	-2.6375** (-2.48)	-0.7796 (-0.94)	-7.9831*** (-5.75)	-2.1040** (-2.47)	-3.7671*** (-3.68)
Controls:	Y	Y	Y	Y	Y	Y	Y	Y
Fixed effects:	Country, Industry & Time							
Observations	16,535	5,761	10,721	11,575	11,326	10,961	11,135	11,161
Adjusted R <sup>2</sup>	0.14	0.20	0.12	0.19	0.18	0.15	0.21	0.16

**TABLE IV: STOCK RETURNS AROUND THE BLACKROCK-BGI MERGER**

This table presents regressions of monthly stock returns on event-time indicators and interactions around the BlackRock-BGI merger. The sample includes all stocks that are held by at least one BGI fund prior to the merger. The data is structured as in panel B of table II but now expanded to monthly frequency. The dependent variables include measures of stock returns. Panel A reports regressions on the full sample, panel B reports sample splits based on stock characteristics as in table III. In panel A, columns 1 to 7 use *Market-adjusted Stock Returns* as the dependent variable, defined as the monthly stock return in excess of the domestic market return. Column 8 uses *DGTW-adjusted Returns* as the dependent variable, defined as the monthly stock return in excess of the return on a domestic size-value-momentum matched benchmark portfolio and column 9 uses *Market-Industry-adjusted Returns* as the dependent variable, defined as the monthly stock return in excess of the returns on a domestic industry benchmark portfolio. The remaining specifications are as in table II with the exception that the granular timeline 3 of figure I is implemented. The main variables of interest are the interaction terms between the event-time indicators and *(Pre-Merger) IO BGI*. Columns 5 to 9 also include specifications with the additional variable *(Pre-Merger) Residual IO* which measures the institutional ownership of the stock not due to BlackRock or BGI funds prior to the merger as well as the interactions between *(Pre-Merger) Residual IO* and the event-time indicators. Panel B reports the specification of column 6 of panel A for same sample splits presented in table III. Unreported controls and the use of fixed effects are reported at the bottom of the panels. The vector of controls includes interactions between all control variables and event-time indicators. When the specification includes country and industry fixed effects, these fixed effects are also interacted with the event-time indicators. The set of unreported controls is the same as in table II. \* / \*\* / \*\*\* indicate statistical significance at the 10% / 5% / 1% level respectively, computed from standard errors that allow for clustering at the stock level.

*Panel A: Full sample estimates*

<i>Dependent Variable:</i>	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	<i>Market-adjusted Stock Returns</i>							<i>DGTW-adj. Returns</i>	<i>Mkt-Ind-adj. Returns</i>
<i>(Pre-Merger) IO BGI</i>	0.3518*** (6.96)	-0.5027*** (-2.81)	0.1434*** (2.90)	-0.2029 (-1.02)	0.1885*** (3.29)	0.3939*** (4.97)	0.2139** (2.21)	0.1416 (1.36)	0.1147 (1.21)
<i>IO BGI * For Sale</i>							0.4688 (1.26)	0.5357 (1.38)	0.5437 (1.47)
<i>IO BGI * CVC</i>							0.4130 (1.38)	0.6689** (2.14)	0.5458* (1.84)
<i>IO BGI * BR Offer</i>	-0.4415*** (-3.17)	-0.1854* (-1.84)	-0.2330* (-1.68)	-0.2416** (-2.42)	-0.3063** (-1.99)	-0.5116*** (-3.00)	-0.3316* (-1.79)	-0.0759 (-0.41)	-0.2459 (-1.34)
<i>IO BGI * Anti-trust</i>	-0.8826*** (-7.99)	-0.9676*** (-12.17)	-0.6743*** (-6.14)	-1.0243*** (-12.92)	-0.8083*** (-6.46)	-1.0137*** (-7.20)	-0.8337*** (-5.56)	-0.5618*** (-3.57)	-0.7132*** (-4.81)
<i>IO BGI * Completion</i>						-0.2137** (-2.09)	-0.0337 (-0.28)	-0.1026 (-0.82)	0.0824 (0.69)
<i>(Pre-Merger) Residual IO</i>					-0.0136*** (-2.82)	-0.0283*** (-4.13)	-0.0257*** (-3.01)	-0.0276*** (-2.83)	-0.0226*** (-2.82)
<i>Residual IO * For Sale</i>							-0.0710** (-2.02)	-0.0500 (-1.28)	-0.0487 (-1.42)
<i>Residual IO * CVC</i>							0.0173 (0.60)	0.0293 (0.91)	0.0015 (0.05)
<i>Residual IO * BR Offer</i>					0.0100 (0.73)	0.0247 (1.64)	0.0220 (1.36)	0.0261 (1.55)	0.0178 (1.13)
<i>Residual IO * Anti-trust</i>					0.0394*** (3.69)	0.0541*** (4.49)	0.0514*** (3.96)	0.0272* (1.90)	0.0446*** (3.56)
<i>Residual IO * Completion</i>						0.0315*** (3.32)	0.0288*** (2.67)	0.0414*** (3.49)	0.0164 (1.59)
Controls:	Y	Y	Y	Y	Y	Y	Y	Y	Y
Country & Industry F.E.:	Y	N	Y	N	Y	Y	Y	Y	Y
Stock F.E.:	N	Y	N	Y	N	N	N	N	N
Time F.E.:	N	N	Y	Y	Y	Y	Y	Y	Y
Observations	125,673	125,673	125,673	125,673	117,619	117,619	117,619	99,623	117,619
Adjusted R <sup>2</sup>	0.02	0.03	0.04	0.05	0.04	0.05	0.09	0.06	0.06

Panel B: Sample splits:

Sample Split	Held by BlackRock pre-merger?		Bought by BlackRock pre-merger?		Stock Turnover		Stock Market Cap.	
	Yes (1)	No (2)	Yes (3)	No (4)	High (5)	Low (6)	Large (7)	Small (8)
<i>Dependent Variable:</i>	<i>Market-adjusted Stock Returns</i>							
<i>(Pre-Merger) IO BGI</i>	0.3155*** (3.69)	0.4928 (1.18)	0.4766*** (4.12)	0.2623** (2.38)	-0.1413 (-1.21)	0.2369 (1.43)	0.2603*** (2.81)	0.3127** (2.13)
<i>IO BGI * BR Offer</i>	-0.4493** (-2.41)	-1.3551 (-1.59)	-0.8457*** (-3.17)	-0.1909 (-0.87)	-0.4313* (-1.75)	-0.9912*** (-3.31)	-0.3339* (-1.77)	-0.4293 (-1.33)
<i>IO BGI * Anti-trust</i>	-0.8596*** (-5.67)	-0.3840 (-0.54)	-1.1809*** (-5.50)	-0.7361*** (-3.87)	-0.5940*** (-2.85)	-1.0386*** (-4.38)	-0.8605*** (-5.58)	-0.9168*** (-3.53)
<i>IO BGI * Completion</i>	-0.2064* (-1.85)	0.1300 (0.23)	-0.5608*** (-3.66)	0.1134 (0.81)	0.1294 (0.84)	-0.4129** (-2.06)	-0.0396 (-0.33)	-0.3285 (-1.63)
<i>(Pre-Merger) Residual IO</i>	-0.0282*** (-3.58)	-0.0358** (-2.32)	-0.0355*** (-3.43)	-0.0215** (-2.33)	-0.0530*** (-4.90)	-0.0140 (-1.33)	-0.0176** (-2.00)	-0.0324** (-2.41)
<i>Residual IO * BR Offer</i>	0.0192 (1.13)	0.0944*** (2.74)	0.0279 (1.17)	0.0248 (1.25)	-0.0064 (-0.27)	0.0087 (0.41)	0.0342** (2.03)	0.0559* (1.74)
<i>Residual IO * Anti-trust</i>	0.0546*** (4.04)	0.0358 (1.18)	0.0528*** (2.88)	0.0561*** (3.42)	0.0382* (1.88)	0.0270 (1.57)	0.0543*** (3.91)	0.0581** (2.46)
<i>Residual IO * Completion</i>	0.0276*** (2.59)	0.0565** (2.30)	0.0091 (0.67)	0.0450*** (3.43)	0.0345** (2.20)	0.0201 (1.48)	0.0155 (1.40)	0.0476** (2.40)
Controls:	Y	Y	Y	Y	Y	Y	Y	Y
Fixed Effects:	Country, Industry & Time							
Observations	87,934	29,685	49,157	68,462	60,517	57,102	59,829	57,790
Adjusted R <sup>2</sup>	0.06	0.04	0.06	0.05	0.08	0.03	0.05	0.06

**TABLE V: STOCK LIQUIDITY AROUND THE BLACKROCK-BGI MERGER**

This table presents regressions of monthly stock liquidity on event-time indicators and interactions around the BlackRock-BGI merger. The sample includes all stocks that are held by at least one BGI fund prior to the merger. The data is structured as table IV. The dependent variables include measures of stock liquidity. Panel A reports regressions on the full sample, panel B reports sample splits based on stock characteristics as in table III. In panel A, columns 1 to 7 use *Amihud* as the dependent variable, defined as the Amihud (2002) measure of stock illiquidity calculated from daily data. Column 8 uses *Turnover* as the dependent variable, defined as the number of stock traded during the month divided by beginning-of-month shares outstanding and column 9 uses *Log Trading Volume* as the dependent variable, defined as the log of total number of stocks traded multiplied by the beginning-of-month stock price. The main variables of interest are the interaction terms between the event-time indicators and *(Pre-Merger) IO BGI*. Columns 5 to 9 also include specifications with the additional variable *(Pre-Merger) Residual IO* which measures the institutional ownership of the stock not due to BlackRock or BGI funds prior to the merger as well as the interactions between *(Pre-Merger) Residual IO* and the event-time indicators. Panel B reports the specification of column 6 of panel A for same sample splits presented in table III. Unreported controls and the use of fixed effects are reported at the bottom of the panels. The vector of controls includes interactions between all control variables and event-time indicators. When the specification includes country and industry fixed effects, these fixed effects are also interacted with the event-time indicators. The set of unreported controls is the same as in table II. \* / \*\* / \*\*\* indicate statistical significance at the 10% / 5% / 1% level respectively, computed from standard errors that allow for clustering at the stock level.

Panel A: Full sample estimates

Dependent Variable:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
	<i>Amihud</i>				<i>Turnover</i>					<i>Log Trading Volume</i>
<i>(Pre-Merger) IO BGI</i>	-0.0053*** (-23.47)	-0.0022*** (-5.42)	-0.0054*** (-23.33)	-0.0026*** (-5.60)	-0.0051*** (-20.95)	-0.0061*** (-20.47)	-0.0064*** (-20.16)	0.0963*** (3.57)	17.5222*** (16.15)	
<i>IO BGI * For Sale</i>							-0.0013*** (-2.81)	-0.0331 (-1.60)	-5.9033*** (-6.62)	
<i>IO BGI * CVC</i>							0.0008*** (2.60)	-0.0260 (-1.20)	-5.4582*** (-5.63)	
<i>IO BGI * BR Offer</i>	0.0005** (2.18)	0.0001 (0.90)	0.0006** (2.48)	0.0002* (1.78)	0.0004* (1.67)	0.0015*** (4.59)	0.0017*** (4.96)	-0.0521** (-2.19)	-7.8845*** (-7.07)	
<i>IO BGI * Anti-trust</i>	0.0013*** (5.01)	0.0007*** (6.46)	0.0014*** (5.33)	0.0008*** (7.31)	0.0012*** (4.31)	0.0022*** (6.38)	0.0025*** (6.56)	-0.0608*** (-2.63)	-10.3825*** (-8.25)	
<i>IO BGI * Completion</i>						0.0030*** (9.80)	0.0032*** (9.77)	-0.0797*** (-3.36)	-9.8847*** (-8.57)	
<i>(Pre-Merger) Residual IO</i>					-0.0002*** (-7.25)	-0.0002*** (-7.90)	-0.0002*** (-7.19)	0.0253*** (10.11)	3.2106*** (26.39)	
<i>Residual IO * For Sale</i>							-0.0001*** (-3.34)	0.0056*** (2.72)	0.2619** (2.48)	
<i>Residual IO * CVC</i>							-0.0000 (-0.54)	0.0034 (1.51)	0.1754 (1.60)	
<i>Residual IO * BR Offer</i>					0.0000 (1.51)	0.0001*** (3.22)	0.0001** (2.36)	-0.0047* (-1.87)	-0.0300 (-0.25)	
<i>Residual IO * Anti-trust</i>					0.0000** (2.22)	0.0001*** (3.75)	0.0001*** (2.90)	-0.0086*** (-3.96)	0.1070 (0.83)	
<i>Residual IO * Completion</i>						0.0001*** (5.40)	0.0001*** (4.48)	-0.0080** (-2.56)	-0.4849*** (-4.00)	
Controls:	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Country & Industry F.E.:	Y	N	Y	N	Y	Y	Y	Y	Y	
Stock F.E.:	N	Y	N	Y	N	N	N	N	N	
Time F.E.:	N	N	Y	Y	Y	Y	Y	Y	Y	
Observations	123,521	123,521	123,521	123,521	115,499	115,499	115,499	115,406	115,499	
Adjusted R <sup>2</sup>	0.23	0.62	0.23	0.63	0.24	0.25	0.26	0.09	0.83	

Panel B: Sample splits

Sample Split	Held by BlackRock pre-merger?		Bought by BlackRock pre-merger?		Stock Turnover		Stock Market Cap.	
	Yes	No	Yes	No	High	Low	Large	Small
<i>Dependent Variable:</i>	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	<i>Amihud</i>							
<i>(Pre-Merger) IO BGI</i>	-0.0055*** (-17.59)	0.0033 (1.59)	-0.0068*** (-14.86)	-0.0056*** (-13.65)	-0.0014*** (-8.93)	-0.0073*** (-9.50)	-0.0012*** (-5.81)	-0.0033*** (-7.00)
<i>IO BGI * BR Offer</i>	0.0015*** (4.48)	0.0002 (0.09)	0.0024*** (4.58)	0.0005 (1.20)	0.0006*** (3.62)	0.0001 (0.14)	0.0002 (0.99)	0.0011* (1.77)
<i>IO BGI * Anti-trust</i>	0.0020*** (5.54)	0.0004 (0.16)	0.0030*** (5.01)	0.0015*** (3.36)	0.0009*** (5.91)	0.0019** (2.06)	0.0005*** (2.70)	0.0014** (2.28)
<i>IO BGI * Completion</i>	0.0028*** (8.50)	0.0001 (0.03)	0.0036*** (7.26)	0.0024*** (6.01)	0.0010*** (6.15)	0.0035*** (4.40)	0.0006*** (4.11)	0.0021*** (3.75)
<i>(Pre-Merger) Residual IO</i>	-0.0001*** (-5.28)	-0.0008*** (-8.35)	-0.0002*** (-4.15)	-0.0003*** (-6.38)	-0.0001*** (-6.15)	-0.0005*** (-7.74)	-0.0001*** (-3.52)	-0.0003*** (-5.20)
<i>Residual IO * BR Offer</i>	0.0001* (1.94)	0.0003** (2.42)	0.0001*** (3.70)	0.0001 (1.48)	0.0000 (0.58)	0.0002*** (3.36)	0.0000 (1.43)	0.0001* (1.72)
<i>Residual IO * Anti-trust</i>	0.0001*** (2.78)	0.0003** (2.41)	0.0001*** (3.74)	0.0001 (1.57)	0.0000*** (2.96)	0.0003*** (3.84)	0.0000** (2.32)	0.0001* (1.88)
<i>Residual IO * Completion</i>	0.0001*** (3.71)	0.0003*** (3.03)	0.0002*** (5.16)	0.0001*** (2.63)	0.0000*** (4.92)	0.0003*** (4.57)	0.0001** (2.50)	0.0001** (2.14)
Controls:	Y	Y	Y	Y	Y	Y	Y	Y
Fixed Effects:	Country, Industry & Time							
Observations	87,242	28,257	48,350	67,149	59,634	55,865	59,598	55,901
Adjusted R <sup>2</sup>	0.25	0.35	0.28	0.25	0.18	0.30	0.30	0.32

**TABLE VI: STOCK VOLATILITY AROUND THE BLACKROCK-BGI MERGER**

This table presents regressions of monthly stock volatility on event-time indicators and interactions around the BlackRock-BGI merger. The sample includes all stocks that are held by at least one BGI fund prior to the merger. The data is structured as in table IV. The dependent variables include measures of stock volatility. Panel A reports regressions on the full sample, panel B reports sample splits based on stock characteristics as in table III. In panel A, columns 1 to 5 use *Volatility* as the dependent variable, defined as the standard deviation of daily stock returns within the month, columns 6 to 9 use *Idiosyncratic Volatility* as dependent variable, defined as the standard deviation of daily residuals from a regression of daily stock returns on a domestic market, size, value and momentum factor each month. The main variables of interest are the interaction terms between the event-time indicators and *(Pre-Merger) IO BGI*. Columns 3 to 5 and 7 to 9 also include specifications with the additional variable *(Pre-Merger) Residual IO* which measures the institutional ownership of the stock not due to BlackRock or BGI funds prior to the merger as well as the interactions between *(Pre-Merger) Residual IO* and the event-time indicators. Panel B reports the specification of column 6 of panel A for same sample splits presented in table III. Unreported controls and the use of fixed effects are reported at the bottom of the panels. The vector of controls includes interactions between all control variables and event-time indicators. When the specification includes country and industry fixed effects, these fixed effects are also interacted with the event-time indicators. The set of unreported controls is the same as in table II. \* / \*\* / \*\*\* indicate statistical significance at the 10% / 5% / 1% level respectively, computed from standard errors that allow for clustering at the stock level.

*Panel A: Full sample estimates*

<i>Dependent Variable:</i>	(1)	(2)	(3) <i>Volatility</i>	(4)	(5)	(6)	(7) <i>Idiosyncratic Volatility</i>	(8)	(9)
<i>(Pre-Merger) IO BGI</i>	0.0355** (2.34)	0.3345*** (10.21)	0.0561*** (3.40)	0.1252*** (5.68)	0.0767*** (3.23)	0.2273*** (9.13)	0.2679*** (9.89)	0.4364*** (11.97)	0.3520*** (9.03)
<i>IO BGI * For Sale</i>					0.2517*** (7.20)				0.4947*** (9.38)
<i>IO BGI * CVC</i>					0.0726*** (2.61)				0.1024** (2.45)
<i>IO BGI * BR Offer</i>	-0.0660*** (-4.13)	-0.1469*** (-14.07)	-0.0668*** (-3.70)	-0.1359*** (-5.96)	-0.0873*** (-3.54)	-0.1640*** (-6.91)	-0.1736*** (-6.48)	-0.3421*** (-9.75)	-0.2577*** (-6.73)
<i>IO BGI * Anti-trust</i>	-0.0382** (-2.57)	-0.1703*** (-17.62)	-0.0453*** (-2.77)	-0.1144*** (-5.21)	-0.0658*** (-2.77)	-0.1281*** (-5.54)	-0.1503*** (-5.92)	-0.3188*** (-9.13)	-0.2344*** (-6.19)
<i>IO BGI * Completion</i>				-0.1227*** (-5.90)	-0.0741*** (-3.28)			-0.3532*** (-10.52)	-0.2689*** (-7.36)
<i>(Pre-Merger) Residual IO</i>			-0.0064*** (-4.09)	-0.0080*** (-3.97)	-0.0066*** (-3.17)		-0.0104*** (-4.08)	-0.0133*** (-3.99)	-0.0111*** (-3.28)
<i>Residual IO * For Sale</i>					-0.0164*** (-4.71)				-0.0253*** (-4.63)
<i>Residual IO * CVC</i>					0.0011 (0.44)				0.0020 (0.52)
<i>Residual IO * BR Offer</i>			-0.0021 (-1.33)	-0.0005 (-0.25)	-0.0019 (-0.92)		-0.0014 (-0.58)	0.0014 (0.46)	-0.0007 (-0.22)
<i>Residual IO * Anti-trust</i>			0.0013 (0.93)	0.0029 (1.57)	0.0015 (0.75)		0.0039* (1.72)	0.0067** (2.22)	0.0045 (1.43)
<i>Residual IO * Completion</i>				0.0022 (1.18)	0.0008 (0.39)			0.0050 (1.63)	0.0028 (0.88)
Controls:	Y	Y	Y	Y	Y	Y	Y	Y	Y
Country & Industry F.E.:	Y	N	Y	Y	Y	Y	Y	Y	Y
Stock F.E.:	N	Y	N	N	N	N	N	N	N
Time F.E.:	Y	Y	Y	Y	Y	Y	Y	Y	Y
Observations	123,093	123,093	115,398	115,398	115,398	123,085	115,391	115,391	115,391
Adjusted R <sup>2</sup>	0.51	0.63	0.50	0.52	0.54	0.54	0.54	0.56	0.57

Panel B: Sample splits

Sample Split	Held by BlackRock pre-merger?		Bought by BlackRock pre-merger?		Stock Turnover		Stock Market Cap.	
	Yes	No	Yes	No	High	Low	Large	Small
<i>Dependent Variable:</i>	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>(Pre-Merger) IO BGI</i>	0.0965*** (4.17)	0.2867** (2.14)	0.1021*** (3.27)	0.1379*** (4.38)	-0.0391 (-1.53)	0.3119*** (7.57)	0.0185 (0.68)	0.1720*** (5.02)
<i>IO BGI * BR Offer</i>	-0.1350*** (-5.61)	-0.0814 (-0.59)	-0.1864*** (-5.46)	-0.0871*** (-2.83)	-0.0819*** (-2.78)	-0.3471*** (-7.96)	-0.0613** (-2.49)	-0.1453*** (-3.62)
<i>IO BGI * Anti-trust</i>	-0.1010*** (-4.38)	-0.1021 (-0.79)	-0.1362*** (-4.18)	-0.1068*** (-3.57)	-0.0278 (-1.03)	-0.3246*** (-7.39)	-0.0479* (-1.95)	-0.1392*** (-3.73)
<i>IO BGI * Completion</i>	-0.1049*** (-4.76)	-0.1883 (-1.52)	-0.1278*** (-4.19)	-0.1202*** (-4.14)	-0.0312 (-1.22)	-0.3222*** (-7.61)	-0.0343 (-1.38)	-0.1213*** (-3.28)
<i>(Pre-Merger) Residual IO</i>	-0.0118*** (-5.47)	0.0114*** (2.67)	-0.0095*** (-3.20)	-0.0047* (-1.69)	-0.0149*** (-5.66)	-0.0076*** (-2.79)	0.0043* (1.74)	-0.0050 (-1.50)
<i>Residual IO * BR Offer</i>	0.0022 (1.03)	-0.0102* (-1.89)	0.0005 (0.16)	-0.0035 (-1.25)	-0.0029 (-0.99)	-0.0007 (-0.25)	-0.0040* (-1.72)	0.0006 (0.16)
<i>Residual IO * Anti-trust</i>	0.0062*** (2.97)	-0.0093* (-1.94)	0.0040 (1.44)	0.0013 (0.50)	0.0004 (0.16)	0.0016 (0.59)	-0.0030 (-1.36)	0.0060* (1.79)
<i>Residual IO * Completion</i>	0.0047** (2.25)	-0.0090* (-1.88)	0.0022 (0.80)	0.0010 (0.38)	0.0007 (0.26)	0.0015 (0.56)	-0.0058*** (-2.61)	0.0000 (0.01)
Controls:	Y	Y	Y	Y	Y	Y	Y	Y
Fixed Effects:	Country, Industry & Time							
Observations	87,036	28,362	48,555	66,843	59,427	55,971	58,748	56,650
Adjusted R <sup>2</sup>	0.56	0.45	0.54	0.51	0.54	0.55	0.59	0.48

**TABLE VII: ASSESSMENT OF “INFORMED TRADING HYPOTHESIS”**

This tables presents tests to assess the “informed trading hypothesis”. The regressions in panel A present sample splits of the regression in table II, panel B, column 3 based on pre-merger characteristics of BlackRock funds that hold the stock. Specifically, panel A splits the sample of stocks based on the informedness of BlackRock funds. We first compute risk-adjusted holding returns for every BlackRock fund. *Market-adjusted Stock Returns* are defined as the monthly stock return in excess of the domestic market return, *Market-Industry-adjusted Returns* are defined as the monthly stock return in excess of the returns on a domestic industry benchmark portfolio. Fund-level holding returns are then the holding-weighted average of individually-adjusted stock returns. Then, for every stock held by BGI funds prior to the merger, we compute the average holding return of BlackRock funds that also hold the stock. The average is either weighted by BlackRock fund TNA (columns 1 and 2) or by stock ownership (columns 3 to 6). Then we split the sample of stocks based on above or below median informedness of BlackRock funds. In panel A, all regressions include unreported control variables, country, industry and time fixed effects as well as interactions between *Post-Merger* and the control variables, the country and the industry fixed effects. Standard errors are clustered at the stock level. In panel B, we examine the evolution of risk-adjusted holding returns for BlackRock funds around the merger event. The regressions are run at the fund-level and the dependent variables include the same measure of risk-adjusted holding returns that were used in the construction of the tests in panel A. The explanatory variables include the event-time indicator *Post-Merger*, a measure of the exposure of BlackRock fund *j* to the stocks held by BGI funds prior to the merger, and the interaction term. This exposure measure is the average of *(Pre-Merger) IO BGI* over all the stocks held by BlackRock fund *j*. The average is either equally weighted (*EW IO BGI*) or weighted by the portfolio weight of the fund in the stock (*VW IO BGI*). All regressions include fund, and time fixed effects. Standard errors are clustered at the fund level. Panel C presents a matching stock analysis to determine if the impact of the merger on the behavior of other institutions is driven by the transfer of ownership from Barclays to BlackRock or by the associated increase in ownership concentration. The starting sample comprises of all stocks held by BGI funds but not held by any BlackRock fund prior to the merger. For every such stock, we select a comparable stock from the sample of stocks held both by BGI and BlackRock funds prior to the merger. We select the matching stock based on three different selection algorithms. MATCH 1 matches every stock not held by BlackRock funds prior to the merger with a corresponding stock held by BlackRock funds prior to the merger from the same country of origin that is closest in terms of combined post-merger BlackRock ownership (i.e., the combined post-merger ownership of BlackRock and BGI funds). MATCH 2 amends MATCH 1 and selects the matching stock from the same country that is closest in terms of combined post-merger BlackRock ownership and market capitalization using a distance measure defined in the text. MATCH 3 amends MATCH 2 by adding the book-to-market ratio as a matching variable to the selection algorithm. Every column in the table presents a regression following the specification in table II, panel A, column 5, separately for the actual and the matched stocks. All the regressions include a country and industry fixed effects. Standard errors are clustered at the stock level. \* / \*\* / \*\*\* indicate statistical significance at the 10% / 5% / 1% level respectively.

*Panel A: Sample split by average BlackRock holding returns*

Sample Split:	TNA-weighted Market Adj. Holding Returns		Ownership-weighted Market Adj. Holding Returns		Ownership-weighted Market-Industry Adj. Holding Returns	
	High	Low	High	Low	High	Low
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Dependent Variable:</i>	<i>Change Avg. Port. Weight (TNA weighted)</i>					
<i>(Pre-Merger) IO BGI</i>	-0.9806 (-1.4929)	1.5366* (1.7232)	-1.1985* (-1.7917)	1.8428** (2.3059)	-0.6774 (-1.0318)	1.3745 (1.5735)
<i>IO BGI * Post-Merger</i>	-1.2485 (-1.4496)	-2.9111*** (-2.6793)	-0.5589 (-0.6307)	-3.4260*** (-3.5132)	-1.1618 (-1.3287)	-3.1522*** (-3.0305)
Controls:	Y	Y	Y	Y	Y	Y
Fixed effects:	Country, Industry & Time					
Observations	8,032	8,205	8,001	8,236	8,266	7,971
Adjusted R <sup>2</sup>	0.13	0.17	0.13	0.17	0.12	0.18

*Panel B: Performance of BlackRock funds over the event-period*

	(1)	(2)	(3)	(4)
<i>Dependent Variable:</i>	<i>Local Market Adj. Returns</i>		<i>Local Industry Adj. Returns</i>	
<i>(Pre-Merger) EW IO BGI</i>	-7.8634*** (-5.60)		-6.0507*** (-4.62)	
<i>EW IO BGI * Post-Merger</i>	0.5820 (0.72)		0.8910 (0.96)	
<i>(Pre-Merger) VW IO BGI</i>		-4.4985*** (-2.84)		-5.3344*** (-2.65)
<i>VW IO BGI * Post-Merger</i>		0.3268 (0.43)		-0.3023 (-0.29)
Fixed effects:	Fund & Time			
Observations	1,100	1,100	1,100	1,100
Adjusted R <sup>2</sup>	0.40	0.39	0.43	0.43

Panel C: Matching Stock analysis

	Match 1		Match 2		Match 3	
	Stocks not held by BlackRock pre-merger	Matched Stocks held by BlackRock pre-merger	Stocks not held by BlackRock pre-merger	Matched Stocks held by BlackRock pre-merger	Stocks not held by BlackRock pre-merger	Matched Stocks held by BlackRock pre-merger
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Dependent Variable:</i>	<i>Change Residual IO</i>					
<i>(Pre-Merger) IO BGI</i>	-2.6014 (-0.7249)	-22.2665*** (-3.7162)	-2.2613 (-0.5151)	-9.4431* (-1.9271)	-2.3147 (-0.5199)	-30.4326*** (-2.6800)
<i>Change IO BlackRock</i>	-0.0049 (-0.3160)	20.1986* (1.8826)	-0.0052 (-0.3366)	16.4569 (1.6018)	-0.0049 (-0.2980)	13.2020 (1.0881)
<i>Log MCap</i>	0.0504 (1.5851)	0.0251 (0.8511)	0.0509 (1.5971)	0.0346 (0.9570)	0.0394 (1.2491)	0.0161 (0.4872)
<i>Pastreturn</i>	0.0250 (1.2333)	-0.0282 (-0.6120)	0.0248 (1.2188)	-0.0096 (-0.2202)	0.0197 (0.9432)	0.0320 (0.7221)
<i>Log BTM</i>	0.0007 (0.1540)	0.0293 (0.7414)	0.0006 (0.1350)	-0.0215 (-0.4243)	0.0001 (0.0268)	-0.0143 (-0.3808)
<i>Dividend Yield</i>	0.0005 (0.5858)	-0.0074 (-1.0523)	0.0005 (0.5907)	-0.0112* (-1.8224)	0.0005 (0.5722)	-0.0174** (-2.5030)
<i>ROE</i>	-0.0088 (-0.1489)	-0.0011 (-1.1478)	-0.0079 (-0.1335)	-0.0000 (-0.0088)	-0.0110 (-0.1816)	0.0002 (0.3015)
<i>Leverage</i>	-0.0331 (-0.3473)	0.0773 (0.8346)	-0.0349 (-0.3638)	-0.0382 (-0.4187)	-0.0412 (-0.4231)	-0.0710 (-0.9154)
<i>Cash</i>	-2.6014 (-0.7249)	0.2764** (2.0898)	-2.2613 (-0.5151)	0.1868 (1.1161)	-2.3147 (-0.5199)	-0.0176 (-0.1692)
Fixed effects:	Country & Industry					
Observations	1,284	1,200	1,280	1,117	1,216	1,155
Adjusted R <sup>2</sup>	0.16	0.52	0.16	0.53	0.12	0.51

**TABLE VIII: ASSESSMENT OF “INTERNAL LIQUIDITY-PROVISION HYPOTHESIS”**

This table presents tests to assess the “internal liquidity-provision hypothesis”. Panel A examines cross-trading between BlackRock and BGI funds at the stock-level. The dependent variables are different measures of cross-trading between BlackRock and BGI funds around the merger. Although we cannot directly observe whether BlackRock funds and BGI funds sold any stock to each other during these periods, we can isolate stocks in which such transactions could have occurred and evaluate an upper bound for the transfer volume in the following way: For every stock  $i$ , we aggregate its share positions across all BlackRock funds and all BGI funds respectively. Then, for every period  $t$ , we compute the changes in the number of shares held by all BlackRock funds (BGI funds) increase or decrease the positions are referred as “BR buys” or “BR sales” (“BGI buys” or “BGI sales”). Next, we consider all stocks sold by BlackRock and purchased by BGI or vice versa. For every such stock, we calculate the largest possible shares that could have been traded between BlackRock and BGI as the minimum between the number of shares sold by BlackRock and number of shares bought by BGI. We multiply this figure by the beginning-of-period stock price and normalize the trading volume by the sum of beginning-of-period total TNA of BlackRock and BGI. Specifically, the cross trading variables are defined as follows:

$$\begin{aligned}
 \text{CrossSales}_{i,t} &= \frac{P_{i,t-1} \times \min(\text{BR sales}_{i,t}, \text{BGI buys}_{i,t})}{(\text{BR TNA}_{t-1} + \text{BGI TNA}_{t-1})} \\
 \text{CrossBuys}_{i,t} &= \frac{P_{i,t-1} \times \min(\text{BR buys}_{i,t}, \text{BGI sales}_{i,t})}{(\text{BR TNA}_{t-1} + \text{BGI TNA}_{t-1})} \\
 \text{CrossTrades}_{i,t} &= \text{CrossSales}_{i,t} + \text{CrossBuys}_{i,t}
 \end{aligned}$$

Panel B examines cash-holdings of BlackRock funds around the merger. The specifications are run at the fund-level and the dependent variable in columns 1 and 2 is the logarithm of 1 plus the value of cash holdings of BlackRock fund  $j$ . The dependent variable in columns 3 and 4 is the ratio of cash divided by fund TNA. The explanatory variables include the event-time indicator *Post-Merger* as well as a variable that measures the exposure of BlackRock fund  $j$  to the stocks held by BGI funds prior to the merger. This exposure measure is the average of (*Pre-Merger*) *IO BGI* over all the stocks held by BlackRock fund  $j$ . The average is either equally weighted (*EW IO BGI*) or weighted by the portfolio weight of the fund in the stock (*VW IO BGI*). The variable of interest is the interaction term between *Post-Merger* and the fund-level exposure variable. Specifications in panel A, columns 1 to 3, include unreported control variables, country, industry and time fixed effects as well as interactions between *Post-Merger* and the control variables, the country and the industry fixed effects. In columns 4 to 6 of the same panel, specifications include unreported control variables, stock and time fixed effects as well as interaction between *Post-Merger* and the control variables. Standard errors are clustered at the stock level. Specifications in panel B, include fund and time fixed effects. Standard errors are clustered at the fund level. \* / \*\* / \*\*\* indicate statistical significance at the 10% / 5% / 1% level respectively.

*Panel A: Cross-trading analysis at the stock-level around the merger event*

	(1)	(2)	(3)	(4)	(5)	(6)
<i>Dependent Variable:</i>	<i>Cross Sales</i>	<i>Cross Buys</i>	<i>Cross Trades</i>	<i>Cross Sales</i>	<i>Cross Buys</i>	<i>Cross Trades</i>
<i>(Pre-Merger) IO BGI</i>	0.0080 (0.19)	0.0081 (0.93)	-0.0199 (-0.99)	0.1306 (1.15)	0.0977*** (4.51)	0.0213 (0.80)
<i>IO BGI * Post-Merger</i>	0.0017 (0.04)	-0.0301* (-1.68)	0.0149 (0.74)	-0.0763** (-2.03)	0.0127 (1.10)	-0.0424*** (-3.35)
Controls & Interacted Controls:	Y	Y	Y	Y	Y	Y
Fixed effects:	Country, Industry & Time			Stock & Time		
Observations	6,621	9,542	16,163	6,621	9,542	16,163
Adjusted R <sup>2</sup>	0.21	0.14	0.12	0.64	0.61	0.40

*Panel B: Cash-holdings of BlackRock funds around the merger event*

	(1)	(2)	(3)	(4)
<i>Dependent Variable:</i>	<i>Log(1+Cash)</i>		<i>Cash by TNA</i>	
<i>(Pre-Merger) EW IO BGI</i>	-1.6792** (-1.98)		-18.2214 (-1.25)	
<i>EW IO BGI * Post-Merger</i>	0.4489 (1.41)		-1.8267 (-0.43)	
<i>(Pre-Merger) VW IO BGI</i>		-0.7450 (-1.20)		-20.0624 (-1.25)
<i>VW IO BGI * Post-Merger</i>		0.3468 (1.12)		0.4220 (0.22)
Fixed effects:	Fund & Time			
Observations	1,103	1,103	1,103	1,103
Adjusted R <sup>2</sup>	0.86	0.85	0.69	0.70

**TABLE IX: ASSESSMENT OF “FRAGILITY HYPOTHESIS”**

This table presents tests to assess the “fragility hypothesis”. Panel A presents sample splits of the regression presented in table II, panel B, column 3 based on institution characteristics, panel B based on stock characteristics. In column 1(2) of panel A, the dependent variable is computed using only funds with above-median (below-median) volatility of flows. In column 3(4), the dependent variable is computed using only funds with above-median (below-median) flow-performance sensitivity. In column 5(6), the dependent variable is computed using only funds with above-median (below-median) portfolio overlap in liquid stocks with BlackRock-BGI stocks. The measure of overlap is the total value of stocks in the most liquid quartile of the portfolio prior to the merger that are also held by both BlackRock and BGI-funds prior to the merger divided by fund TNA. In column 7(8), the dependent variable is computed using only large (small) funds (measured by above (below) median fund TNA). In column 9(10), the dependent variable is computed using only funds with above-median (below-median) fund alpha where fund alpha is computed relative to an international 4-factor model. In panel B, we split the stocks based on the average flow volatility across all BlackRock funds that hold the stock. The average BlackRock flow volatility per stock is again either weighted by BlackRock fund TNA (columns 1 and 2) or by stock ownership (columns 3 and 4). We split the sample of stocks based on above or below median flow volatility of BlackRock funds. All regressions include unreported control variables, country, industry and time fixed effects as well as interactions between *Post-Merger* and the control variables, the country and the industry fixed effects. \* / \*\* / \*\*\* indicate statistical significance at the 10% / 5% / 1% level respectively, computed from standard errors that allow for clustering at the stock level.

*Panel A: Sample splits by institution characteristics*

Sample Split:	Flow Volatility		Flow Performance Sensitivity		Portfolio Overlap	
	High (1)	Low (2)	High (3)	Low (4)	High (5)	Low (6)
<i>Dependent Variable:</i>	<i>Change Avg. Port. Weight (TNA weighted)</i>					
<i>(Pre-Merger) IO BGI</i>	1.3671** (2.30)	0.6629 (1.29)	1.1330** (2.14)	0.7212 (1.35)	0.9320* (1.88)	0.0401 (0.08)
<i>IO BGI * Post-Merger</i>	-4.2788*** (-5.27)	-1.6160** (-2.40)	-3.1981*** (-4.62)	-2.1662*** (-3.01)	-2.5391*** (-3.90)	-1.6325** (-2.39)
Controls:	Y	Y	Y	Y	Y	Y
Fixed effects:	Country, Industry & Time					
Observations	22,124	22,047	22,110	22,135	22,260	22,170
Adjusted R <sup>2</sup>	0.09	0.09	0.10	0.09	0.12	0.12

Sample Split:	Fund Size		Fund Alpha	
	Large (7)	Small (8)	High (9)	Low (10)
<i>Dependent Variable:</i>	<i>Change Avg. Port. Weight (TNA weighted)</i>			
<i>(Pre-Merger) IO BGI</i>	0.6860 (1.40)	0.6081 (0.97)	1.4196** (2.45)	0.8064 (1.49)
<i>IO BGI * Post-Merger</i>	-2.1232*** (-3.41)	-1.3887 (-1.58)	-2.4504*** (-3.13)	-3.3483*** (-4.92)
Controls:	Y	Y	Y	Y
Fixed effects:	Country, Industry & Time			
Observations	22,272	22,086	22,142	22,053
Adjusted R <sup>2</sup>	0.14	0.08	0.09	0.10

*Panel B: Sample splits by stock characteristics*

Sample Split:	TNA-weighted BlackRock Flow Volatility		Ownership-weighted BlackRock Flow Volatility	
	High (1)	Low (2)	High (3)	Low (4)
<i>Dependent Variable:</i>	<i>Change Avg. Port. Weight (TNA weighted)</i>			
<i>(Pre-Merger) IO BGI</i>	0.0998 (0.11)	-1.1682* (-1.66)	-0.1266 (-0.16)	-1.0932 (-1.49)
<i>IO BGI * Post-Merger</i>	-2.1445* (-1.80)	-0.5641 (-0.63)	-2.4414** (-2.29)	-0.2959 (-0.31)
Controls:	Y	Y	Y	Y
Fixed effects:	Country, Industry & Time			
Observations	6,709	6,591	6,670	6,630
Adjusted R <sup>2</sup>	0.18	0.13	0.18	0.12

**TABLE X: PEER AND STOCK MARKET EFFECTS AROUND ASSET MANAGEMENT MERGERS**

This table presents regressions of changes in institutional ownership and stock market effects at the stock level around asset management mergers in the period 2002 to 2012, excluding the mergers completed in the years 2008 to 2010 (i.e., the BlackRock-BGI merger analysis period used in the previous tests). Specifications in panel A examine “peer effects”, specifications in panel B examine “stock market effects”. In panel A, the dependent variables are defined as follows: *Change Avg. Port. Weight* is the average change in the portfolio weight of the stocks across all funds from institutions different from the acquirer or target (and their affiliates) over the period. *Change Residual IO* is the change in residual institutional ownership of the stock. Residual institutional ownership is defined as total institutional ownership excluding the institutional ownership due to acquirer or target funds. *(Pre-Merger) IO Target* is the level of institutional ownership in the stocks attributable to target funds prior to the merger. When a stock in a period is impacted by more than one merger, we only keep the observation from the merger with the highest value of *(Pre-Merger) IO Target*. All other specifications are as above. Specifications in panel B are as in panel A but the data is expanded to monthly frequency. The dependent variables include measures of stock returns (columns 1 to 4), stock liquidity (columns 5 and 6) or stock volatility (columns 7 to 10). The dependent variables are defined as in tables IV, V and VI respectively. The specification includes two event-time indicators. *Merger-Process* is a dummy equal to 1 during the 6-month period leading to the merger completion date and 0 otherwise. *Post-Merger* is a dummy equal to 1 for all months following the deal completion date and 0 otherwise. All other specifications are as above. All regressions include unreported control variables and the use of fixed effects is reported at the bottom of the panels. The vector of controls includes interactions between all control variables and event-time indicators. The set of unreported controls is the same as in table II. \* / \*\* / \*\*\* indicate statistical significance at the 10% / 5% / 1% level respectively, computed from standard errors that allow for clustering at the stock level.

*Panel A: Peer effects*

	(1)	(2)	(3)	(4)	(5)	(6)
<i>Dependent Variable:</i>	<i>Change Avg. Port. Weight (TNA weighted)</i>			<i>Change Residual IO</i>		
<i>(Pre-Merger) IO Target</i>	0.2515 (0.44)	-0.2340 (-0.40)	-1.6511* (-1.86)	-0.2360 (-0.66)	-0.4311 (-1.19)	-2.1441*** (-3.13)
<i>IO Target * Post-Merger</i>	-2.3279*** (-3.42)	-1.5779** (-2.19)	-2.6035*** (-3.48)	-2.2299*** (-4.16)	-1.8652*** (-3.43)	-2.3468*** (-3.75)
Unreported:	Controls, Interacted Controls, Deal & Time Fixed Effects					
Interacted F.E.:	N	Y	N	N	Y	N
Additional F.E.:	Country & Industry		Stock	Country & Industry		Stock
Observations	56,435	56,435	56,435	48,027	48,027	48,027
Adjusted R <sup>2</sup>	0.10	0.11	0.33	0.12	0.13	0.35

*Panel B: Stock market effects*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
<i>Dependent Variable:</i>	<i>Mkt-adj. Returns</i>		<i>Mkt-Ind.-adj. Returns</i>		<i>Amihud</i>		<i>Volatility</i>		<i>Idiosyncratic Volatility</i>	
<i>(Pre-Merger) IO Target</i>	0.0494 (0.90)	0.0445 (0.57)	0.0776 (1.48)	0.0523 (0.70)	0.0009** (2.09)	-0.0009** (-2.41)	-0.0246** (-2.14)	-0.0517*** (-3.14)	-0.0557*** (-3.11)	-0.0634** (-2.51)
<i>IO Target * Merger-Process</i>	-0.2206** (-2.09)	-0.1816* (-1.76)	-0.3146*** (-3.06)	-0.3134*** (-3.14)	0.0008* (1.93)	0.0006** (2.08)	-0.0281** (-2.35)	-0.0238** (-2.02)	-0.0663*** (-3.59)	-0.0624*** (-3.35)
<i>IO Target * Post-Merger</i>	-0.0962 (-1.28)	-0.1095 (-1.49)	-0.0940 (-1.30)	-0.0994 (-1.38)	0.0006 (1.34)	0.0005 (1.26)	0.0155 (1.22)	0.0204* (1.69)	0.0330* (1.74)	0.0310* (1.78)
<i>(Pre-Merger) Residual IO</i>	-0.0029 (-0.90)	-0.0224*** (-3.35)	-0.0070** (-2.33)	-0.0228*** (-3.75)	-0.0002*** (-11.96)	-0.0001*** (-4.87)	-0.0004 (-0.51)	0.0023* (1.82)	0.0017 (1.37)	0.0052** (2.33)
<i>Residual IO * Merger-Process</i>	-0.0033 (-0.59)	-0.0055 (-1.38)	0.0024 (0.45)	-0.0024 (-0.66)	0.0000** (2.27)	0.0000*** (3.87)	0.0006 (0.96)	0.0004 (0.82)	0.0004 (0.41)	-0.0016** (-2.24)
<i>Residual IO * Post-Merger</i>	0.0059 (1.51)	0.0045* (1.65)	0.0099*** (2.63)	0.0074*** (2.91)	-0.0000 (-0.05)	-0.0000 (-0.20)	0.0019*** (3.00)	0.0028*** (6.76)	0.0031*** (3.02)	0.0040*** (5.78)
Unreported:	Controls, Interacted Controls, Deal & Time Fixed Effects.									
Country & Industry F.E.:	Y	N	Y	N	Y	N	N	N	Y	N
Stock F.E.:	N	Y	N	Y	N	Y	N	Y	N	Y
Observations	277,705	277,705	277,705	277,705	272,735	272,735	272,001	272,001	272,001	272,001
Adjusted R <sup>2</sup>	0.02	0.03	0.01	0.03	0.23	0.68	0.36	0.51	0.38	0.51

INTERNET APPENDIX FOR  
“WHO IS AFRAID OF BLACKROCK?”

In this internet appendix we present further robustness tests. Specifically:

- Table IA.I presents an additional specification to the ones presented in table II. Specifically, the specification measures the effect of pre-merger BGI ownership on residual institutional ownership for every semi-annual period in the sample separately (i.e., timeline 2 of figure I is implemented).
- Table IA.II replicates the main results of the BlackRock-BGI merger using ownership information from 13F filings instead of FactSet.
- Table IA.III presents alternative specifications to the ones presented in table II. Specifically, the table uses the level of the average portfolio weight or the level of residual institutional ownership as the dependent variable rather than the change in these variables.
- Table IA.IV presents a matching stock analysis where the growth rate in institutional ownership of every affected stock is compared to the growth rate of a matching stock not (or little) affected by the BlackRock-BGI merger.
- Table IA.V present an alternative specification to the one presented in the main body where the main explanatory variable *IO BGI* is replaced with the hypothetical increase in the Herfindahl index of ownership concentration in every stock due to the merger. This alternative explanatory variable is labeled *Delta Herfindahl* and is defined as the difference between the squared sum of pre-merger BlackRock and BGI ownership in every stock minus the sum of squares of the same two variables. Formally,

$$\text{Delta Herfindahl}_{j,2009} = (IO_{j,BR,2009} + IO_{j,BGI,2009})^2 - (IO_{j,BR,2009}^2 + IO_{j,BGI,2009}^2)$$

- Table IA.VI presents additional tests on the rebalancing activities of BlackRock funds in the post-merger period.

**TABLE IA.I: REPLICATION OF TABLE II, PANEL B USING MORE GRANULAR EVENT TIMELINE**

This table replicates the results of table II, panel B using the more granular timeline 2 of figure I. The variable CVC is a dummy equal to 1 for the period December 2008 to June 2009 in which Barclays announces that iShares is for sale and in which the deal with CVC Capital Partners is announced, the variable Merger is a dummy equal to 1 for the period June 2009 to December 2009 in which BlackRock offers to buy BGI and receives Anti-trust approval and the variable Completion is a dummy equal to 1 for the period December 2009 to the end of the sample in which the merger is completed. All other specifications are as in table II, panel B.

<i>Dependent Variable:</i>	(1)	(2)	(3)	(4)	(5)	(6)
		<i>Change Avg. Port. Weight (TNA weighted)</i>			<i>Change Avg. PWeight (flow weighted)</i>	<i>Change Residual IO</i>
<i>(Pre-Merger) IO BGI</i>	5.1293*** (7.34)	3.6193*** (4.60)	4.8281*** (5.24)	-6.9656*** (-3.76)	2.8101*** (2.62)	-0.2831 (-0.83)
<i>CVC</i>	0.1592*** (13.57)	0.0282 (0.55)	-0.4586*** (-3.63)	-0.3656*** (-6.93)	-0.3269*** (-3.82)	-0.0157 (-0.52)
<i>Merger</i>	0.2513*** (20.95)	0.3872*** (7.46)	0.1672 (0.57)	0.0106 (0.19)	-0.2428*** (-2.90)	0.1708*** (5.51)
<i>Completion</i>	0.1794*** (16.56)	0.2933*** (5.59)	0.0754 (0.62)	0.0223 (0.36)	-0.0622 (-0.76)	0.0888*** (2.99)
<i>IO BGI * CVC</i>	-5.5650*** (-6.62)	-3.8917*** (-4.52)	-6.4821*** (-5.95)	1.8660** (2.00)	0.6076 (0.48)	0.0072 (0.02)
<i>IO BGI * Merger</i>	-7.0479*** (-8.43)	-6.5257*** (-7.44)	-7.8383*** (-7.35)	-3.2924*** (-3.61)	-7.7854*** (-5.89)	-2.0975*** (-5.20)
<i>IO BGI * Post-Completion</i>	-5.2328*** (-6.69)	-4.8940*** (-5.71)	-5.2634*** (-4.95)	-0.0867 (-0.09)	-3.6068*** (-2.90)	-0.4843 (-1.27)
<i>Change IO BlackRock</i>		3.8341*** (3.01)	3.0908** (2.40)	1.6098 (1.16)	3.2770** (2.01)	1.5220*** (2.85)
<i>Log MCap</i>		0.0218*** (4.54)	0.0175*** (3.75)	-0.6074*** (-15.77)	-0.0112* (-1.69)	0.0074*** (2.95)
<i>Pastreturn</i>		-0.0215 (-0.65)	0.0537* (1.72)	0.1674*** (4.19)	0.0336 (0.71)	0.1320*** (8.05)
<i>Log BTM</i>		0.1089*** (9.52)	0.0694*** (5.78)	0.2542*** (6.72)	0.0876*** (5.33)	0.0043 (0.77)
<i>Dividend Yield</i>		-0.0030 (-1.01)	-0.0005 (-0.14)	-0.0075* (-1.71)	-0.0046 (-1.12)	-0.0064*** (-4.14)
<i>ROE</i>		0.0032*** (10.14)	0.0031*** (10.20)	0.0012*** (3.31)	0.0037*** (9.37)	0.0006*** (4.43)
<i>Leverage</i>		-0.0717** (-1.98)	-0.1902*** (-5.13)	0.0018 (0.01)	-0.0873* (-1.65)	0.0014 (0.07)
<i>Cash</i>		0.3061*** (6.18)	0.2087*** (4.10)	0.4736*** (4.86)	0.2363*** (3.39)	0.0312 (1.27)
<i>Interacted Controls:</i>	N	Y	Y	Y	Y	Y
<i>Interacted F.E.:</i>	N	N	Y	N	N	N
<i>Country &amp; Industry F.E.:</i>	N	Y	Y	N	Y	Y
<i>Stock F.E.:</i>	N	N	N	Y	N	N
<i>Time F.E.:</i>	N/A	N/A	N/A	N/A	N/A	N/A
<i>Observations</i>	28,553	22,296	22,296	22,296	22,224	20,343
<i>Adjusted R<sup>2</sup></i>	0.03	0.11	0.22	0.50	0.05	0.07

**TABLE IA.II: REPLICATION OF MAIN RESULTS USING 13F INFORMATION**

This table presents robustness tests on the main results using institutional ownership information from 13F filings. The sample includes all stocks that are covered in 13F filings and that are in our baseline sample. Column 1 replicates the results of table II, panel B and uses a semi-annual panel. Columns 2, 3, and 4 use a monthly panel and replicate the results of table IV, panel A, table V, panel A, and table VI, panel A respectively. The main explanatory variable is *(Pre-Merger) IO Barclays 13F* which is the level of institutional ownership in the stock attributable to Barclays institutional 13F filings prior to the merger with BlackRock (i.e., as of June 2009). In column 1, the variable *Post-Merger* is a dummy that equals one for the post-merger period in the regression (as in timeline 1 of figure I) and the variable of interest is the interaction between *(Pre-merger) IO Barclays 13F* and *Post-Merger* and the dependent variable is *Change Residual IO 13F*, defined as the change in residual institutional ownership as per 13F filings. Columns 2 to 4 use the granular timeline 3 of figure I and include *(Pre-Merger) Residual IO 13F* and interactions with the event-time indicators as explanatory variables. Unreported controls and the use of fixed effects are reported at the bottom of the panels. The vector of controls includes interactions between all control variables and event-time indicators. The set of unreported control variables is the same as in table II. \* / \*\* / \*\*\* indicate statistical significance at the 10% / 5% / 1% level respectively, computed from standard errors that allow for clustering at the stock level.

Specification:	Semi-annual panel	Monthly panel			
	(1) <i>Change Residual IO 13F</i>	(2) <i>Mkt.-adj. Returns</i>	(3) <i>Amihud</i>	(4) <i>Idio. Volatility</i>	
<i>(Pre-Merger) IO Barclays 13F</i>	-0.2836*** (-4.85)	<i>(Pre-Merger) IO Barclays 13F</i>	0.3094*** (5.44)	-0.0030*** (-14.22)	0.1576*** (6.48)
<i>IO Barclays 13F * Post-Merger</i>	-0.2570*** (-3.28)	<i>IO Barclays 13F * BR Offer</i>	-0.3227** (-2.25)	0.0002 (0.75)	-0.1022*** (-3.89)
<i>Change IO BlackRock</i>	-0.1463 (-0.80)	<i>IO Barclays 13F * Anti-trust</i>	-0.6576*** (-6.43)	0.0006** (2.55)	-0.0951*** (-3.81)
<i>Log MCap</i>	0.0066*** (9.46)	<i>IO Barclays 13F * Completion</i>	-0.2062*** (-2.66)	0.0011*** (5.38)	-0.0904*** (-3.60)
<i>Pastreturn</i>	0.0131** (2.51)	<i>(Pre-Merger) Residual IO 13F</i>	-0.0345*** (-6.07)	-0.0001*** (-7.38)	-0.0106*** (-4.43)
<i>Log BTM</i>	-0.0057*** (-2.89)	<i>Residual IO 13F * BR Offer</i>	0.0394*** (2.82)	0.0001*** (4.80)	-0.0015 (-0.60)
<i>Dividend Yield</i>	-0.0009* (-1.72)	<i>Residual IO 13F * Anti-trust</i>	0.0365*** (3.55)	0.0001*** (5.25)	0.0035 (1.42)
<i>ROE</i>	0.0002*** (5.99)	<i>Residual IO 13F * Completion</i>	0.0450*** (5.95)	0.0001*** (5.24)	0.0032 (1.28)
<i>Leverage</i>	-0.0193*** (-3.23)				
<i>Cash</i>	0.0149** (2.24)				
Controls:	Y		Y	Y	Y
Country & Industry F.E.:	Y		Y	Y	Y
Time F.E.:	Y		Y	Y	Y
Observations	9,771		58,795	58,287	58,686
Adjusted R <sup>2</sup>	0.19		0.07	0.28	0.58

**TABLE IA.III: REPLICATION OF TABLE II USING THE LEVEL OF INSTITUTIONAL OWNERSHIP AS DEPENDENT VARIABLE**

This table estimates specifications similar to the ones presented in table II, panel B. In contrast to table II, panel B, the specifications use the level of institutional ownership as the dependent variable. *Avg. Port. Weight* is the average portfolio weight of the stocks across all funds from institutions different from BlackRock or BGI (and their affiliates) in the FactSet database. The average is weighted by the TNA of the fund. *Residual IO* is the residual institutional ownership of the stock. Residual institutional ownership is defined as total institutional ownership excluding the institutional ownership associated with BlackRock or BGI funds. The use of fixed effects is indicated at the bottom of the table and \* / \*\* / \*\*\* indicate statistical significance at the 10% / 5% / 1% level respectively, computed from standard errors that allow for clustering at the stock level.

<i>Dependent Variable:</i>	(1)	(2)	(3)	(4)
	<i>Avg. Port. Weight (TNA weighted)</i>		<i>Residual IO</i>	
<i>(Pre-Merger) IO BGI</i>	-0.0053*** (-8.92)	-0.0055*** (-8.75)	4.0717*** (33.09)	4.2520*** (32.83)
<i>Post-Merger</i>	0.0001*** (3.55)		-0.0269*** (-5.41)	
<i>IO BGI * Post-Merger</i>	-0.0003** (-2.30)	-0.0004* (-1.66)	-0.2154*** (-3.33)	-0.4490*** (-4.60)
<i>Change IO BlackRock</i>	-0.0017*** (-4.39)	-0.0019*** (-4.71)	0.5193** (2.54)	0.5653*** (2.77)
<i>Log MCap</i>	0.0002*** (17.08)	0.0002*** (17.01)	0.0326*** (32.47)	0.0327*** (32.14)
<i>Pastreturn</i>	-0.0001*** (-9.99)	-0.0000*** (-5.31)	-0.0152*** (-5.64)	-0.0248*** (-7.52)
<i>Log BTM</i>	0.0000*** (7.79)	0.0000*** (7.14)	0.0040** (2.10)	0.0039** (1.99)
<i>Dividend Yield</i>	0.0000*** (4.68)	0.0000*** (3.84)	-0.0008* (-1.87)	-0.0006 (-1.32)
<i>ROE</i>	-0.0000** (-2.23)	-0.0000** (-2.55)	0.0002*** (5.13)	0.0002*** (5.51)
<i>Leverage</i>	-0.0000 (-1.03)	-0.0000 (-0.95)	0.0083 (1.29)	0.0091 (1.38)
<i>Cash</i>	0.0001** (2.29)	0.0001** (2.38)	-0.0345*** (-4.19)	-0.0346*** (-4.08)
Interacted Controls:	Y	Y	Y	Y
Interacted F.E.:	N	Y	N	N
Country & Industry F.E.:	Y	Y	Y	Y
Time F.E.:	N	Y	N	Y
Observations	22,305	22,305	20,683	20,683
Adjusted R <sup>2</sup>	0.37	0.37	0.62	0.62

#### TABLE IA.IV: INSTITUTIONAL OWNERSHIP CHANGES AROUND THE BLACKROCK-BGI MERGER – MATCHING STOCK ANALYSIS

The table presents changes in institutional ownership at the stock level around the BlackRock-BGI merger. As in table II, institutional ownership is measured in 2 different ways: *Change Avg. Port. Weight* is the average change in the portfolio weight of the stock across all funds from institutions excluding BlackRock or BGI (and their affiliates) in the FactSet database. The average is weighted by fund TNA. *Change Residual IO* is the change in residual institutional ownership of the stock. Residual institutional ownership is defined as total institutional ownership excluding the institutional ownership associated with BlackRock or BGI funds. The table compares these measures for the actual stocks that are held by at least one BGI fund with the measures for a matching stock. Panel A shows the univariate comparison of actual stocks and matched stocks. Panel B presents a multivariate analysis by including additional control variables to account for imperfections in the matching algorithms. Six different algorithms to select a matching stock are considered. All matching stocks come from the pool of stocks that are not held by any BGI fund prior to the merger (or are in the lowest decile of BGI's holdings). MATCH 1 matches every stock held by BGI funds prior to the merger with a corresponding stock from the same country of origin, within the same industry, that is closest in market capitalization. MATCH 2 amends MATCH 1 by matching every stock held by BGI funds prior to the merger with a stock from the same country of origin, within the same industry, that is closest in terms of market capitalization and book-to-market using a distance measure defined in the text. MATCH 3 amends MATCH 2 by also considering the total institutional ownership in the distance measure to select the matching stock. MATCH 4 matches every stock held by BGI funds prior to the merger with a stock from the same country of origin, within the same industry, that is closest in terms of market capitalization and CAPM beta using a distance measure. MATCH 5 amends MATCH 4 by matching every stock held by BGI funds prior to the merger with a stock from the same country of origin, within the same industry, that is closest in terms of market capitalization, book-to-market and CAPM beta using a distance measure. CAPM beta is computed as the average value of 36-month trailing beta in the semi-annual period before the merger. MATCH 6 matches every stock held by BGI funds prior to the merger with a stock from the same country of origin, within the same industry, that is closest in terms of market capitalization and pre-merger liquidity using a distance measure. Cells in the columns entitled "Actual Stock" display the average semi-annual change in the measure of institutional ownership for the actual stock held by at least one BGI fund between June and December 2009. The columns entitled "Matched Stock" display the same average change for the matching stocks and the columns entitled "Match – Actual" test the difference between the two changes. For every measure of institutional ownership, we test these differences for all BGI-held stocks, for the quintile of lowest BGI ownership and the quintile of highest BGI ownership. All the control variables in panel B are described in table II. \* / \*\* / \*\*\* indicate statistical significance at the 10% / 5% / 1% level respectively (p-values reported).

Panel A: Univariate comparison between actual stocks and matching stocks

Matching Stock:		MATCH 1			MATCH 2			MATCH 3		
Measure	Sample	Actual Stock	Matched Stock	Match - Actual	Actual Stock	Matched Stock	Match - Actual	Actual Stock	Matched Stock	Match - Actual
<i>Change Avg. Port. Weight (TNA weighted)</i>	All BGI Stocks	0.0605	0.0579	-0.0026 [0.364]	0.0622	0.1002	0.0380*** [0.000]	0.0633	0.0873	0.0240*** [0.000]
	Low BGI IO Quintile	0.0958	0.0901	-0.0057 [0.312]	0.1003	0.0985	-0.0018 [0.437]	0.1078	0.0949	-0.0129 [0.139]
	High BGI IO Quintile	0.0210	0.1015	0.0805*** [0.000]	0.0212	0.1819	0.1607*** [0.000]	0.0216	0.1272	0.1056*** [0.000]
	All BGI Stocks	0.0499	0.0963	0.0465*** [0.000]	0.0542	0.1215	0.0674*** [0.000]	0.0539	0.0594	0.0055 [0.156]
<i>Change Residual IO</i>	Low BGI IO Quintile	0.0562	0.0584	0.0022 [0.394]	0.0648	0.0776	0.0128* [0.089]	0.0616	0.0495	-0.0122* [0.092]
	High BGI IO Quintile	0.0234	0.2145	0.1911*** [0.000]	0.0246	0.2469	0.2223*** [0.000]	0.0264	0.1218	0.0954*** [0.000]
Matching Stock:		MATCH 4			MATCH 5			MATCH 6		
Measure	Sample	Actual Stock	Matched Stock	Match - Actual	Actual Stock	Matched Stock	Match - Actual	Actual Stock	Matched Stock	Match - Actual
<i>Change Avg. Port. Weight (TNA weighted)</i>	All BGI Stocks	0.0553	0.0712	0.0159** [0.014]	0.0562	0.0884	0.0322*** [0.000]	0.0598	0.1113	0.0516*** [0.000]
	Low BGI IO Quintile	0.0859	0.0980	0.0121 [0.156]	0.0880	0.0944	0.0064 [0.293]	0.0984	0.0912	-0.0072 [0.273]
	High BGI IO Quintile	0.0187	0.1224	0.1037*** [0.000]	0.0158	0.1686	0.1528*** [0.000]	0.0151	0.1895	0.1743*** [0.000]
<i>Change Residual IO</i>	All BGI Stocks	0.0476	0.1059	0.0584*** [0.000]	0.0505	0.1155	0.0649*** [0.000]	0.0528	0.1068	0.0540*** [0.000]
	Low BGI IO Quintile	0.0555	0.0750	0.0194** [0.026]	0.0603	0.0745	0.0141* [0.067]	0.0649	0.0713	0.0064 [0.265]
	High BGI IO Quintile	0.0214	0.2170	0.1956*** [0.000]	0.0242	0.2335	0.2093*** [0.000]	0.0204	0.1966	0.1761*** [0.000]

Panel B: Multivariate analysis

<i>Dependent Variable: Change Avg. Port. Weight (TNA weighted)</i>	(1) <i>Match 1</i>	(2) <i>Match 2</i>	(3) <i>Match 3</i>	(4) <i>Match 4</i>	(5) <i>Match 5</i>	(6) <i>Match 6</i>
<i>(Pre-Merger) IO BGI</i>	2.6303* (1.84)	2.9331** (2.23)	0.6942 (0.53)	1.3006 (1.02)	2.2774** (1.96)	2.5215 (1.48)
<i>Treated</i>	0.2415* (1.94)	0.1415 (1.21)	0.3152** (2.25)	0.0499 (0.42)	0.1908* (1.70)	0.2186 (1.41)
<i>IO BGI * Treated</i>	-5.9035*** (-3.19)	-6.1243*** (-3.72)	-4.4473** (-2.49)	-4.6757*** (-2.84)	-5.5177*** (-3.60)	-6.0900*** (-2.71)
<i>Change IO BlackRock</i>	1.1609 (1.06)	0.3501 (0.34)	-0.0752 (-0.06)	-0.0664 (-0.05)	0.0247 (0.02)	0.0601 (0.04)
<i>Log MCap</i>	0.0100 (0.49)	0.0010 (0.06)	0.0255 (1.22)	-0.0164 (-0.95)	0.0078 (0.49)	0.0243 (1.09)
<i>Pastreturn</i>	0.1253** (2.56)	0.1545*** (3.19)	0.0828 (1.59)	0.1808*** (3.26)	0.1880*** (3.95)	0.0001 (0.02)
<i>Log BTM</i>	0.0445 (1.18)	0.0515* (1.67)	0.0438 (1.39)	0.0474 (1.32)	0.0624** (1.97)	0.0541 (1.24)
<i>Dividend Yield</i>	-0.0024 (-0.42)	-0.0031 (-0.65)	-0.0061 (-1.11)	0.0018 (0.25)	-0.0026 (-0.51)	-0.0092 (-1.62)
<i>ROE</i>	0.0013* (1.76)	0.0015** (2.03)	0.0007 (0.48)	0.0005 (0.83)	0.0012* (1.67)	0.0038*** (2.73)
<i>Leverage</i>	0.1285 (1.13)	0.1544 (1.52)	0.3137*** (2.73)	0.1721 (1.64)	0.1670* (1.86)	0.1119 (0.70)
<i>Cash</i>	0.4470** (2.22)	0.1449 (0.83)	0.2667 (1.41)	0.1528 (1.10)	0.1675 (1.12)	0.3574 (1.62)
Interacted Controls (with Treated):	Y	Y	Y	Y	Y	Y
Country & Industry F.E.:	Y	Y	Y	Y	Y	Y
Observations	9,311	9,759	9,212	8,996	9,406	9,532
Adjusted R <sup>2</sup>	0.20	0.20	0.20	0.20	0.20	0.22

**TABLE IA.V: REPLICATION OF MAIN RESULTS REPLACING IO BGI WITH DELTA HERFINDAHL AS THE MAIN EXPLANATORY VARIABLE**

This table presents the regression estimates using a hypothetical increase in the Herfindahl index of ownership concentration in every stock due to the merger. This hypothetical increase in the Herfindahl index of ownership concentration is labeled *Delta Herfindahl* and is defined as the difference between the squared sum of pre-merger BlackRock and BGI ownership in every stock minus the sum of squares of the same two variables. Specifications in panel A, columns 1 and 2, mirror the ones in table II, panel B. Those in columns 3 and 4 of panel A mirror the specifications in table IA.I for the dependent variable *Change Residual IO*. Specifications in panel B mirror the ones in tables VIII to X. In all cases, the main explanatory variable (*Pre-Merger*) *IO BGI* is replaced by *Delta Herfindahl*. The use of fixed effects is indicated at the bottom of the table and \* / \*\* / \*\*\* indicate statistical significance at the 10% / 5% / 1% level respectively, computed from standard errors that allow for clustering at the stock level.

*Panel A: Peer Effects*

<i>Dependent Variable:</i>	(1)	(2)	(3)	(4)
			<i>Change Residual IO</i> <i>(TNA weighted)</i>	
<i>Delta Herfindahl</i>	-9.2294* (-1.9104)	-17.1832 (-1.4356)	-2.9052 (-0.3920)	-14.7160 (-1.0154)
<i>Delta Herfindahl * Post-Merger</i>	-13.1201** (-2.0035)	-14.8501* (-1.8935)		
<i>Delta Herfindahl * CVC</i>			-9.4854 (-0.9965)	-2.9577 (-0.2709)
<i>Delta Herfindahl * Merger</i>			-37.2909*** (-3.4001)	-39.5150*** (-3.0406)
<i>Delta Herfindahl * Post-Completion</i>			-3.4667 (-0.3998)	3.1871 (0.2960)
Controls & Interacted Controls:	Y	Y	Y	Y
Country & Industry F.E.:	Y	N	Y	N
Stock F.E.:	N	Y	N	Y
Time F.E.:	Y	Y	Y	Y
Observations	20,343	20,343	20,343	20,343
Adjusted R <sup>2</sup>	0.0625	0.3692	0.0657	0.3724

Panel B: Stock Market Effects

Dependent Variable:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Mkt.- adj. Returns		Amihud		Volatility		Idio. Volatility	
<i>Delta Herfindahl</i>	2.1319 (1.26)	5.3713* (1.72)	-0.0350*** (-6.13)	-0.0191*** (-5.12)	-0.9121 (-1.61)	1.2718** (2.20)	0.1571 (0.16)	3.1605*** (2.99)
<i>Delta Herfindahl * BR Offer</i>	-7.9848** (-2.16)	-9.6228** (-2.56)	0.0092** (2.12)	0.0112*** (3.51)	-0.1631 (-0.32)	-1.9124*** (-3.62)	-0.9740 (-1.13)	-4.3601*** (-4.69)
<i>Delta Herfindahl * Anti-trust</i>	-11.3925*** (-3.47)	-13.3452*** (-4.29)	0.0156*** (3.62)	0.0236*** (5.82)	-0.0179 (-0.04)	-2.1285*** (-4.16)	-0.9172 (-1.07)	-4.8926*** (-5.19)
<i>Delta Herfindahl * Completion</i>	0.9440 (0.38)	-0.4312 (-0.15)	0.0231*** (4.94)	0.0271*** (5.78)	0.6396 (1.13)	-2.2924*** (-3.77)	-0.0404 (-0.04)	-5.6450*** (-5.17)
<i>(Pre-Merger) Residual IO 13F</i>	-0.0155** (-2.47)	-0.2771*** (-10.79)	-0.0004*** (-14.35)	0.0000 (0.25)	-0.0025 (-1.29)	-0.0008 (-0.21)	0.0030 (0.95)	-0.0089 (-1.43)
<i>Residual IO 13F * BR Offer</i>	0.0132 (0.91)	0.0176* (1.67)	0.0001*** (4.68)	0.0001*** (5.56)	-0.0053*** (-2.86)	-0.0160*** (-10.70)	-0.0105*** (-3.58)	-0.0313*** (-12.93)
<i>Residual IO 13F * Anti-trust</i>	0.0271** (2.35)	-0.0170** (-2.00)	0.0002*** (5.89)	0.0001*** (3.50)	-0.0013 (-0.72)	-0.0162*** (-11.34)	-0.0044 (-1.52)	-0.0283*** (-11.85)
<i>Residual IO 13F * Completion</i>	0.0224** (2.51)	0.0501*** (6.46)	0.0002*** (8.34)	0.0001*** (6.53)	-0.0030 (-1.64)	-0.0152*** (-9.65)	-0.0083*** (-2.83)	-0.0303*** (-11.44)
Interacted Controls:	Y	Y	Y	Y	Y	Y	Y	Y
Country & Industry F.E. & Interactions:	Y	N	Y	N	Y	N	Y	N
Stock F.E.:	N	Y	N	Y	N	Y	N	Y
Time F.E.:	Y	Y	Y	Y	Y	Y	Y	Y
Observations	117,619	117,619	115,428	115,428	115,327	115,327	115,321	115,321
Adjusted R <sup>2</sup>	0.05	0.06	0.23	0.64	0.52	0.63	0.56	0.65

**TABLE IA.VI: BLACKROCK REBALANCING FOLLOWING THE MERGER**

This table estimates specifications using holding or trading variables of BlackRock-affiliated funds as the dependent variable. *IO BlackRock* is defined as the average portfolio weight in the stock of BlackRock-affiliated funds (where BlackRock-affiliation is determined prior to the merger with BGI), *Change IO BlackRock* is defined as changes in portfolio weight of the stocks across all Blackrock-affiliated funds, it is the same variable that is used in previous tables as a control variable. *IO BGI*, *Post-Merger* and *IO BGI\*Post-Merger* and control variables are defined the same as in table II, panel B. The use of fixed effects is indicated at the bottom of the table and \* / \*\* / \*\*\* indicate statistical significance at the 10% / 5% / 1% level respectively, computed from standard errors that allow for clustering at the stock level.

<i>Dependent Variable:</i>	(1)	(2)	(3)	(4)
	<i>IO Blackrock</i>	<i>IO Blackrock</i>	<i>Change IO BlackRock</i>	<i>Change IO BlackRock</i>
<i>(Pre-Merger) IO BGI</i>	0.0851*** (7.26)	0.0581*** (3.48)	-0.0047 (-0.86)	-0.0289** (-2.08)
<i>Post-Merger</i>	-0.0012*** (-2.86)	-0.0010** (-2.31)	0.0005** (2.40)	0.0007** (2.52)
<i>IO BGI * Post-Merger</i>	-0.0025 (-0.29)	0.0063 (0.71)	-0.0068 (-1.36)	-0.0102* (-1.70)
<i>Log MCap</i>	0.0010*** (14.03)	0.0006* (1.65)	0.0001*** (4.81)	-0.0005** (-2.28)
<i>Pastreturn</i>	-0.0009*** (-3.49)	-0.0007*** (-2.80)	0.0009*** (4.04)	0.0010*** (3.37)
<i>Log BTM</i>	0.0005*** (3.19)	-0.0001 (-0.39)	0.0001 (1.38)	-0.0003 (-1.41)
<i>Dividend Yield</i>	-0.0002*** (-5.40)	-0.0000 (-0.85)	-0.0000 (-0.48)	-0.0000 (-0.12)
<i>ROE</i>	0.0000 (0.58)	-0.0000 (-0.59)	0.0000* (1.87)	0.0000 (0.18)
<i>Leverage</i>	0.0000 (0.02)	0.0003 (0.19)	0.0003 (1.35)	-0.0012 (-1.33)
<i>Cash</i>	0.0014* (1.87)	0.0022* (1.72)	-0.0002 (-0.64)	-0.0014* (-1.74)
Interacted Controls:	Y	Y	Y	Y
Country & Industry F.E.:	Y	N	Y	N
Stock F.E.:	N	Y	N	Y
Time F.E.:	Y	Y	Y	Y
Observations	22,336	22,336	22,336	22,336
Adjusted R <sup>2</sup>	0.22	0.85	0.53	0.66