Does common ownership really increase firm coordination?

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- Institutional Investors and Corporate Governance: The Incentive to Be Engaged. With Jonathan Lewellen, The Journal of Finance. 77(1), 2022,pp213-264.
- Performance-induced CEO turnover. 2020. With Dirk Jenter, Review of Financial Studies, Vol. 34, 2021, pp. 569-617

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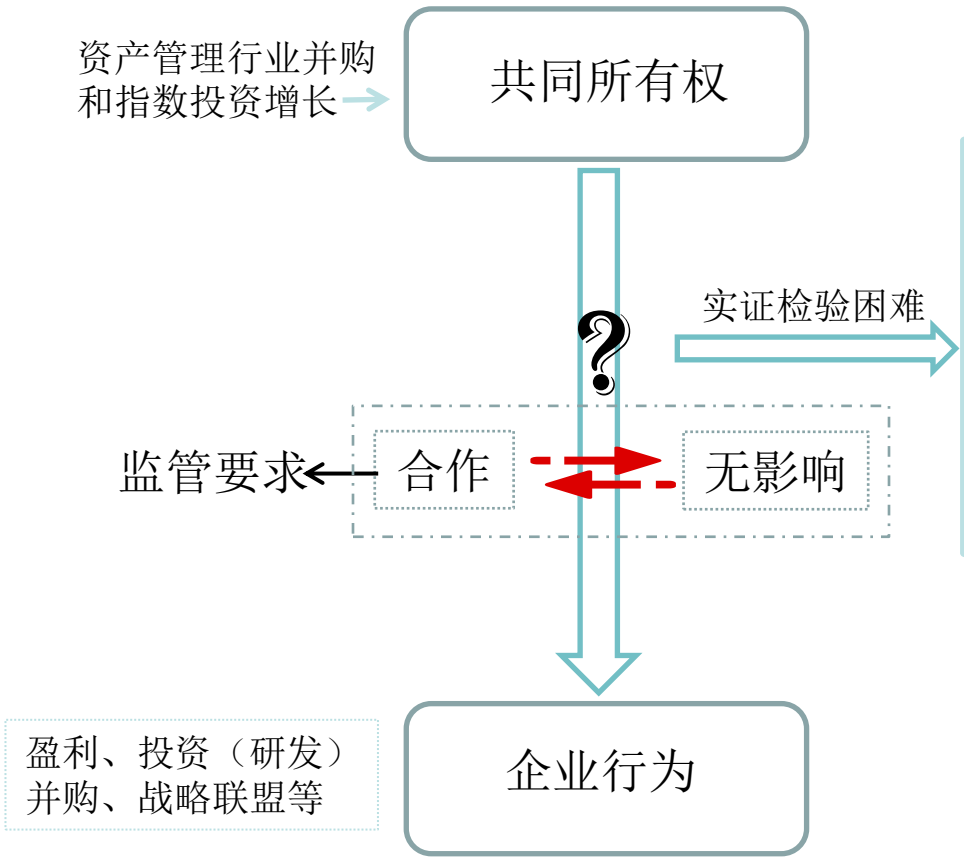
- Bucking the trend: why do IPOs choose controversial governance structures and why do investors let them?. Journal of Financial Economics 146 (Oct 2022):27-54.
- Information revelation through regulatory process: Interactions between the SEC and companies ahead of the IPO. Review of Financial Studies 33 (Dec 2020):5510-5554.

CONTENTS

Abstract

- A growing number of studies suggest that common ownership caused cooperation among firms to increase and competition to decrease.
- We take a closer look at four approaches used to identify these effects. We find that the effects that **some studies have attributed to common ownership are caused by other factors**, such as differential responses of firms (or industries) to the 2008 financial crisis.
- We **propose a modification to one of the previously used empirical approaches** that is less sensitive to these issues. Using this to re-evaluate the link between common ownership and firm outcomes, we **find little robust evidence that common ownership affects firm behavior**.

1. Introduction



度量 C-Index

识别

- a broad sample of mergers between financial institutions ✗
- the Blackrock/BGI merger ✗
- additions to the S&P 500 ✗
- reconstitutions of Russell 1000/2000 indices ✗

- mergers occurring during 2008 and 2009
- alternative control samples

2. Literature overview

Table 1
Empirical studies of the effects of common ownership. This table lists papers on the effects of common ownership written since 2017 (earlier versions of these papers may have been circulated before 2017). The list was compiled based on a journal and SSRN search at the time this paper was written.

Study	Outcome	Identification	Find effect
Antón et al. (2018)	Managerial incentives	Blackrock-BGI merger	Yes
Azar et al. (2019)	Prices of banking products	Banks' ownership by index funds	Yes
Azar et al. (2018)	Airline ticket prices	Blackrock-BGI merger	Yes
Bindal (2019)	Gross margin, R&D	Mergers of financial institutions	Yes
Brooks et al. (2018)	Merger likelihood	Russell reconstitution	Yes
Dennis et al. (2020)	Airline ticket prices	OLS regressions	No
Freeman (2019)	Customer-supplier relationships	Mutual fund flows	Yes
Gutiérrez and Philippon (2017)	Investment	OLS regressions	Yes
He and Huang (2017)	Performance, mergers, joint ventures, strategic alliances	Mergers of financial institutions	Yes
He et al. (2019)	Institutions' votes against management	Mergers of financial institutions	Yes
Kennedy et al. (2017)	Airline ticket prices	Blackrock-BGI merger, Russell reconstitution, structural estimation	No
Kini et al. (2019)	Product market threats from rival firms	Mergers of financial institutions	Yes
Koch et al. (2020)	Investment, SGA, advertising expenses	OLS, mergers of financial institutions	No
Kostovetsky and Manconi (2020)	Patent citations	Russell reconstitution	Yes
Kwon (2017)	Relative Performance Evaluation	S&P 500 Additions	Yes
Liang (2016)	Relative Performance Evaluation	Blackrock-BGI merger	Yes
Semov (2017)	Cash holdings	Mutual fund flows	Yes
Torshizi and Clapp (2021)	Seed prices	OLS regressions	Yes
Xie and Gerakos (2020)	Patent litigation settlements	Blackrock-BGI merger	Yes

3. Data

- Institutional holdings: 1980 to March 2013 period, Refinitiv
  June 2013 to 2015 period, WRDS
  missing data, EDGAR
- Mmergers, joint ventures, and strategic alliances Securities Data: Company (SDC) database of Refinitiv
- S&P 500 additions, CRSP
- Financial statement information, Compustat
- Information on Russell Index reconstitutions, FactSet

4. Measurement of cross-ownership

We form a product of a shareholder's stakes in the two firms and aggregate the products across all common shareholders:

$$\text{Pair-level C-Index}_{j,k} = \sum_{i=1}^{N} \mu_{i,j} * \mu_{i,k} \qquad (1)$$

where $\mu_{i,j}$ ($\mu_{i,k}$) equals the ownership percentage of investor i in firm j (firm k).

This firm-pair measure can be aggregated across all of a firm's rivals to form a firm-level measure:

$$\text{Firm-level C-Index}_{j} = \sum_{k=1}^{K} \sum_{i=1}^{N} w_k * \mu_{i,j} * \mu_{i,k} \qquad (2)$$

where w_k represents the weight of each rival firm k, and μ_{ij} and μ_{ik} represent investor i's ownership percentages in each firm.

4. Measurement of cross-ownership

These measures can be further aggregated to obtain industry-level measures, as used in other studies. For example, aggregating the firm-level measure across all firms in an industry yields:

$$\text{Industry-level C-Index} = \sum_{j=1}^{J} \sum_{k \neq j}^{K} \sum_{i=1}^{N} w_j * w_k * \mu_{i,j} * \mu_{i,k} \quad (3)$$

Deflating this expression by the squared holdings of manager i in firm j provides a measure that is analogous to the Modified Hirschmann-Herfindahl Index (MHHI) delta developed by O'Brien and Salop (2000) and employed by Azar et al. (2018a).

$$MHHI\ Delta = \sum_{j=1}^{J} \sum_{k \neq j}^{K} \frac{\sum_{i=1}^{N} w_j * w_k * \mu_{i,j} * \mu_{i,k}}{\sum_{i}^{N} \mu_{i,j} * \mu_{i,j}} . \quad (4)$$

5. Evidence on cross-ownership using financial institutions mergers

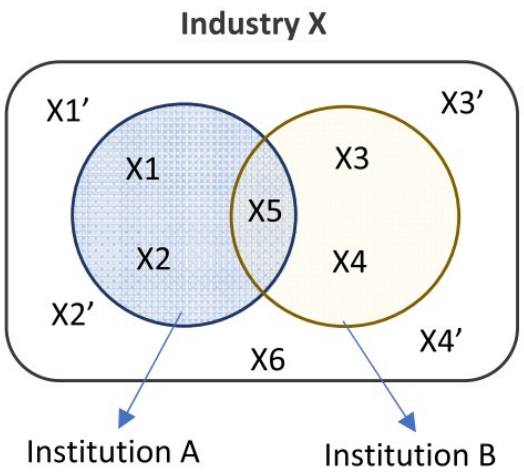
5.1. Sample

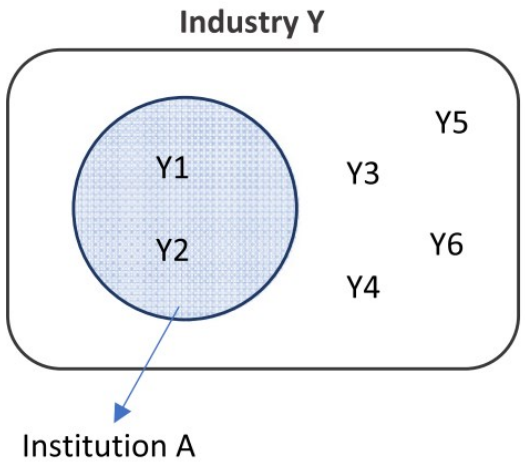
- We form a sample of financial institution mergers broadly following the criteria outlined in He and Huang (2017), with several modifications.

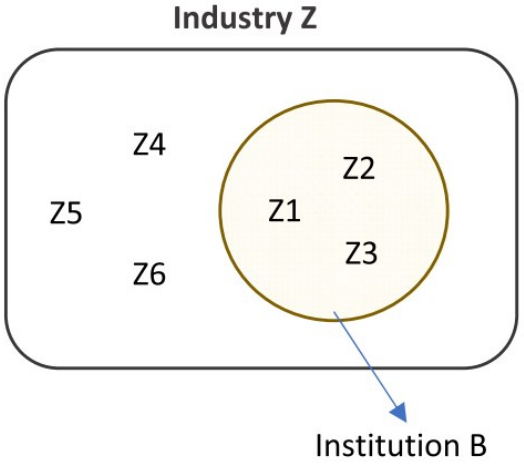
  This process generates a sample of 248 financial institution mergers, 64 of which meet our criteria for the selection of treatment firms (described below).

- We construct both treatment and control samples around the financial institution mergers following the procedure in He and Huang (2017).

  The resulting sample of treatment firms consists of 1894 pairs (947 firm combinations), across 934 firms.







FOR PAIR-LEVEL ANALYSES:

Treatment Pairs	Control Pairs
X1 - X3	X1 - X3'
X1 - X4	X1 - X4'
X2 - X3	X2 - X3'
X2 - X4	X2 - X4'
X3 - X1	X3 - X1'
X4 - X1	X4 - X1'
X3 - X2	X3 - X2'
X4 - X2	X4 - X2'

FOR FIRM-LEVEL ANALYSES:

Treatment Firms: Firms that are block-held by one of the merger partners with some industry rivals being block-held by the other partner (firms block-held by both partners are excluded).
X1, X2, X3, X4

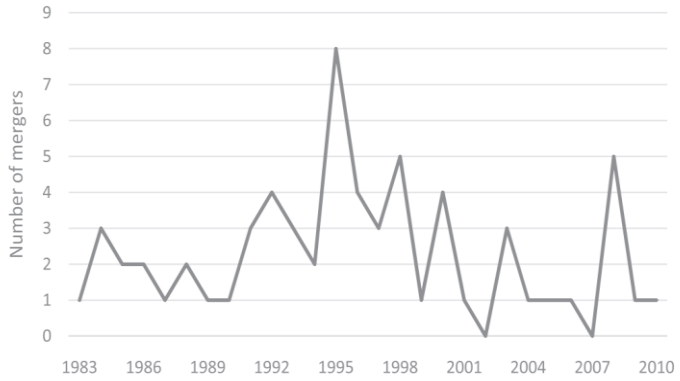
Control Firms^{DI}: Firms block-held by one merger partner with no industry rivals block-held by the other partner.
Y1, Y2, Z1, Z2, Z3

Control Firms^{SI}: Firms matched to Treatment Firms based on industry and size and not block-held by the merging institutions:
X1', X2', X3', X4'

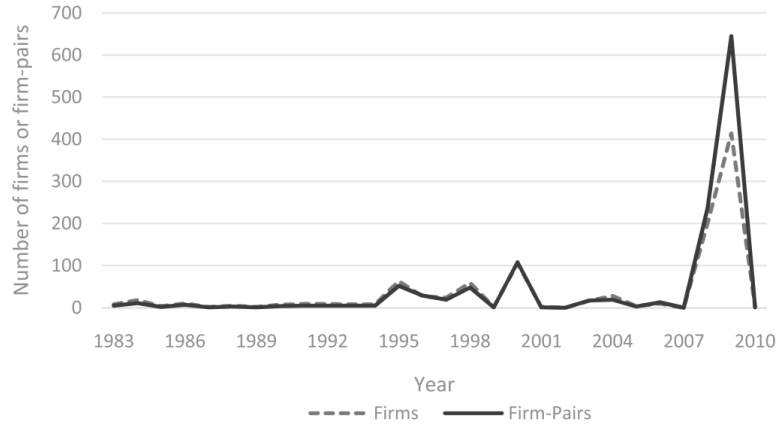
5.2. Identification challenges

One potential concern is that the occurrence of the financial institution mergers is correlated with broader trends in the affected industries.

Panel A: The number of financial institution mergers



Panel B: The number of treatment firms and firm-pairs associated with the financial institution mergers



Panel C: Average size of merging institutions

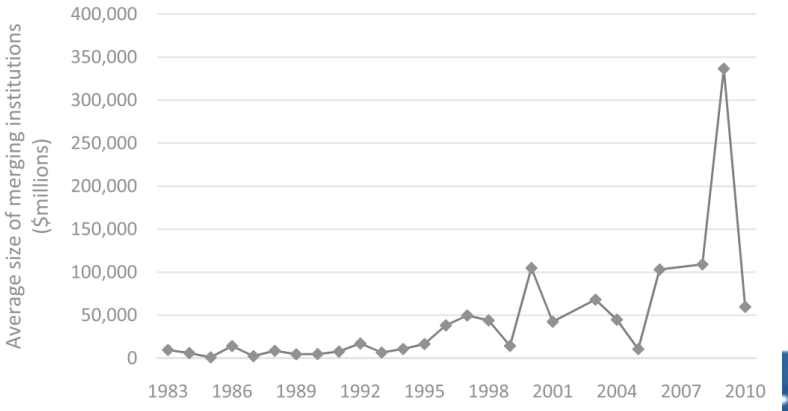


Table 2

Financial characteristics of the treatment and control samples for the financial institution merger analysis. The table shows descriptive statistics for the Treatment Firms and Control Firms^{DI} (as described in Section 5.1) for the analysis of the financial institution mergers in Tables 4 and 5. All variables are for the fiscal year of the effective date of the merger. The number of observations with non-missing market capitalization data are 936 (Treatment) and 3306 (ControlFirms^{DI}). *B/M* is the book-to-market ratio. *R&D* is the ratio of R&D expenditures to total assets with R&D set to zero wherever missing. *PPE* is the ratio of property, plant, and equipment plus inventory to total assets. *Leverage* is the ratio of long-term and short-term debt to total assets. *ROA* is the ratio of operating income to lagged assets. *Market Share* is computed based on the firm's industry sales. *Institutional Own* is the fraction of institutional ownership to total market capitalization. *Block Own* is the fraction of institutional block ownership to total market capitalization, with blocks defined as ownership stakes of at least 5% of equity. All variables are winsorized at 1%.

	Treatment Firms		Control Firms^{DI}	
	Mean	Median	Mean	Median
Total Assets ($mil.)	3541.48	530.72	4633.88	748.63
Market Cap. ($mil.)	2672.13	614.32	2257.22	589.81
B/M	0.66	0.56	0.81	0.69
R&D	0.07	0.02	0.02	0.00
PPE	0.30	0.23	0.39	0.40
Leverage	0.26	0.22	0.34	0.33
ROA	0.08	0.11	0.11	0.11
Market Share	0.09	0.01	0.22	0.05
Institutional Own	0.69	0.75	0.66	0.71
Block Own	0.25	0.24	0.25	0.23

5.3. Cross-ownership changes around financial institution mergers

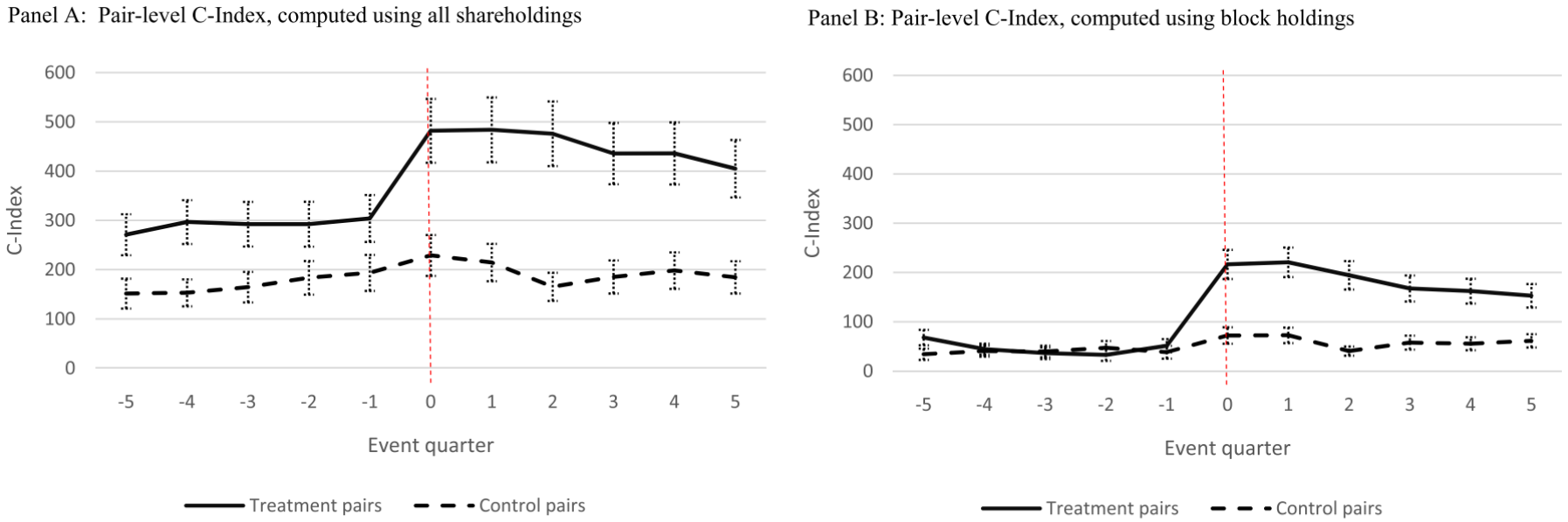


Fig. 2. Pair-level Cross-ownership Index (C-Index) for treatment and control pairs around mergers of financial institutions. Treatment and Control Pairs are described in Section 5.1. Event quarters are quarter −5 to 5 around the quarter of the financial institution merger effective date. *C-Index* for a pair of firms (j,k) is constructed by summing up products of each common owner's (i) ownership stakes in the two firms: $\sum_i^N \mu_{ij} * \mu_{ik}$ (details are in Section 4). The products are multiplied by 10,000. The figures include the 95% confidence intervals. In Panel A, all ownership stakes of common owners are counted in the construction of the index. In Panel B, only 5% blocks are counted and cross-ownership involving smaller stakes is set to zero.

5.3. Cross-ownership changes around financial institution mergers

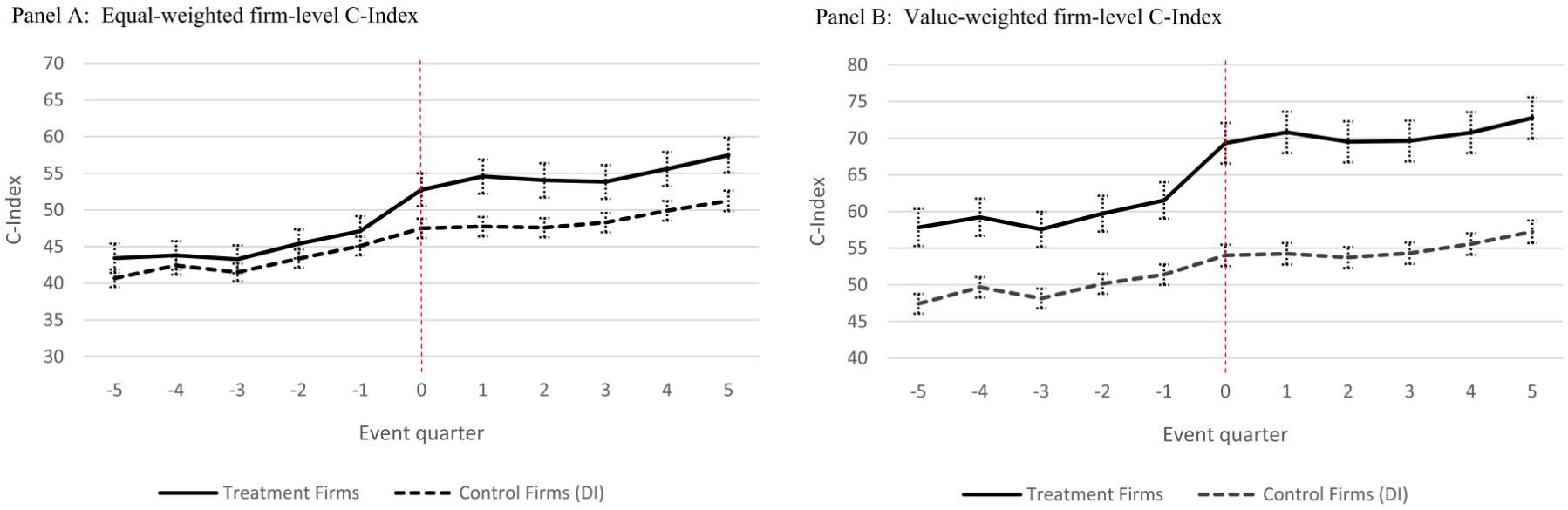


Fig. 3. Firm-level Cross-ownership index (C-Index) for treatment and control firms around mergers of financial institutions. Treatment Firms and Control Firms^{DI} are described in Section 5.1. Event quarters are quarter −5 to 5 around the quarter of the financial institution merger effective date. *C-Index* for a firm (j) is constructed by averaging the pair-level indices across all of firm j's competitors (k), either equal weighting or value-weighting the pair-level indices: $\sum_i^N \sum_k^K w_k * \mu_{ij} * \mu_{ik}$. Value-weighting is done using the competitor's market capitalization. The indices are multiplied by 10,000. The figures include the 95% confidence intervals.

Table 3

Descriptive statistics for the Cross-ownership Index (C-Index): treatment and control samples for the financial institution merger analysis. The table shows descriptive statistics for the C-Index for the treatment and control samples used in the analysis of financial institution mergers in the quarter before the effective date of the merger. Panel A shows pair-level C-Index for the Treatment and Control Pairs samples, and Panel B shows firm-level C-Index for the Treatment and Control Firms[DI]. *C- Index* for a pair of firms (j,k) is constructed by summing up products of each common owner's (i) ownership stakes in the two firms: $\sum_i^N \mu_{ij} * \mu_{ik}$. The products are multiplied by 10,000. C-Index for a firm (j) is constructed by averaging the pair-level indices across all of firm j's competitors (k), either equal-weighting or value-weighting the competitor's indices: $\sum_i^N \sum_k^K w_k * \mu_{ij} * \mu_{ik}$. Value-weighting is done using the competitor's market capitalization. All variables are winsorized at 1%. See details in Section 4.

Panel A. Pair-level C-Index	Mean	Median	Std Dev	Min	P25	P75	Max	*N*
All ownership stakes								
Treatment Pairs	297.1	56.7	687.3	0.0	12.0	250.6	4337.1	947
Control Pairs	194.5	31.5	535.2	0.0	5.9	135.9	4337.1	978
Block ownership stakes								
Treatment Pairs	48.6	0.0	191.7	0.0	0.0	0.5	1700.0	947
Control Pairs	35.3	0.0	182.4	0.0	0.0	0.0	1700.0	978
Panel B: Firm-level C-Index	**Mean**	**Median**	**Std Dev**	**Min**	**P25**	**P75**	**Max**	**N**
Equal-weighted C-Index								
Treatment Firms	45.99	46.51	30.20	0.01	17.62	67.09	127.14	934
Control Firms[DI]	45.25	38.67	34.59	0.00	15.24	67.76	127.14	3249
Value-weighted C-Index								
Treatment Firms	60.17	60.51	36.75	0.01	26.79	86.70	140.63	934
Control Firms[DI]	51.82	46.89	38.34	0.00	18.15	77.01	140.63	3302

Table 4

Differences-in-differences regressions of Cross-ownership Index (C-Index) around mergers of financial institutions. The sample in Panel A consists of Treatment and Control Pairs (as described in Section 5.1) in quarters −5 to 5 around the quarter of the financial institution merger effective date. The dependent variable is the pair-level C-Index, constructed using either all ownership stakes or using blocks of 5% or more (see details in Section 4). *Treat* equals one for Treatment Pairs and zero for Control Pairs. *After* is an indicator for quarters 0 to 5. The regressions include firm-merger fixed effects, quarter fixed effects, and the *After* dummy. The sample in Panel B includes Treatment and Control Firms^{DI}, (as described in Section 5.1) in quarters −5 to 5 around the merger effective date. The dependent variable is a firm-level C- index, constructed either equal-weighting or value-weighting the competitor firms (see details in Section 4). *Treat* equals one for treatment and zero for control firms. *After* is an indicator for quarters 0 to 5. The regressions include firm-merger fixed effects, quarter fixed effects and the *After* dummy. Standard errors are clustered on the firm level. Standard errors are in parentheses. ***, **, * indicate *p*-values of less than 0.01, 0.05, and 0.1.

	All Mergers		Blackrock-BGI merger		All but 2008 and 2009	
Panel A: Pair-level regressions						
	All Stakes	Blocks	All Stakes	Blocks	All Stakes	Blocks
Treat × After	130.651***	113.073***	128.033***	131.965***	180.516***	96.803***
	(19.043)	(11.338)	(18.160)	(14.433)	(53.935)	(23.546)
N	20,370	20,370	11,705	11,705	5573	5573
Quarter FE	Y	Y	Y	Y	Y	Y
Firm-Merger FE	Y	Y	Y	Y	Y	Y
Panel B: Firm-level regressions – Control Firms^{DI}						
	EW	VW	EW	VW	EW	VW
Treat × After	2.330***	3.923***	4.735***	5.075***	0.443	3.061***
	(0.460)	(0.620)	(0.914)	(1.134)	(0.536)	(0.888)
N	45,138	45,707	11,290	11,484	22,595	22,780
Quarter FE	Y	Y	Y	Y	Y	Y
Firm-Merger FE	Y	Y	Y	Y	Y	Y

5.4. The effects of cross-ownership on firm choices

5.4.1. Baseline results

Table 5

Differences-in-differences regressions of ROA and R&D around financial institutions mergers: baseline control sample. The table shows the results of regressions of *ROA* and *R&D* in fiscal years −3 to 3 around financial institution mergers. The sample consists of Treatment Firms and Control Firms^{DI} (as described in Section 5.1). Control Firms^{DI} are block-held by the merging institutions before the merger but come from different industries than Treatment Firms. *Treat* equals one for treatment firms and zero for control firms. *After* is an indicator for fiscal years 1 to 3. The table shows separately regressions based on all mergers, the Blackrock-BGI merger, and all mergers except those in 2008 and 2009. *ROA* is operating income scaled by lagged assets. *R&D* is R&D expenditure scaled by total assets with missing values set to zero. The variables are winsorized at 1%. The regressions include firm-merger fixed effects, fiscal year fixed effects and the *After* dummy. Standard errors are clustered on the firm level and the year level. Standard errors are in parentheses. ***, **, * indicate *p*-values of less than 0.01, 0.05, and 0.1.

	Full Sample		Blackrock – BGI merger		All but 2008 and 2009	
Dependent Var.:	ROA	R&D	ROA	R&D	ROA	R&D
Treat × After	0.012*	−0.004**	0.024**	−0.006*	−0.005	−0.000
	(0.006)	(0.002)	(0.008)	(0.003)	(0.010)	(0.002)
N	21,542	21,879	6140	6167	9523	9786
Fiscal Year FE	Y	Y	Y	Y	Y	Y
Firm-Merger FE	Y	Y	Y	Y	Y	Y

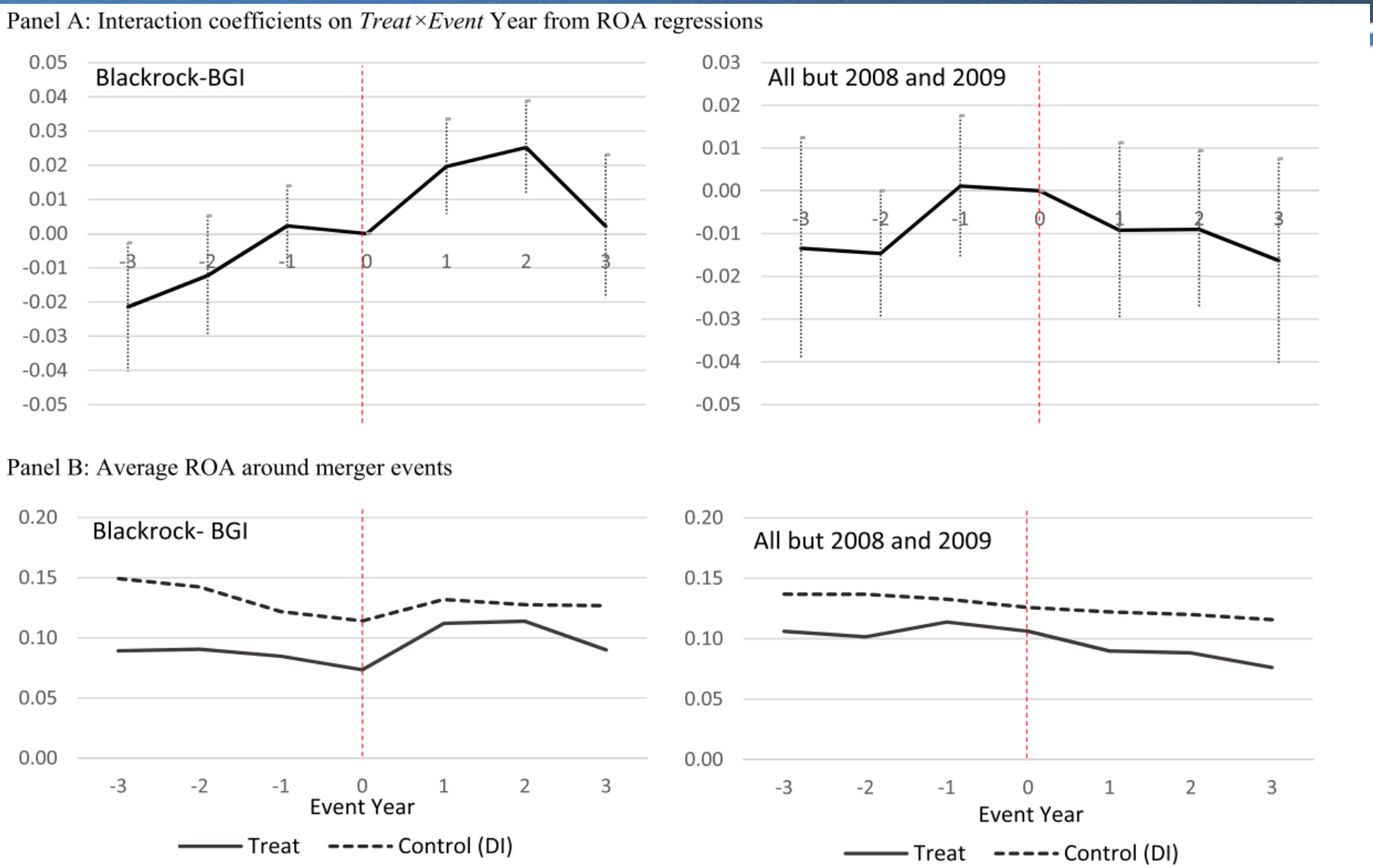


Fig. 4. Firm performance around financial institution mergers. Panel A: Interaction coefficients on Treat×Event Year from ROA regressions. Panel B: Average ROA around merger events. Panel A shows interaction coefficients on *Treat*× *Event Year* from *ROA* regressions similar to those in Table 5, columns 3 and 5, except that the dummy variable *Treat* is interacted with indicators for event years (*Event Year*). *ROA* is measured as operating income scaled by lagged assets. Panel B shows average *ROA* for Treatment Firms and Control Firms[DI] during fiscal years −3 to 3 around the year of the financial institution merger. In the left panel, the sample is restricted to the Blackrock-BGI merger; in the right panel, the sample includes all financial institution mergers outside of the 2008–2009 period. The top panels include the 95% confidence intervals.

5.4.2. Industry effects behind the spurious results

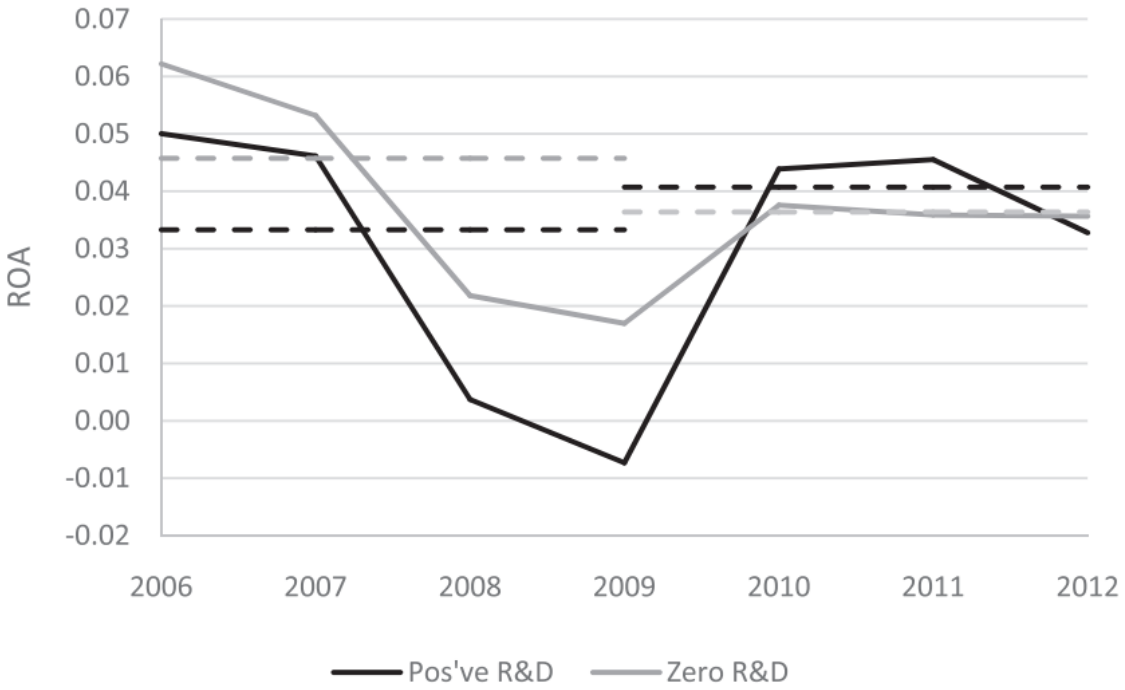


Fig. 5. Average ROA in years around Blackrock-BGI merger for firms representative of the treatment and the control samples. We compare the 423 firms with positive R&D (similar to the Treatment sample) and the 743 firms with zero R&D (similar to the Control Firms^{DI} sample). Both samples are constructed from Control Firms^{DI}, with Treatment Firms excluded. The solid lines show the sample average ROA for each year; the dashed lines show sample ROA averaged across the three years before and after 2009. .

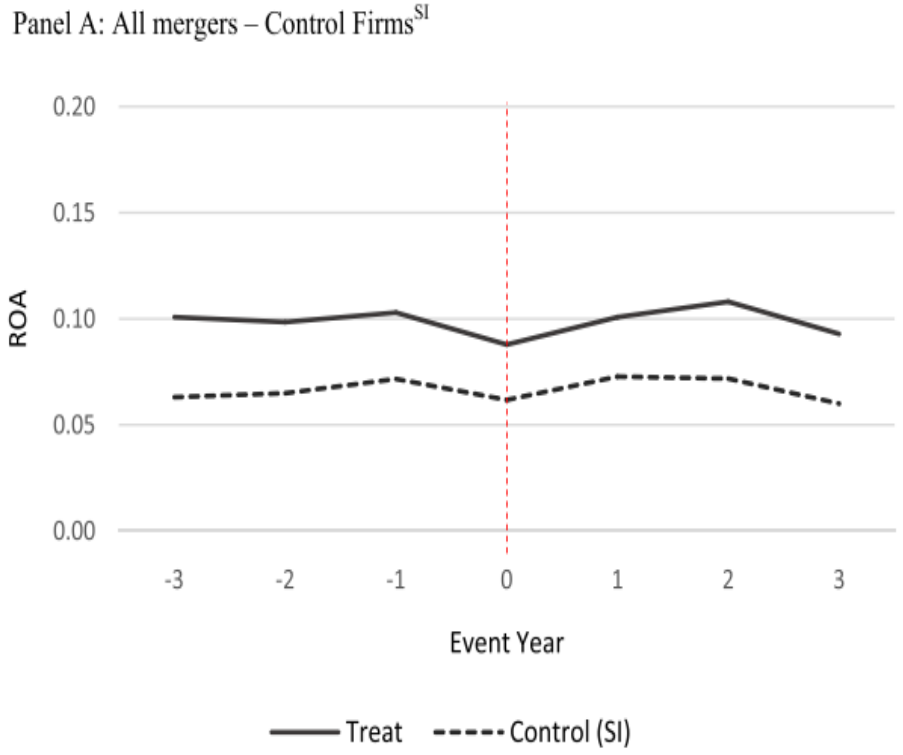
Treatment Firms come disproportionally from high growth industries such as drugs (SIC 283, representing 15.0% of the treatment sample) and computer & data processing services (SIC 737, 11.0% of sample). In contrast, the two most common industries in Control FirmsDI include commercial banks (SIC 602, 9.4% of sample) and electronic components & accessories (SIC 367, 3.1% of sample).

5.4.3. Effects of common ownership based on alternative control samples

Table 6

Differences-in-differences regressions of ROA and R&D around financial institutions mergers: alternative control samples. The table shows regressions of *ROA* and *R&D* in fiscal years −3 to 3 around financial institution mergers. In Panel A, the sample consists of Treatment Firms and Control Firms^{SI}. Control Firms^{SI} are matched with the Treatment firms on 3-digit SIC industry and size, and have at least one institutional blockholder. In Panel B, the sample consists of Treatment Firms and Control Firms^{DIM}. Control Firms^{DIM} come from different 3-digit SIC industries than Treatment Firms, are matched with Treatment Firms on size and R&D, and have at least one institutional blockholder. The details of sample construction are in Section 5.4.3. Each panel tabulates *Treat*×*After*, where *Treat* equals one for treatment firms and zero for control firms, and *After* is an indicator for fiscal years 1 to 3. The table shows separately regressions based on all mergers, the Blackrock-BGI merger, and all mergers except those in 2008 and 2009. *ROA* is operating income scaled by lagged assets. *R&D* is R&D expenditure scaled by total assets with missing values set to zero. The variables are winsorized at 1%. The regressions also include firm-merger fixed effects, fiscal year fixed effects and the *After* dummy. Standard errors are clustered on the firm level and the year level. Standard errors are in parentheses. ***, **, * indicate *p*-values of less than 0.01, 0.05, and 0.1.

	Full Sample		Blackrock – BGI merger		All but 2008 and 2009	
Dependent Var.:	ROA	R&D	ROA	R&D	ROA	R&D
Panel A: Control firms from the same industries: Control Firms^{SI}						
Treat × After	−0.004	0.000	−0.008	−0.000	−0.005	0.002
	(0.007)	(0.003)	(0.011)	(0.004)	(0.010)	(0.004)
N	8908	9041	3808	3842	3215	3304
Fiscal Year FE	Y	Y	Y	Y	Y	Y
Firm-Merger FE	Y	Y	Y	Y	Y	Y
Panel B: Control firms from different industries, matched on R&D: Control Firms^{DIM}						
Treat × After	0.002	0.001	0.003	0.000	0.006	0.002
	(0.006)	(0.002)	(0.009)	(0.004)	(0.011)	(0.003)
N	9534	9672	4240	4275	3346	3436
Fiscal Year FE	Y	Y	Y	Y	Y	Y
Firm-Merger FE	Y	Y	Y	Y	Y	Y



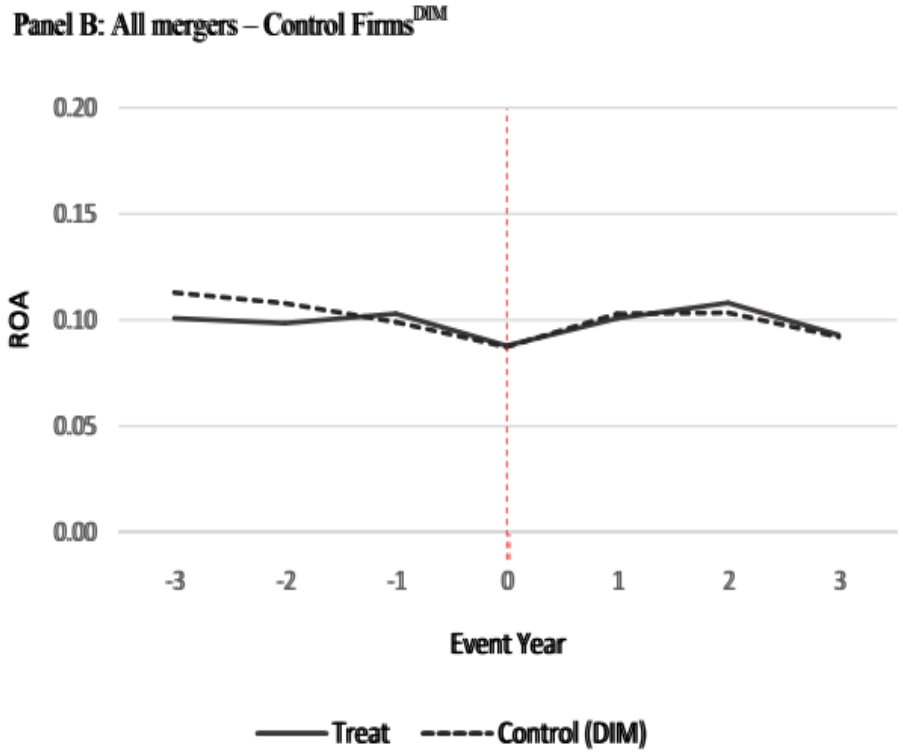


Fig. 6. Firm performance around financial institution mergers: alternative control samples. Panel A: All mergers – Control Firms^{SI}. Panel B: All mergers – Control Firms^{DIM}. Panel A shows *ROA*, measured as operating income scaled by lagged assets, for Treatment Firms and Control Firms^{SI} during fiscal years –3 to 3 around the year of the financial institution merger. Panel B is analogous but uses Treatment Firms and Control Firms^{DIM}. Control Firms^{SI} are matched with the Treatment Firms on 3-digit SIC industry and size, and have at least one institutional blockholder. Control Firms^{DIM} come from different 3-digit SIC industries than Treatment Firms, are matched on size and R&D, and have at least one institutional blockholder. The details of sample construction are in Section 5.4.3.

5.4.4. Effects of common ownership on alternative outcome variables

Table 7

Differences-in-differences regressions of other outcome measures, around financial institution mergers.

Dependent Variable:	ROA (After Depr.)	R&D + CapEx	Margin	Cash	ΔMarket Share
Panel A: Baseline control sample (Control Firms^{DI}), with full sample of mergers					
Treat × After	0.013**	−0.004	0.034*	−0.010*	0.001*
	(0.006)	(0.003)	(0.019)	(0.005)	(0.001)
N	21,710	21,274	21,754	21,872	19,410
Fiscal Year FE	Y	Y	Y	Y	Y
Firm-Merger FE	Y	Y	Y	Y	Y
Panel B: Baseline control sample (Control Firms^{DI}) – Blackrock-BGI merger					
Treat × After	0.024**	−0.006	0.050	−0.026**	0.002
	(0.009)	(0.004)	(0.030)	(0.009)	(0.001)
N	9658	9197	9714	9780	5643
Fiscal Year FE	Y	Y	Y	Y	Y
Firm- Merger FE	Y	Y	Y	Y	Y
Panel C: Baseline control sample (Control Firms^{DI}) - all mergers but 2008 and 2009					
Treat × After	−0.003	−0.000	−0.005	0.006	0.000
	(0.009)	(0.003)	(0.023)	(0.007)	(0.001)
N	9658	9197	9714	9780	8280
Fiscal Year FE	Y	Y	Y	Y	Y
Firm-Merger FE	Y	Y	Y	Y	Y
Panel D: Alternative control sample (Control Firms^{SI}) – with full sample of mergers					
Treat × After	−0.004	0.002	−0.042	−0.006	0.000
	(0.007)	(0.004)	(0.029)	(0.007)	(0.001)
N	8956	8589	8869	9036	8479
Fiscal Year FE	Y	Y	Y	Y	Y
Firm-Merger FE	Y	Y	Y	Y	Y

5.4.5. Do lower common ownership thresholds lead to similar outcomes?

Table 8

Differences-in-differences regressions of the effects of financial institutions mergers using alternative ownership thresholds. The table shows regressions of firm-level outcome variables in fiscal years −3 to 3 around financial institution mergers. The sample consists of Treatment Firms and Control Firms^{DI} constructed using alternative thresholds for cross-ownership, as described in Section 5.4.5. The thresholds are 1–2% in Panel A and 0.5–1% in Panel B. Control Firms^{DI} are block-held by the merging institutions before the merger but come from different industries than Treatment Firms. *Treat* equals one for treatment firms and zero for control firms. *After* is an indicator for fiscal years 1 to 3. The table shows separately regressions based on all mergers, the Blackrock-BGI merger, and all mergers except those in 2008 and 2009. *ROA* is operating income scaled by lagged assets. *R&D* is R&D expenditure scaled by total assets with missing values set to zero. *Margin* is the ratio of operating income after depreciation to sales, where sales are required to be at least 1% of assets. Δ*Market Share* is the change in the fraction of the firm's sales on total industry sales. All variables are winsorized at 1%. The regressions include firm-merger fixed effects, fiscal year fixed effects and the *After* dummy. Standard errors are clustered on the firm level and the year level. Standard errors are in parentheses. ***, **, * indicate *p*-values of less than 0.01, 0.05, and 0.1.

	Full Sample				Blackrock-BGI Merger				All but 2008 and 2009			
Dependent Var.:	ROA	R&D	Margin	ΔMarket Share	ROA	R&D	Margin	ΔMarket Share	ROA	R&D	Margin	ΔMarket Share
Panel A: Cross-owners' stakes are 1% to 2%												
Treat × After	−0.001	−0.001	0.005	0.001*	0.019*	−0.003	0.068*	0.007**	−0.004	−0.001	0.002	0.000
	(0.003)	(0.001)	(0.008)	(0.001)	(0.009)	(0.002)	(0.035)	(0.003)	(0.003)	(0.001)	(0.007)	(0.001)
N	84,788	86,247	85,707	75,090	3685	3762	3666	3457	73,058	74,347	74,021	64,327
Fiscal Year FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Firm-Merger FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Panel B: Cross-owners' stakes are 0.5% to 1%												
Treat × After	0.001	−0.001*	0.008	0.001***	0.014*	−0.004	0.041*	0.006**	−0.001	−0.001	0.002	0.001***
	(0.002)	(0.001)	(0.005)	(0.000)	(0.007)	(0.002)	(0.019)	(0.002)	(0.002)	(0.001)	(0.004)	(0.000)
	131,144	133,399	132,813	114,723	2969	3004	2972	2655	118,432	120,561	120,065	103,243
Fiscal Year FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Firm-Merger FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

Internet Appendix Table A10: Difference-in-difference regressions of Cross-ownership Index around mergers of financial institutions using alternative thresholds for cross-ownership.

	All Mergers		Blackrock-BGI merger		All but 2008 and 2009	
	EW	VW	EW	VW	EW	VW
Panel A: Firm-level regressions using 5% threshold						
Treat × After	2.330***	3.923***	4.735***	5.075***	0.443	3.061***
	(0.460)	(0.620)	(0.914)	(1.134)	(0.536)	(0.888)
N	45,138	45,707	11,290	11,484	22,595	22,780
Quarter FE	Y	Y	Y	Y	Y	Y
Firm-Merger FE	Y	Y	Y	Y	Y	Y
Panel B: Firm-level regressions using 1-2% threshold						
Treat × After	-0.653***	-0.191	-0.191	1.870	-0.654***	-0.410
	(0.190)	(0.269)	(1.397)	(1.438)	(0.186)	(0.291)
N	180,923	182,903	7,443	7,571	156,729	158,298
Quarter FE	Y	Y	Y	Y	Y	Y
Firm-Merger FE	Y	Y	Y	Y	Y	Y
Panel C: Firm-level regressions using 0.5-1% threshold						
Treat × After	-0.549***	0.097	-1.017	0.910	-0.629***	0.060
	(0.135)	(0.201)	(1.227)	(1.259)	(0.136)	(0.210)
N	272,521	275,853	5,729	5,889	247,937	250,790
Quarter FE	Y	Y	Y	Y	Y	Y
Firm-Merger FE	Y	Y	Y	Y	Y	Y

5.4.6. The effects on mergers, joint ventures, and strategic alliances

Table 9

The analysis of mergers, joint ventures, and strategic alliances following financial institution mergers. Panel A shows the overall frequency of mergers, joint ventures (JVs), or strategic alliances (SAs) for the Treatment Firms (with any partner or with an industry peer) within the three years following the financial institution merger. Panel B shows the frequency of these events for the Treatment Pairs (left column) and Control Pairs (right column).

Panel A: Descriptive statistics for the frequency of mergers, JVs, and SAs for Treatment Firms	# Firms	Percent
# Treatment Firms in year −1	1048	
Firms involved in a merger, JV, or SA in following 3 years	298	28.40%
Firms involved in a merger, JV or SA within same industry, in following 3 years	162	15.5%
JV and SA cases	62	5.9%
Merger cases	109	10.4%

Panel B: Pair-level analysis of mergers, JVs and SAs	Treatment Pairs	Control Pairs
# pairs in year −1	2492	2448
# pairs involved in the event in years 1 to 3	2	2
Percent of pairs	0.08%	0.08%
Percent of all events involving Treatment Firm in years 1 to 3	0.67%	0.70%

6. Evidence on cross-ownership using index additions

Table 10

Descriptive statistics for the firms entering the S&P 500 and for the firms enteringthe Russell2000 from the Russell1000 from 1980 to 2015. All variables are for the fiscal year of entry. Benchmark firms are firms matched with the entering firms in the quarter prior to entry on their 3-digit SIC code and market capitalization. There are 804 firms entering S&P 500 and 1972 firms entering Russell2000 with non-missing market capitalization data. The corresponding numbers for benchmark firms are 776 and 1933. *R&D* is the ratio of R&D expenditures to total assets with R&D set to zero wherever missing. *PPE* is the ratio of property, plant, and equipment plus inventory to total assets. *Leverage* is the ratio of long-term and short-term debt to total assets. *ROA* is the ratio of operating income to lagged assets. *Stock return* is the sum of monthly returns over the fiscal year. *Institutional Own* is the fraction of institutional ownership to total market capitalization. *Block Own* is the fraction of institutional block ownership to total market capitalization, with blocks defined as ownership stakes of at least 5% of equity. All variables are winsorized at 1%.

	Entering Firms		Benchmark Firms	
	Mean	Median	Mean	Median
Panel A: S&P 500 additions				
Total Assets ($mil.)	12,039.75	3484.76	12,174.27	3317.40
Market Cap. ($mil.)	10,152.46	6768.36	7841.09	5113.11
B/M	0.49	0.39	0.58	0.48
R&D	0.02	0.00	0.02	0.00
PPE	0.41	0.39	0.42	0.43
Leverage	0.32	0.29	0.34	0.32
ROA	0.21	0.19	0.17	0.16
Stock return	0.22	0.19	0.18	0.18
Institutional Own	0.62	0.63	0.56	0.59
Block Own	0.11	0.09	0.12	0.08
Panel B: Entries into Russell2000 from Russell1000				
Total Assets ($mil.)	2022.17	826.55	1201.14	466.12
Market Cap. ($mil.)	985.18	804.52	865.19	680.40
B/M	0.84	0.67	0.67	0.54
R&D	0.03	0.00	0.03	0.00
PPE	0.45	0.47	0.43	0.44
Leverage	0.35	0.34	0.31	0.30
ROA	0.10	0.10	0.15	0.14
Stock return	−0.06	−0.02	0.13	0.13
Institutional Own	0.50	0.49	0.46	0.45
Block Own	0.15	0.12	0.14	0.11

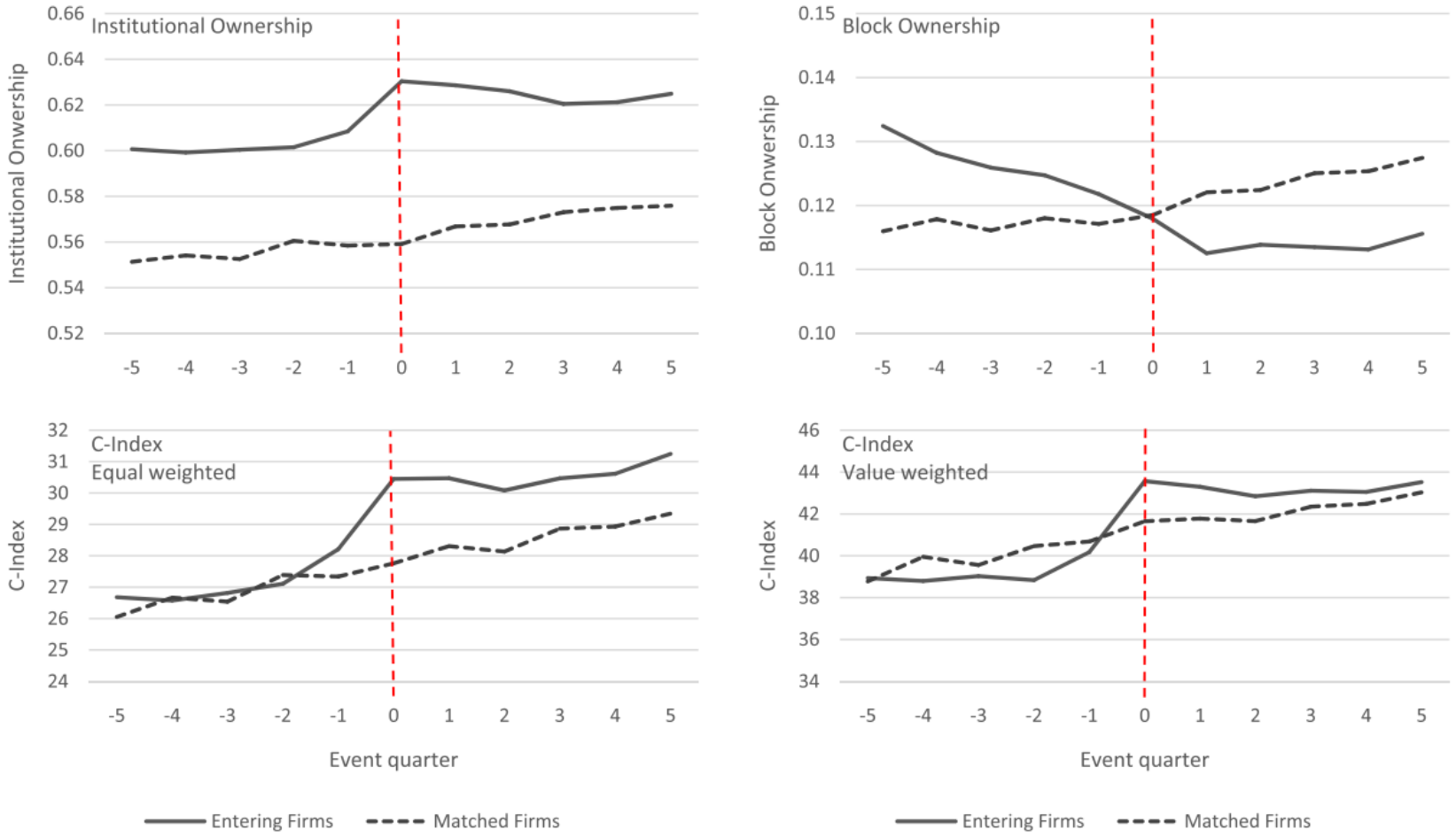


Fig. 7. Firm-level Cross-ownership Index and institutional ownership around S&P 500 additions. Entering Firms and Matched Firms are described in Section 6.1. Event quarters are quarters −5 to 5 around the entry quarter. Cross-ownership Index (C-Index) for a firm (j) is constructed by averaging the pair-level indices across all of firm j's competitors (k), either equal weighting or value-weighting the pair-level indices: $\sum_i^N \sum_k^K w_k * \mu_{ij} * \mu_{ik}$. Value-weighting is done using the competitor's market capitalization. The indices are multiplied by 10,000. See details in Section 4. Institutional ownership and Block ownership are expressed as a fraction of market capitalization.

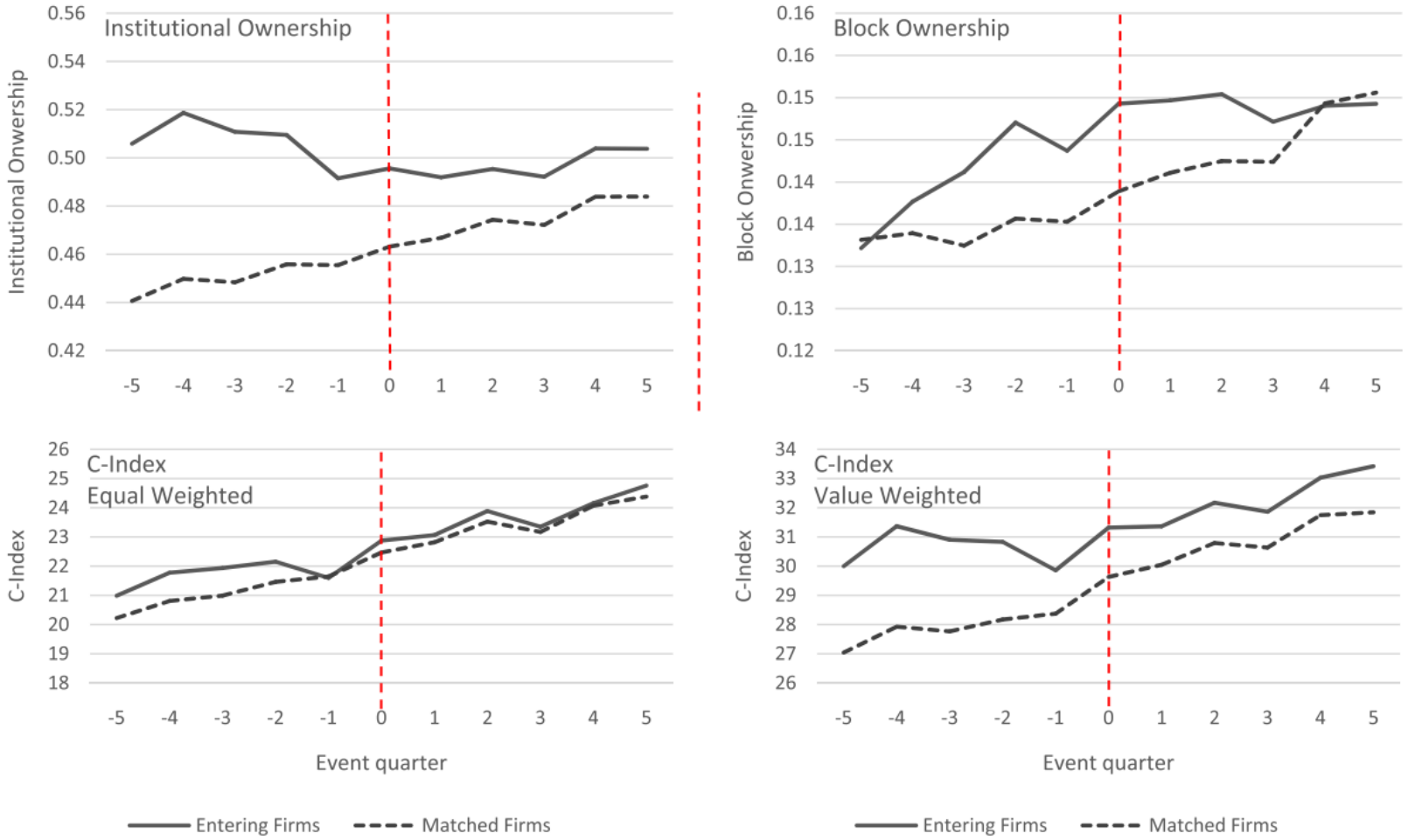


Fig. 8. Firm-level Cross-ownership Index and institutional ownership around firms' entry into Russell2000 from Russell1000. Entering Firms and Matched Firms are described in Section 6.2. Event quarters are quarters −5 to 5 around the entry quarter. Cross-ownership Index (C-Index) for a firm (j) is constructed by averaging the pair-level indices across all of firm j's competitors (k), either equal weighting or value-weighting the pair-level indices: $\sum_i^N \sum_k^K w_k * \mu_{ij} * \mu_{ik}$. Value-weighting is done using the competitor's market capitalization. The indices are multiplied by 10,000. See details in Section 4. Institutional ownership and Block ownership are expressed as a fraction of market capitalization.

7. Conclusion

- There would likely be costs to limiting common ownership. A careful examination of the issue is warranted.
- Across multiple potential sources of identification, we conclude that most do not represent viable methods of isolating the effects of common ownership.
- We propose two sources of identification that are less sensitive to these issues: financial institutions mergers outside of the 2008–2009 period, or a more complete sample of mergers with close matching of treatment and control firms.
- We find no evidence that common ownership causes increases in firm coordination. We attribute prior evidence that common ownership causes these effects to a combination of inappropriate instruments and inappropriate control samples.

THANKS !