Market Response to Racial Uprisings

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Motivation

- **Recent events have triggered public attention related to police behavior**
  - BLM movement led to a debate about the role of police in our society
    - ⇑ Police resources to fight crime vs. reform the police
    - Discussion about "defunding the police" post-killing of George Floyd
  - **Q:** Did the BLM movement produce a decline in valuations of firms contracting with policing?

- **To motivate our analysis we asked 418 online respondents:** How much a portfolio worth \$100 of stocks from companies that contract intensively with police would be worth 21 days after the killing of George Floyd?

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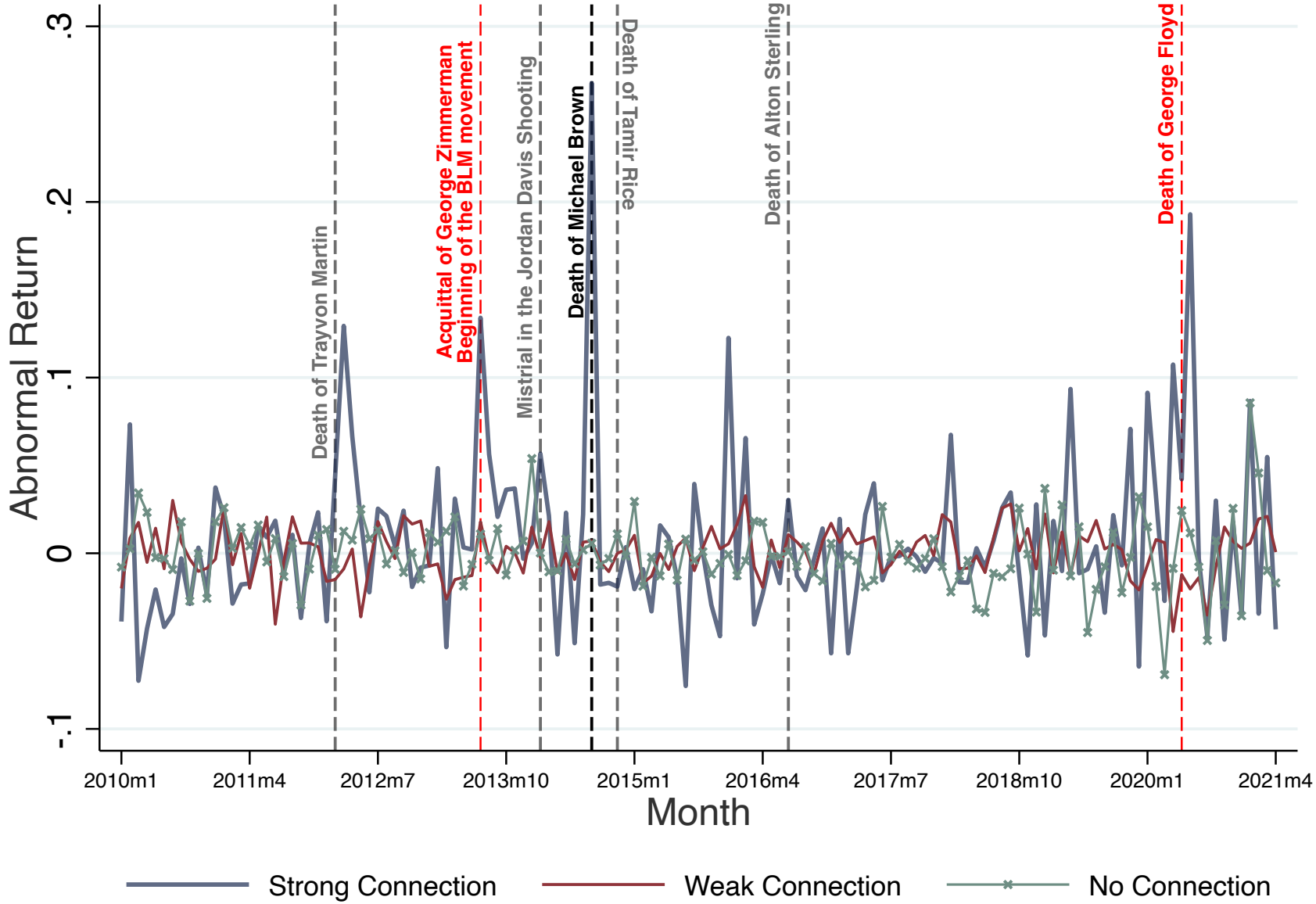
  - Respondents predicted: (1) ⇓ \$21, (2) $Pr(Decrease) = 0.88$

The Story Looks More Complicated

"I had a really interesting call with a major city police chief where we were talking about **the defunding** *phenomenon and what happened. [...]* **his net budget was actually increased, fairly significantly, for body cameras and transparency tools.** *So in that respect, he was pleasantly surprised that* **the whole defunding discussion actually led, for their agency, to a better place**" (Axon (2020))

BLM and Firms Tied to Police

Market valuation of racial uprisings in the U.S.



This Paper

Market valuation of racial uprisings in the U.S.

- **Overview**
  - Study the impact of BLM on publicly traded firms
  - Clarify the different policy views on policing
  - Connect our results to the discussion on policing:
    - ⋆ **Crime control** vs. **police reform** vs. **police abolition**
- **Research design**
  - New data of publicly traded firms tied to policing in the U.S.
  - Estimate causal effect of viral incidents tied to BLM
    - ⋆ Compare connected firms to firms in similar industries but without exposure to policing

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Preview of the Findings

- **Short-run Analysis**
  - **Only strongly connected firms responded to viral events**
    - ⋆ On average, returns $\Uparrow 7pp$ compare to their synthetic counterfactual
    - ⋆ Larger effects for George Floyd + Michael Brown killings
    - ⋆ Larger effects for firms focusing on surveillance technology and BWC
  - Results driven by firms with high share of public sector clients
  - Modest to no effect on other viral events
- **Long-run Impact of Trayvon Martin killing**
  - Investing in firms with strong connections $\Rightarrow \Uparrow 76pp$, only
- **Impact of the "Defund" Movement on Profits**
  - $\Uparrow$ profits $\Rightarrow$ Driven by sales $\Uparrow \$1$ Billion
  - Firms' future performances bore out investors' positive expectations

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Literature Review

- **Firm-level exposure to risks:** **political connections** (Fisman (2001); Knight (2006); Fisman et al. (2012); Jayachandran (2006); Acemoglu et al. (2016)), **economic or political uncertainties** (Snowberg et al. (2007); Pastor and Veronesi (2012); Baker et al.(2016); Hassan et al. (2019, 2021)), **pandemics** (Altig et al.(2020); Hassan et al.(2021)), **protests** (Acemoglu et al. (2018); El-Mallakh(2020); Archibong et al. (2022))

- **Government contracts on firms performance:** **surveillance** (Beraja et al. (2020); Beraja et al. (2021)), **political economy** (Hart et al. (1997); Ferraz et al. (2015); Kang and Miller (2021); Spenkuch et al. (2021))

- **Externalities of policing :** **police militarization** (Mummolo (2018)), **misconduct and aggressive policing** (Ba (2018); Hoekstra and Sloan (2020); Ba et al. (2021)), **surveillance and predictive policing** (Wang (2018); Benjamin (2019); Acemoglu (2021),Rivera (2022)), **fines and forfeitures** (Goncalves and Mello (2021); Graham and Makowsky (2021); Makowsky et al. (2019)), **protests** (DiPasquale and Glaeser (1998); Cunningham and Gillezeau (2019)), **education** (Ang (2020b)), **spending** (Derenoncourt (2022))

Outline

Policy Discourse on Policing

Crime Control vs. Reform vs. Police Abolition

- **Crime Control**
  - More police resources to fight crime, identify suspects, and conduct investigations
  - Investment in predictive policing or other surveillance technologies
  - E.g: data analytics tools, gun shot detection, dispatch, drones, etc.

- **Police Reform**
  - Advocate for more accountability tools
  - E.g: training, body-worn cameras, oversight agencies, etc.
  - Main criticism: continue or expand the reach of policing without reducing harm and violence on marginalized groups (Gilmore (2007); Vitale (2017))

- **Police Abolition**
  - Origin: Prison Abolition literature (Davis (2011))
  - Reducing the scale of policing
  - Shifting funds from police to non-policing alternatives
    - ⋆ $\Rightarrow$ **"Defund the police"**

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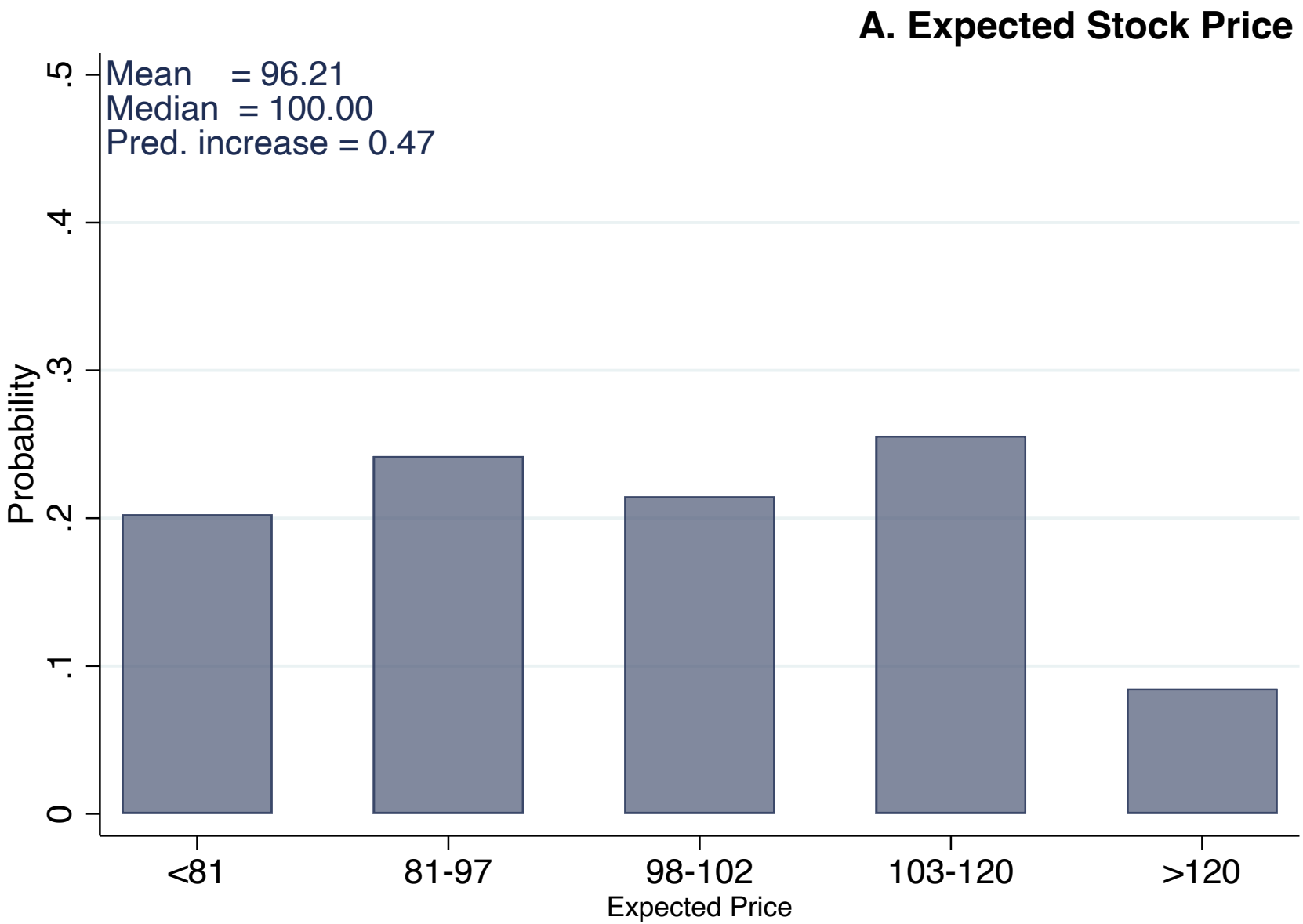
Economic Experts Forecasts

Experts' Beliefs



Potential Impact of Viral Events

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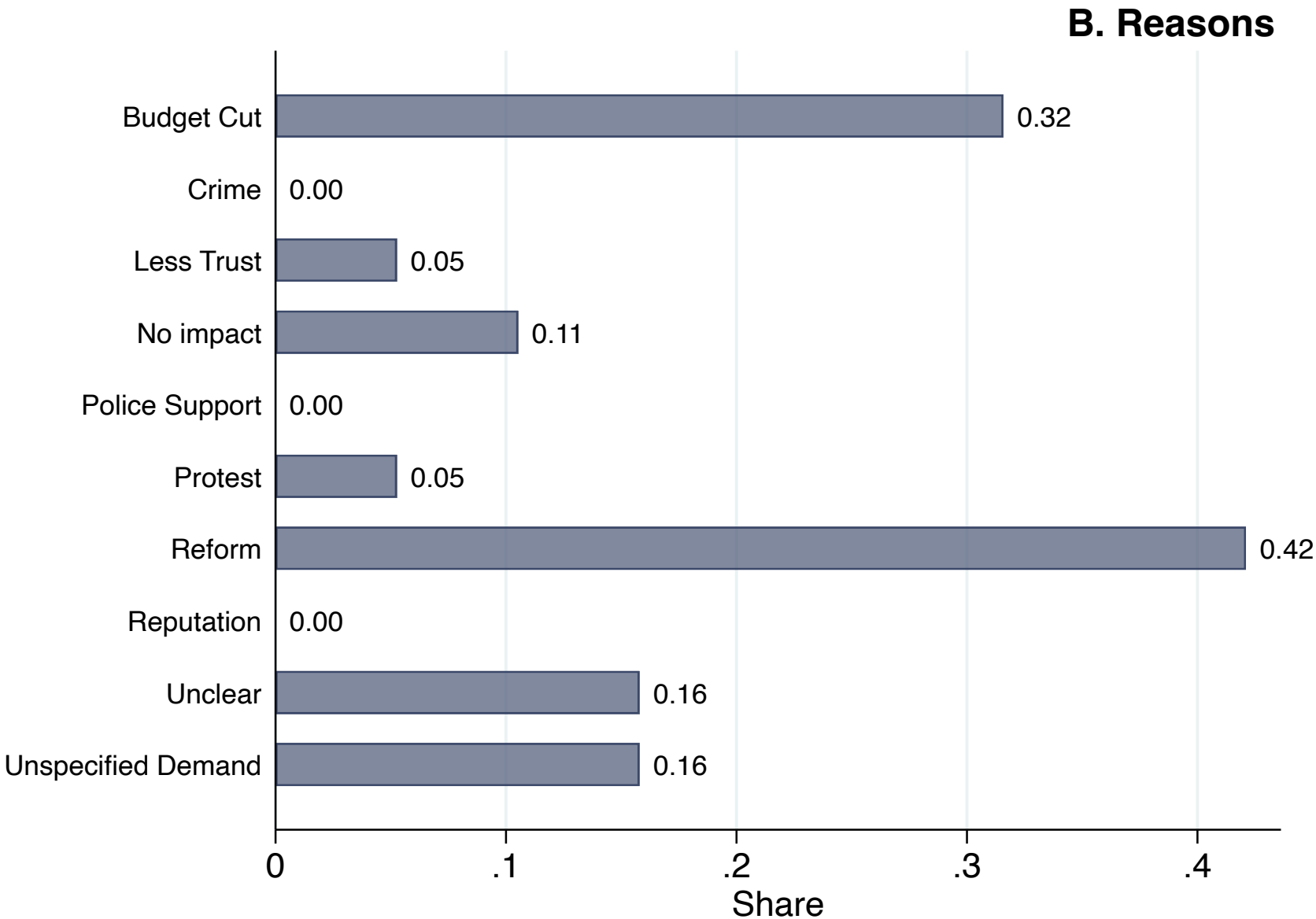
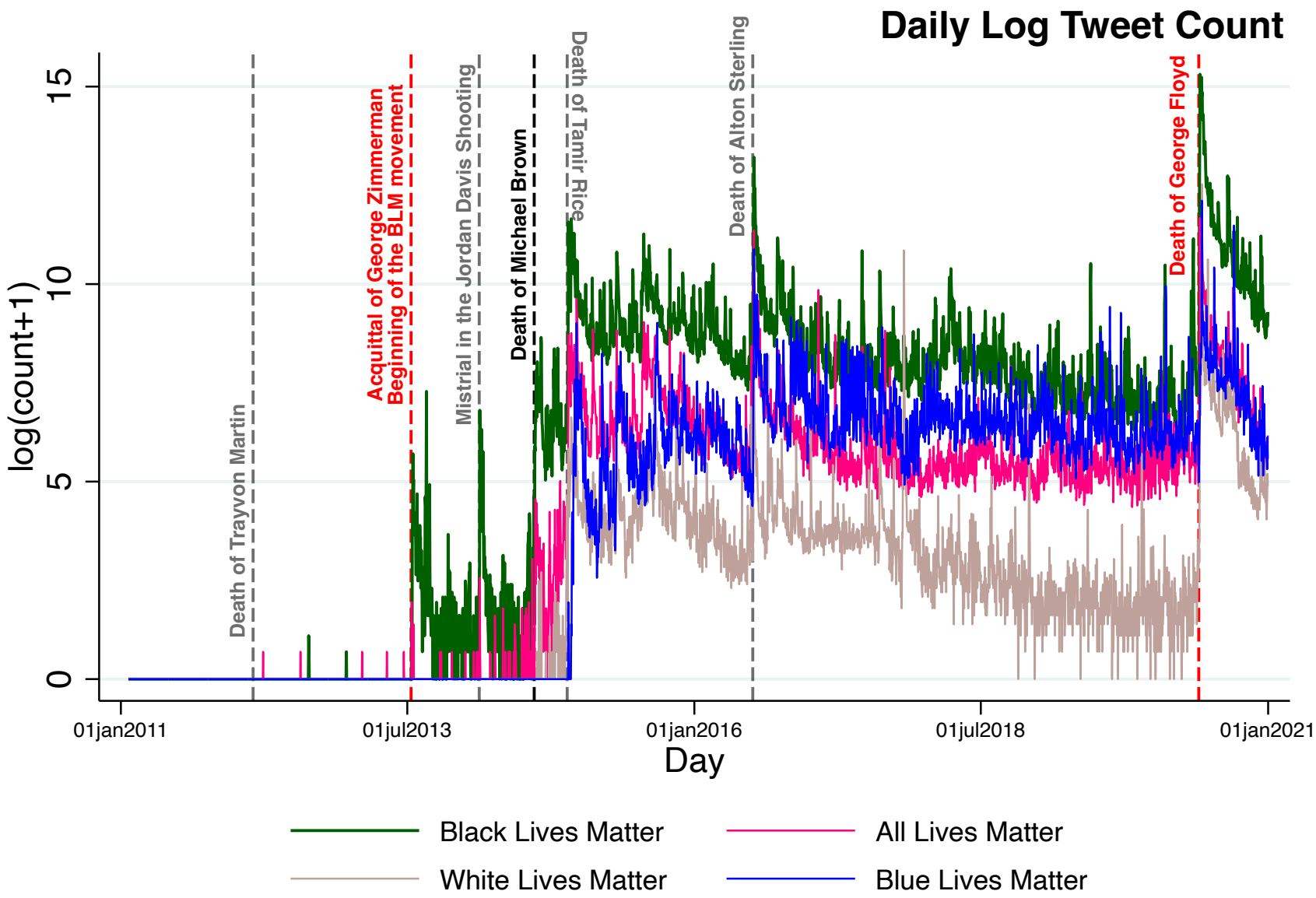


Timeline

Growth of BLM + countermovement hashtags



Timeline

Origin of the BLM Movement

- **Death of Trayvon Martin on February 26, 2012:** Trayvon Martin, 17 years-old, was fatally shot by George Zimmerman, a 28-year-old neighborhood watch coordinator.

- **Acquittal of George Zimmerman on July 13, 2013:** Zimmerman was acquitted, sparking the creation of the hashtag #BlackLivesMatter and the beginning of the BLM movement.

- **Mistrial in the Jordan Davis Shooting on February 15, 2014:** Jordan Davis, a 17-year-old, was killed in November 2012 by Michael Dunn, a 45-year-old software developer. In February 2014, Dunn was convicted of an attempted murder, but jurors were unable to come to an agreement regarding the first-degree murder charge for killing Davis, leading to a mistrial.

Timeline

Post-Ferguson

- **Death of Michael Brown on August 9, 2014:** The first high-profile BLM protests in connection to incidents of police violence occurred in the summer of 2014, following the death of Eric Garner in July. Shortly thereafter, the killing of Michael Brown by Ferguson Police officer Darren Wilson in August 2014 prompted further protests related to BLM.

- **Death of Tamir Rice on November 22, 2014:** Tamir Rice, a 12-year-old boy, was killed by Timothy Loehmann, a Cleveland police officer.

- **Death of Alton Sterling on July 5, 2016:** Alton Sterling was killed by police in Baton Rouge. Shortly after, Philando Castile was killed by an officer in the Minneapolis–Saint Paul metropolitan area. The events of July 2016 also involved the killing of police officers in Dallas and Baton Rouge.

- **Death of George Floyd on May 25, 2020:** A Minneapolis police officer, Derek Chauvin, killed George Floyd. This event led to massive protests across the U.S. and around the world.

Data

Atlas of the Police Industrial Complex

- **Overview**
  - Roster: identify key players in the police industry
    - ⋆ Actors: firms, community org., policymakers, police, etc.
    - ⋆ Directory of vendors contracting with policing from 2010 to 2021
    - ⋆ Firms appearing in the magazines + conferences
  - **This project: Publicly traded firms**
- **Supplemental Data**
  - EDGAR: 10K form filings, i.e. annual financial report (audited)
  - Stock information from CRSP, WRDS Beta Suite, and Compustat
  - Bloomberg Client Database to identify share of government customers
  - Anti-Defamation League data + The Violence Project Mass Shooting database

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Data Cleaning

- **Sample Selection**
  - Public firms incorporated in the U.S. and listed between 2013 and 2020
  - Mass shootings: most deadly shootings from 2010 and 2020
  - White-supremacists events: murder of at least one person + $\geq$ 100 Google News articles from search: "[full name of the attacker] + white supremacy"
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Treated + Control Groups

- **Connected firms**
  - **Step 1:** identify words associated to policing in 10k (Hassan et al. (2021))
    - ⋆ $Exposure_{it}^{Police} = \frac{1}{K_{it}} \sum_{k=1}^{K_{it}} 1(k \in \Gamma_{Police})$ where $\Gamma_{Police} = \{$police, policing, law enforcement, sheriff, trooper$\}$
  - **Step 2:** Average exposure for each firm and define strong connection if above the 75th percentile, weak otherwise
    - ⋆ **Strong connections**: Axon, ShotSpotter, Motorola, Smith & Wesson, etc.
    - ⋆ **Weak connections**: 3M, Amazon, AT&T, Microsoft, HP, Ford, Cisco, etc.
- **Control Group**
  - Firms facing similar economic and labor market conditions as connected firms
    - ⋆ $\Rightarrow$ Firms in the same states and 4-digits SIC
  - **Donor pool:** firms in the same industries but without exposure to policing

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Summary Statistics

Table 1: Summary Statistics by Type of Connection

	(1) Strong Connection		(2) Weak Connection		(3) Donor Pool	
	Mean	SD	Mean	SD	Mean	SD
Size	5.93	2.15	8.49	2.16	6.20	2.03
Profitability	-0.01	0.15	0.03	0.08	-0.09	0.34
Leverage	0.20	1.16	1.70	8.65	0.59	7.60
Exposure to Policing	0.06	0.07	0.00	0.00	0.00	0.00
Share of Government Client	0.50	0.32	0.14	0.22		
Number of Firms	23		65		771	
Observations	114		363		3058	

Notes: The table presents descriptive statistics by the level of connection to policing. We multiply exposure by 100 readability. The variables size, profitability, and leverage capture log total assets, return on equity, and the ratio between total debt and total capital, respectively. All the variables are computed using the year before the event.

Research Design

- **For each firm i at date t, the outcome CAR_{it}**

$$CAR_{it} = \mu + \alpha_i + \gamma_t + Police_{it}\beta + \epsilon_{it}$$

  - α_i is a firm-fixed effect, γ_t is a time-fixed effect, and μ is a constant
  - $Police_{it}$: binary treatment, i.e. "connected firms" contracting with law enforcement before and after the event
  - CAR_{it} using Excess return on the market, size factor (SMB), value factor (HML), and momentum (UMD)

- **Synthetic Difference-in-Differences (Arkhangelsky et al. (2021))**
  - Compare firms exposed to policing to their "parallel synthetic control"
  - **Synthetic counterfactual:** weighted combination of firms in the control group
  - **Assumption:** no systematic differences between the outcomes trends of the treated and weighted outcomes of firms in donor pool in the absence of viral incident

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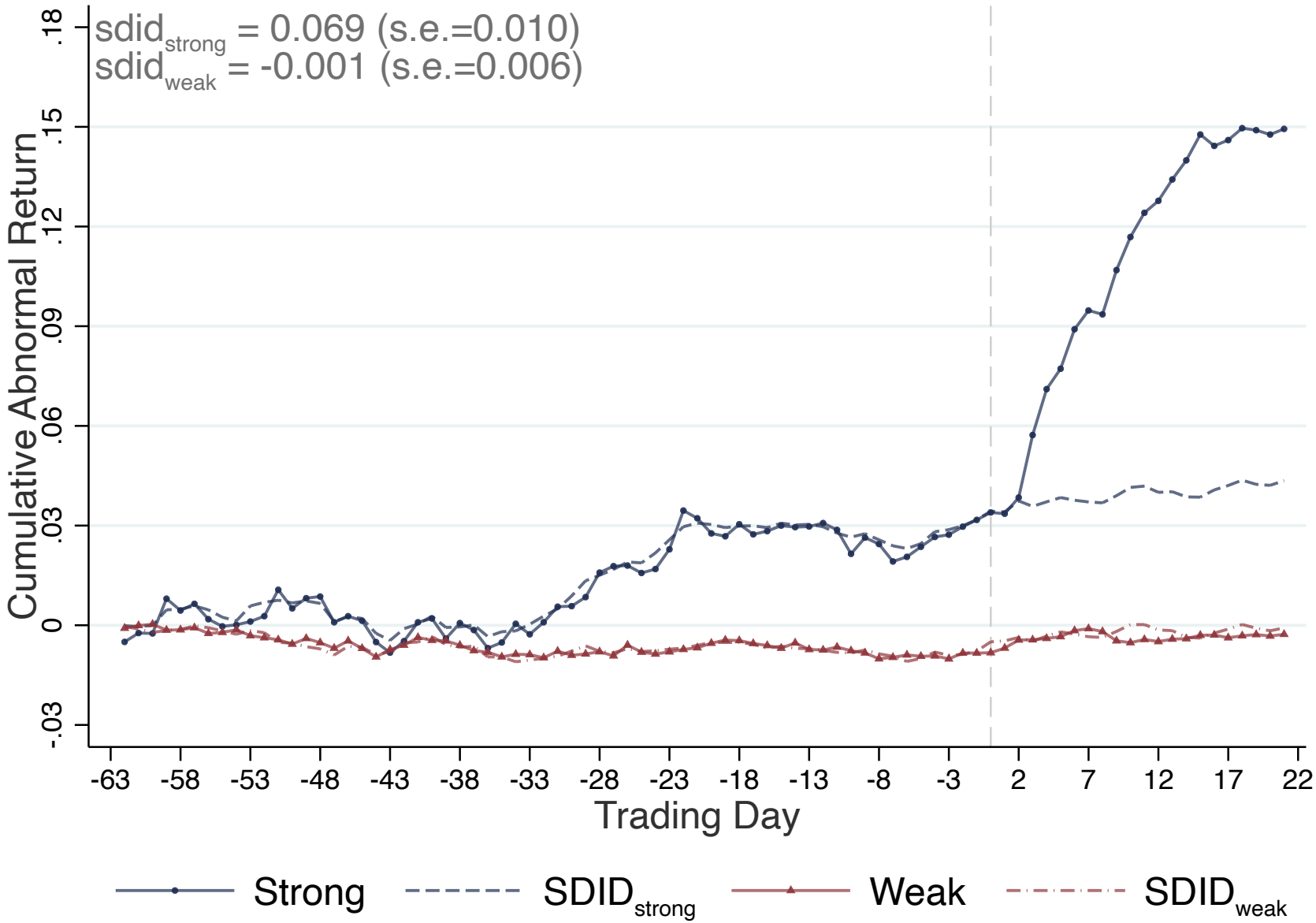
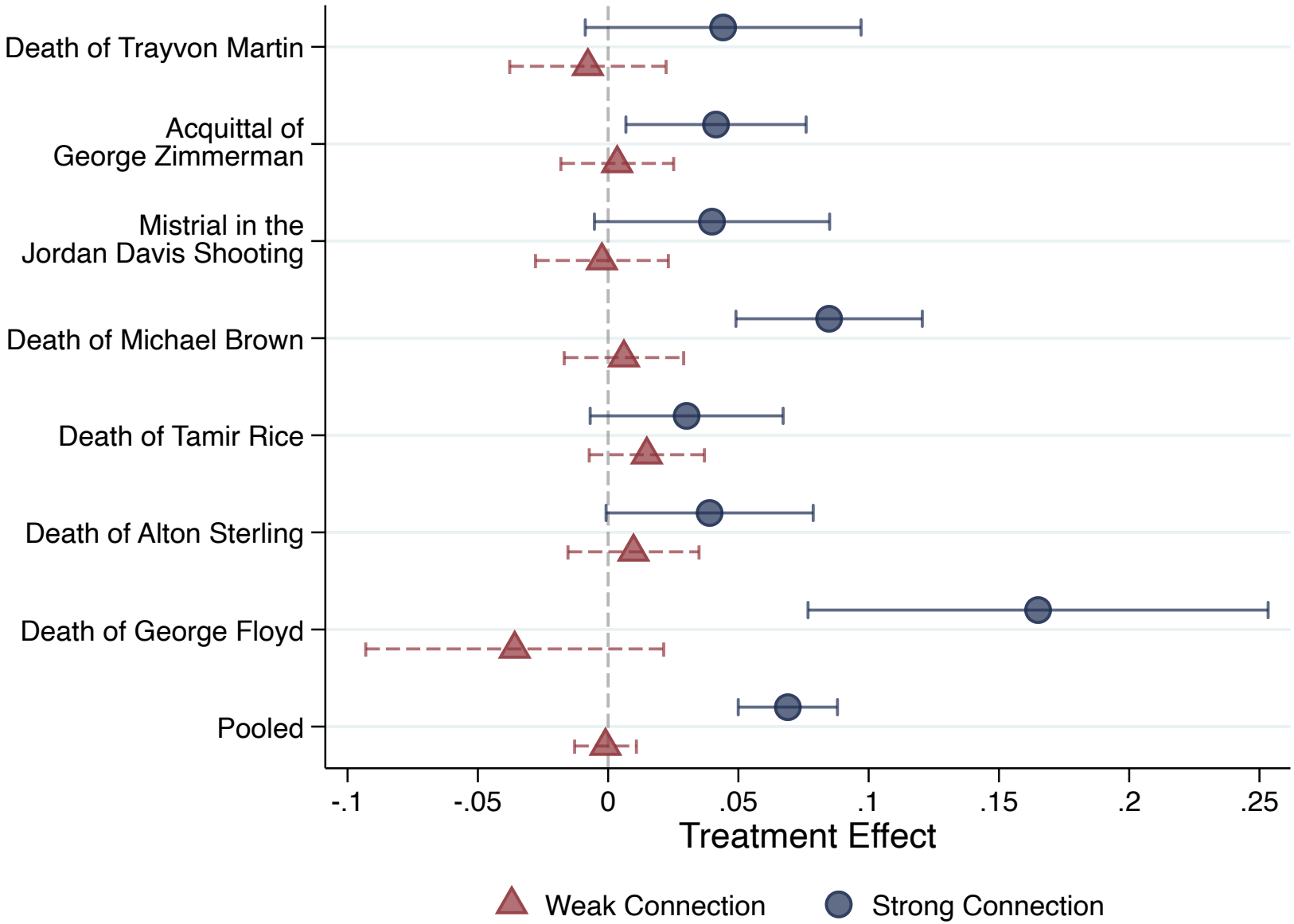
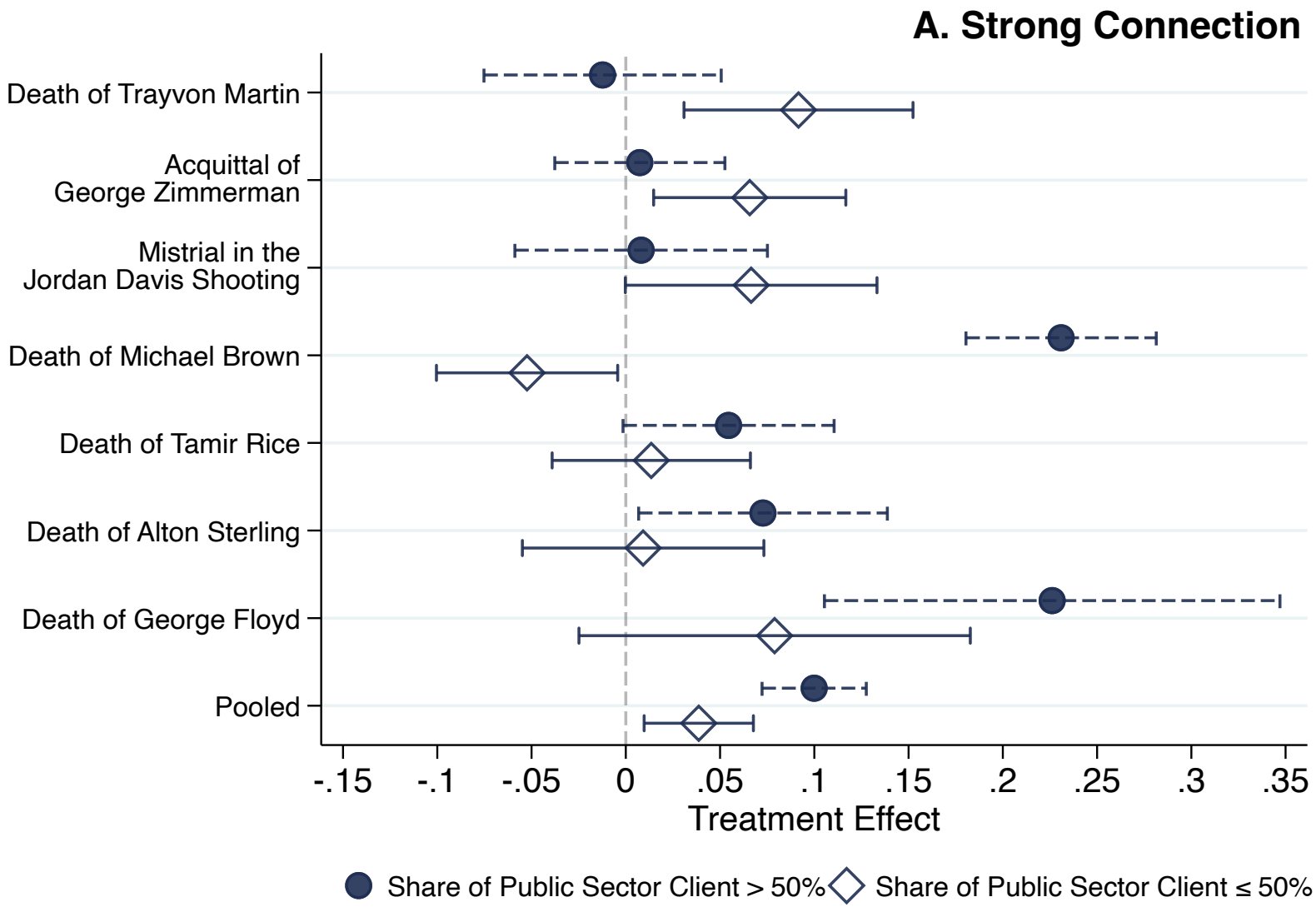
Daily Impact of Viral Events



Effect by Events



Heterogeneity by Level of Exposure to Government

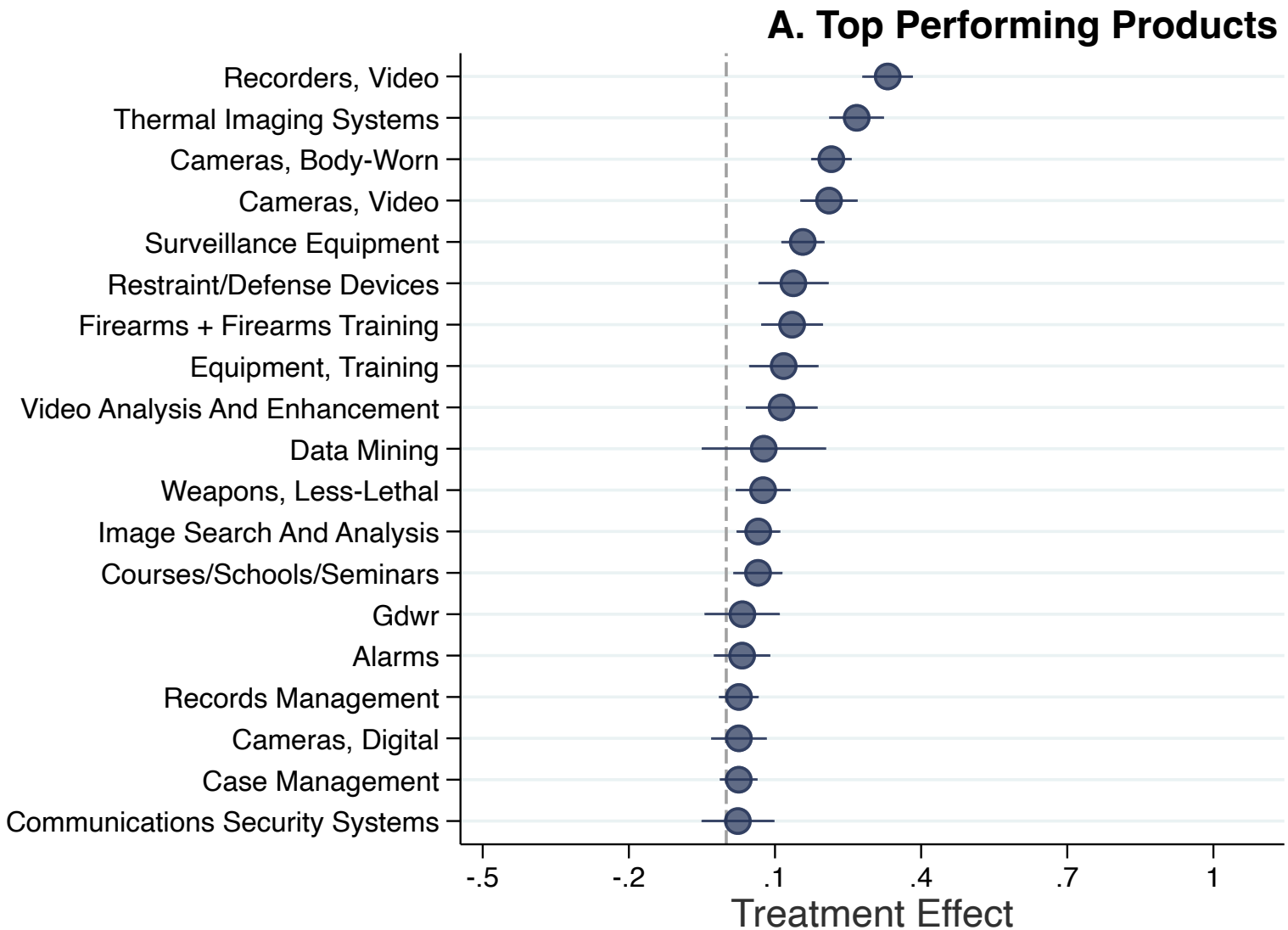


Potential Impact of Viral Events

- **More video monitoring of police and civilians**
  - BWC
  - Video recorders, cameras
- **Increase in protests, unrests, riots**
  - Restraint/Defense devices
- **Impact on crime**
  - Predictive Policing / Data /AI
  - Guns and less-than-lethal weapons
  - Crime analysis
  - Intelligence led-policing
- **Demand for police accountability tools**
  - Training
  - Course, School, Seminars
  - BWC
- **Effect of civilians demand for police**
  - 911/CAD

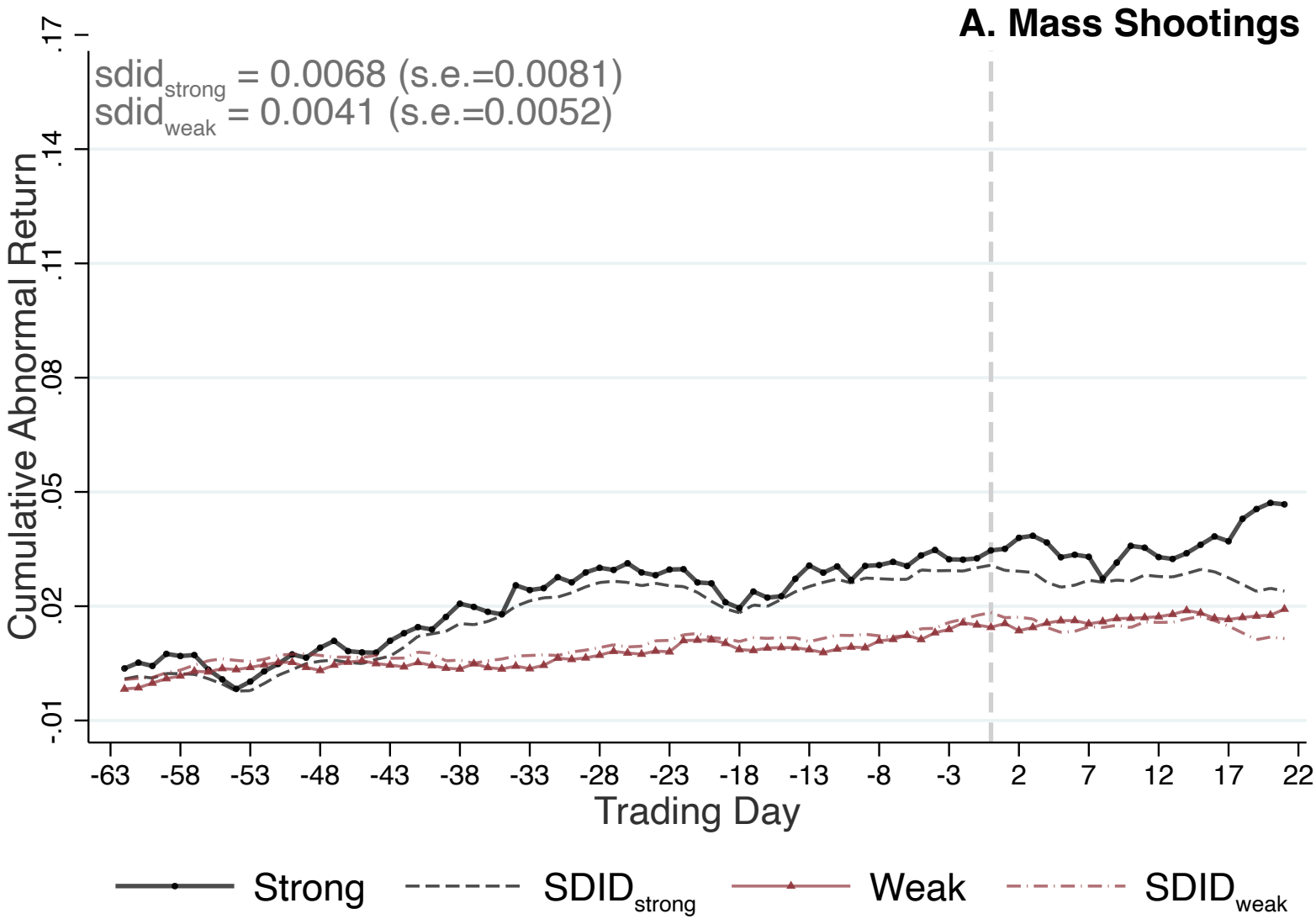
Impact of Viral Events by Products

⇑ Demand for monitoring of police and civilians and accountability tools



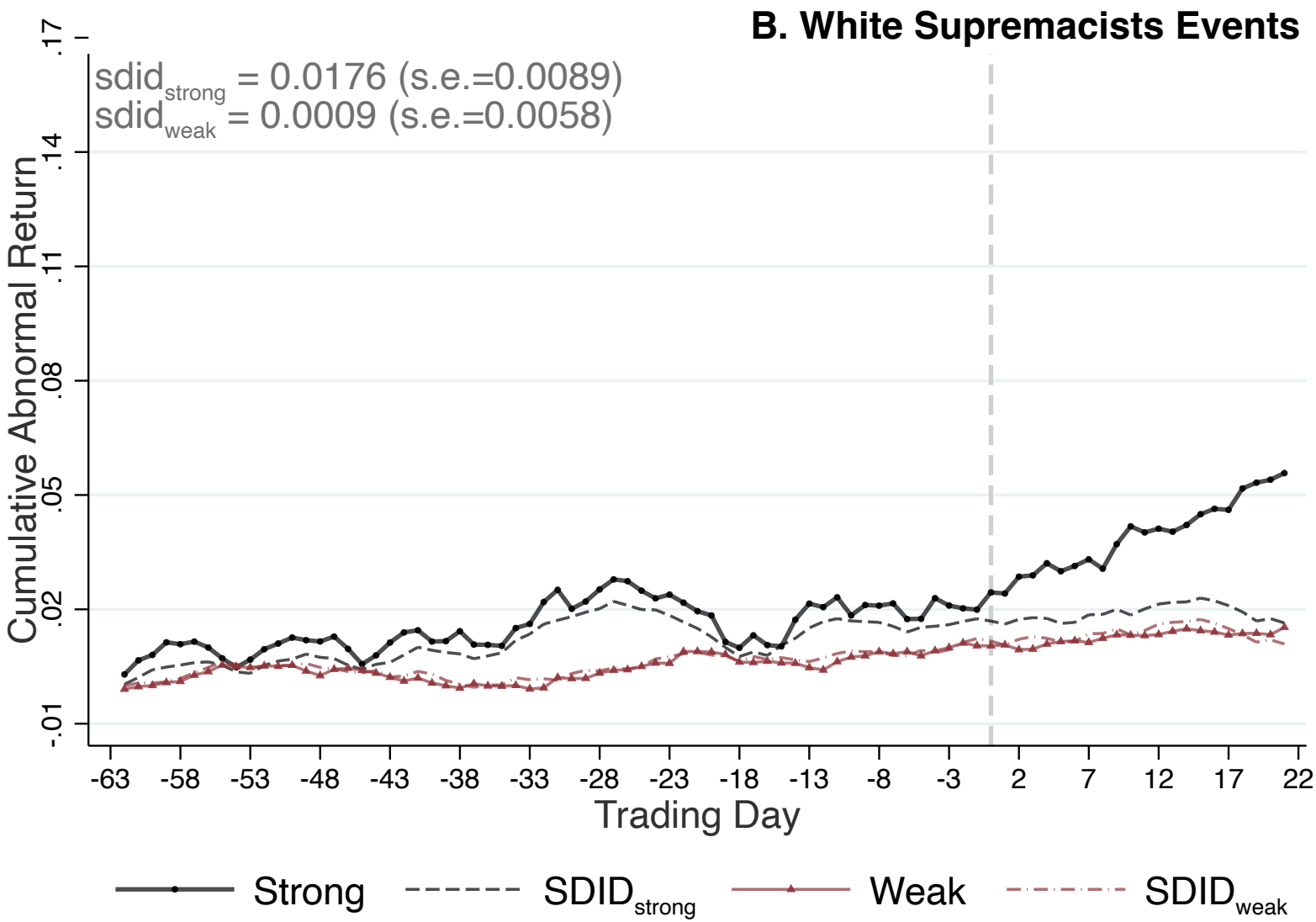
Other Viral Events

- **11 events with 12-49 deaths**



Other Viral Events

- **8 events with 1-11 deaths (Anti-black, LGBTQ+, antisemitic attacks)**



Research Design for the Long-Run Analysis

- **Passive Investors with Portfolio**
  - Construct buy-and-hold portfolios: strong and weak ties to policing
    - ⋆ Market value-weighted returns in the main specifications
    - ⋆ Equally value-weighted returns in the robustness specifications
  - Construct donor pool portfolios of non-connected firms in the same SIC
    - ⋆ Weakly and strongly connected firms comprise 58 and 18 randomly drawn firms

- **Estimation Strategy**
  - Similar approach as previously using the Carhart Four-Factor model
  - SDID and SC estimators before and after killing of Trayvon Martin

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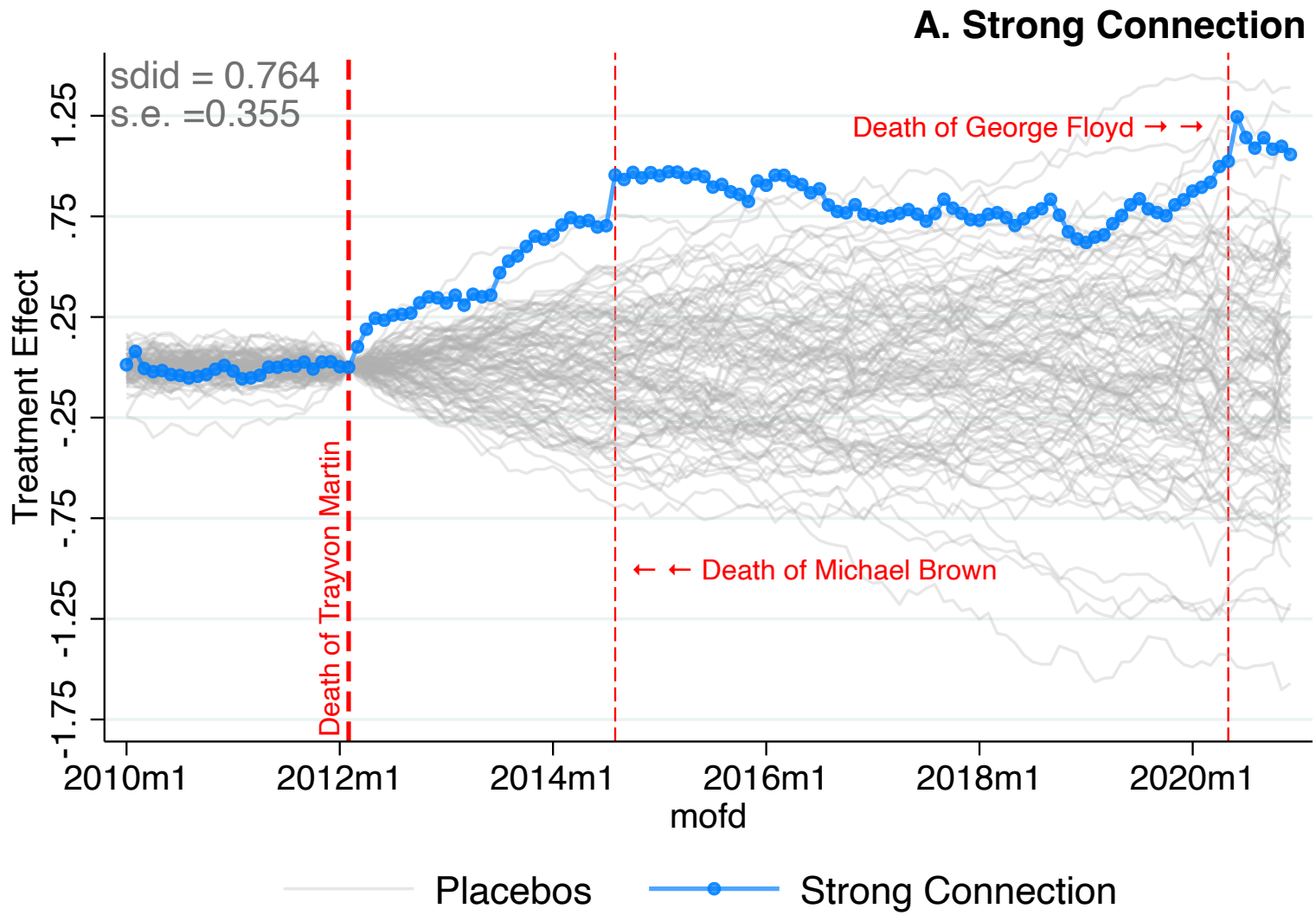
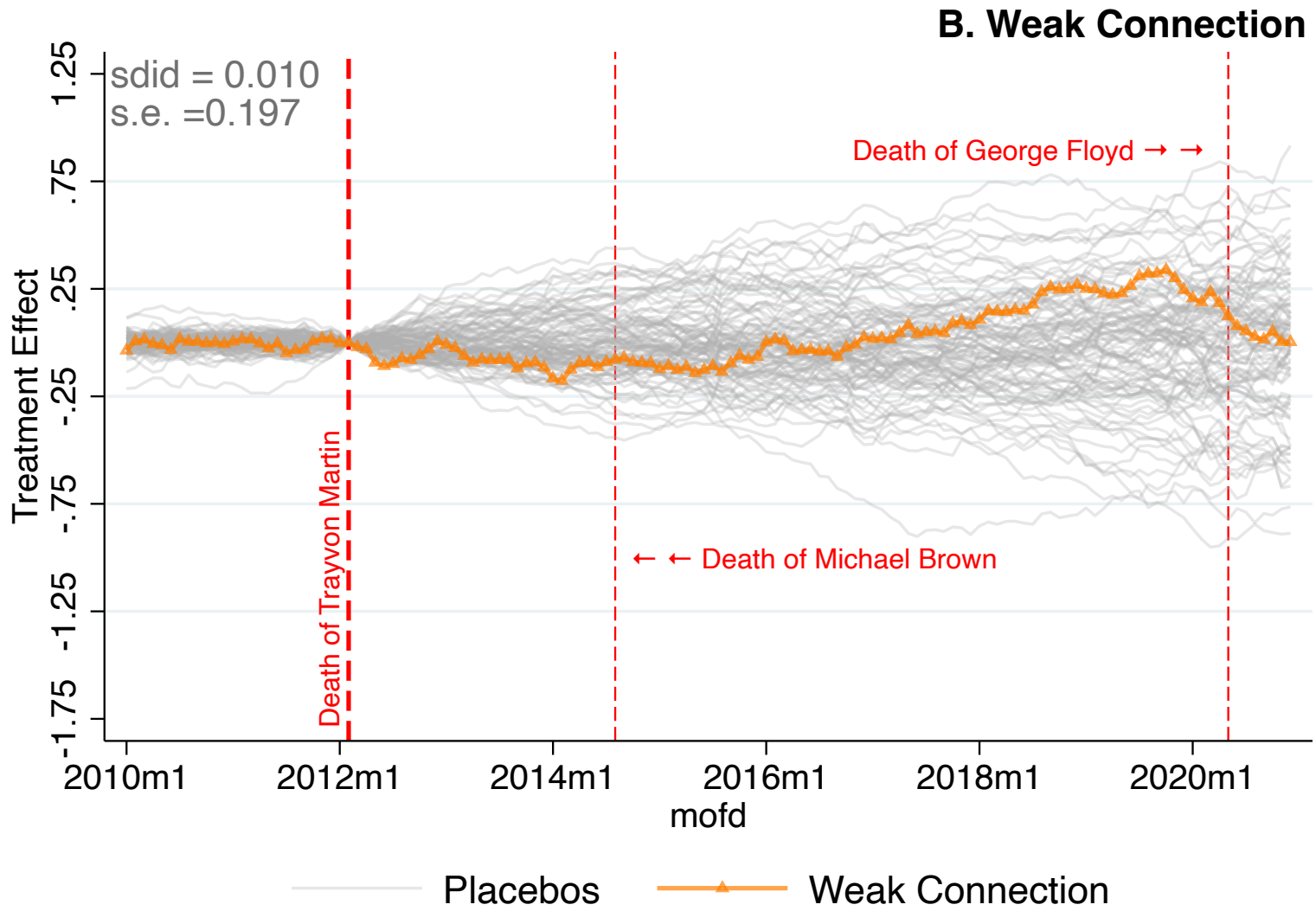
Long-Run Impact of BLM

Total Effect for Firms with Strong Connection

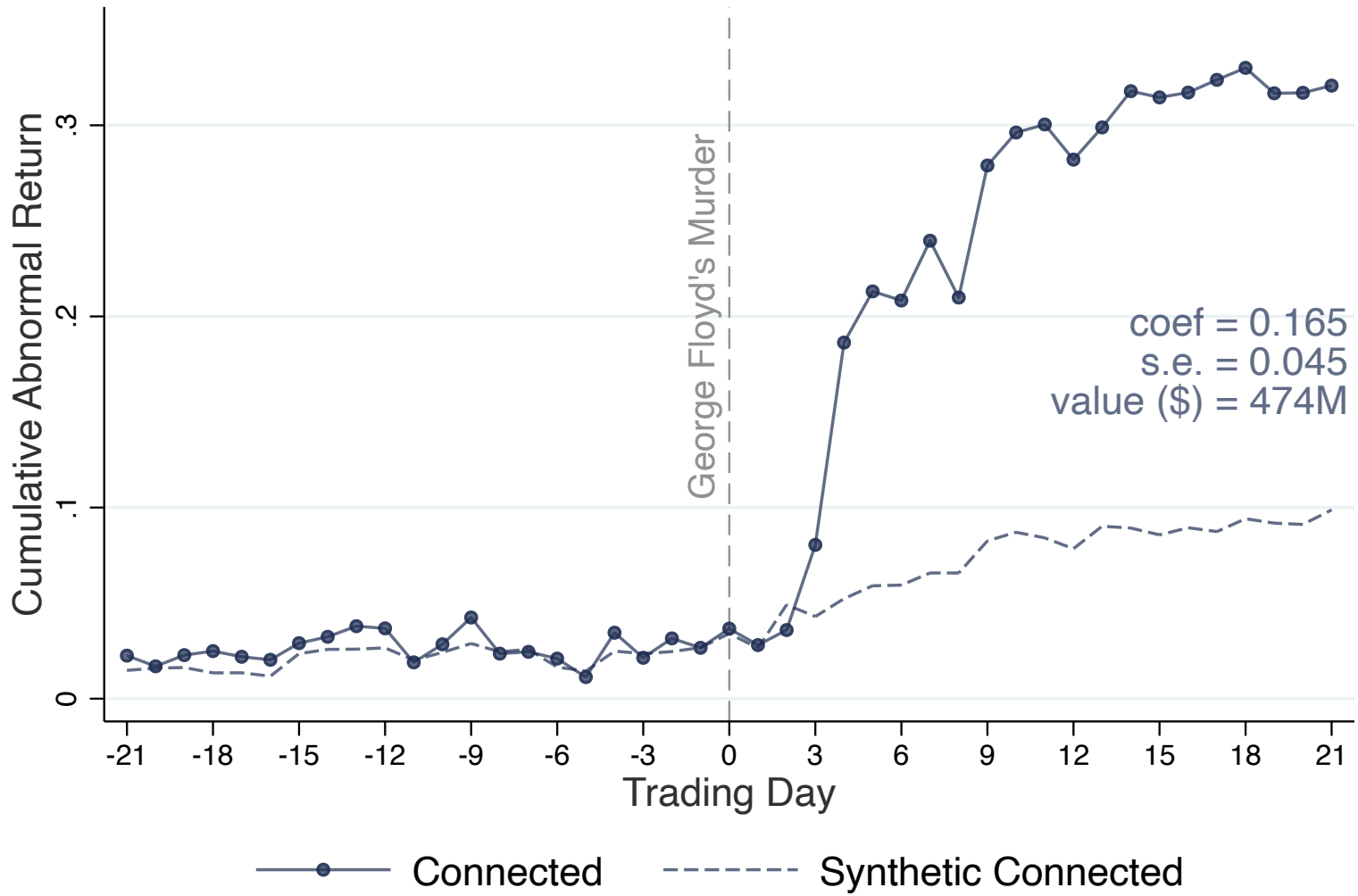


Long-Run Impact of BLM

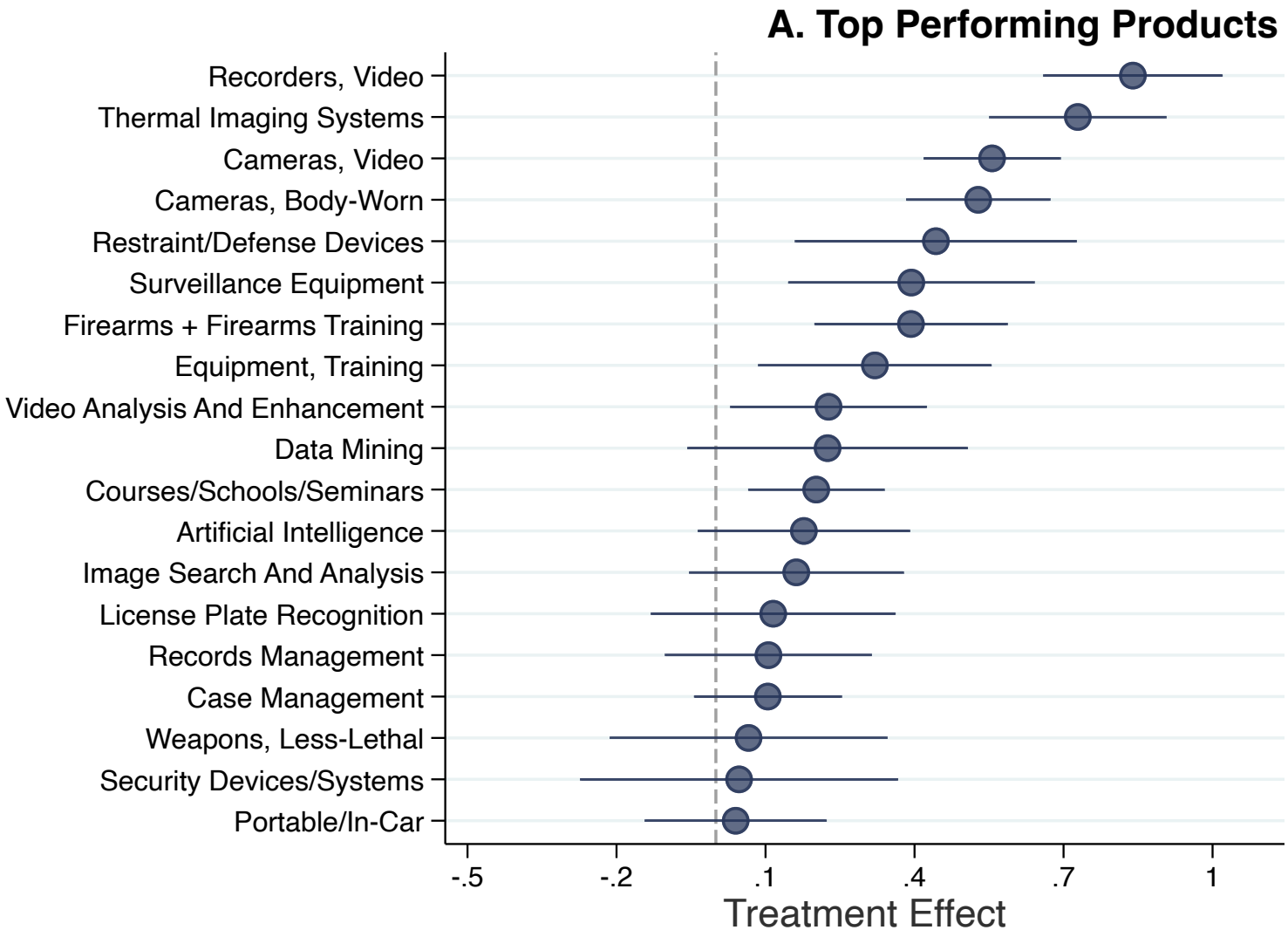
Total Effect for Firms with Weak Connection



Impact of George Floyd's Murder on CARs

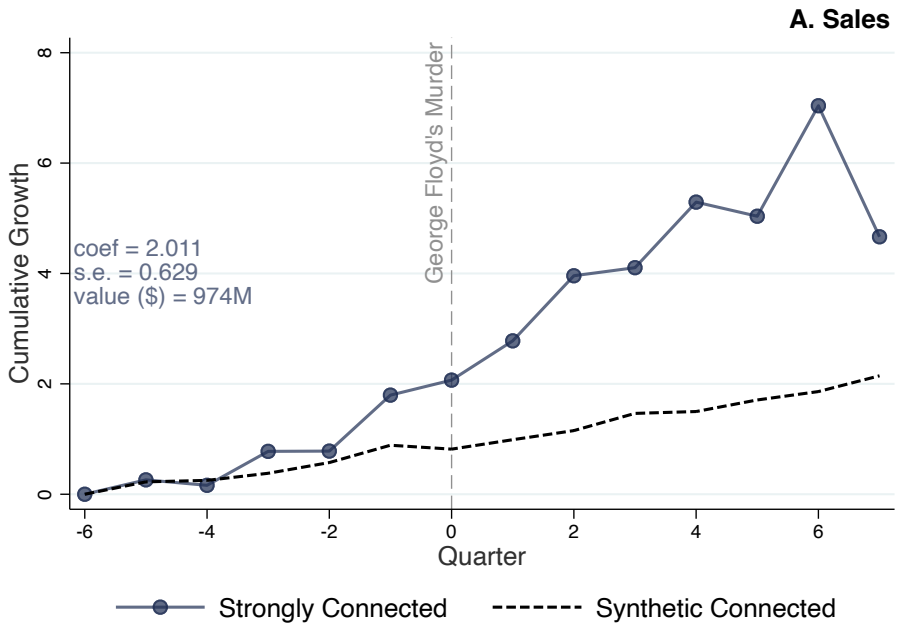


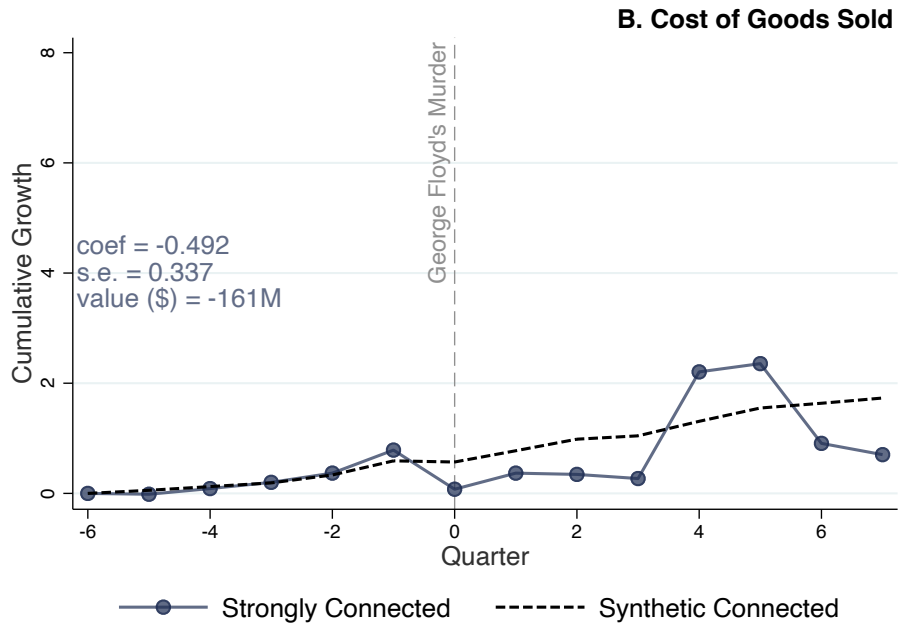
Daily Impact of George Floyd's Murder on CARs by Type of Product and Service



Impact of the "Defund" Movement on Profits

⇑ Sales and ⇓ Cost of Goods Sold





Conclusion

- **Summary**
  - Firms with high exposure to policing experienced better performance
  - Larger returns for firms focusing on surveillance technology and BWC
  - BLM uprisings led to more investments in firms focusing on crime control and police reform
  - The "Defund the Police" movement did not negatively impacted these firms
    - ⋆ Increase in sales in the years post-Floyd's murder

- **This paper thinks about who "benefits" from these events**
  - Investors believed the BLM movement would cause public spending on policing
    - ⋆ Growth in police resources that started with the death of Trayvon Martin
  - Results consistent with the Racial Capitalism literature (Robinson (2005))
    - ⋆ *"The process of deriving social and economic value from the racial identity of another person."* (Leong (2013))

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