

EXIM's Exit: The Real Effects of Trade Financing by Export Credit Agencies

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Industrial policy often targets **trade financing** because

- Important source of income and growth
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Question: Is there a role for **government intervention**?

Context:

- Ubiquitous agencies across countries: **Export Credit Agencies**
- In well-developed financial markets: the US

Pros: ECAs (export credit agencies) fill in a “missing market” and promote trade because:

- Trade financing by the **private banking sector** is:
 - **Specialized** (e.g., Paravisini Rappoport Schnabl, 2023)
 - **Concentrated** (e.g., Niepmann Schmidt-Eisenlohr, 2017)

⇒ Potentially **suboptimal** provision due to market power

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- **Different costs:** access to different technologies

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Cons: ECA support is...

- **Inframarginal:** firms can substitute to private sector provision
- Not inframarginal but fosters **misallocation:** benefiting low productivity (politically connected) firms

Empirical questions:

1. Is ECA support **inframarginal** for **firms**?
2. Is ECA support **inframarginal** for **aggregate** US exports?
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2. Is EXIM support **inframarginal** for **aggregate** US exports? **No**: trade creation
3. **Does EXIM increase misallocation?** **Probably not**
 - Firms with higher **export opportunity** & **MRPK** were more affected

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1. Finance and trade

Bank credit and export volume (Amiti and Weinstein, 2011; Paravisini, Rappoport, Schnabl, and Wolfenzon, 2014; Demir, Michalski, and Ors, 2017; Xu, 2022; Beaumont and Lenoir, 2023; Bruno and Shin, 2023; Monteiro and Moreira, 2023)

Banking networks and export patterns: (Michalski and Ors, 2012; Niepmann and Schmidt-Eisenlohr, 2017; Niepmann and Schmidt-Eisenlohr, 2017; Paravisini, Rappoport, and Schnabl, 2020; Xu and Yang, 2022)

2. Effects of industrial policies

Juhasz, 2018; Criscuolo, Martin, Overman, and Van Reenen, 2019; Choi and Levchenko, 2021; Garin and Rothbaum, 2022; Lane, 2023; Juhasz, Lane, Oehlsen, and Perez, 2022; Juhasz and Steinwender, 2023; and Juhasz, Lane, and Rodrik, 202

3. Export credit agencies

Germany (Felbermayr and Yalcin, 2013; Heiland and Yalcin, 2021); Austria (Badinger and Url, 2013); Pakistan (Zia, 2008; Defever, Riano, and Varela, 2020); Korea (Hur and Yoon, 2022); US (Desai and Hines, 2008; Benmelech and Monteiro, 2023)

Institutional Context

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ECAs **could**:

- Service a missing market.

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\implies Role for **intervention**

ECAs **could**:

- Service a missing market.
- Breakeven or even be profitable.

The Export-Import Bank of the United States (EXIM)

- **Mandate:**

“To support **jobs** in the United States by facilitating the **export** of U.S. goods and services [...and to] ensure a level playing field for U.S. exports in the global marketplace.”

- Each transaction must be justified to satisfy this mission

- **Tools:** two types of products

- **Insurance & guarantees:** protection against payment default for firm and *country risks*
- **Credit & loans:** working capital & long-term loans

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- **EXIM's profitability:**

- Federal Credit Reform Act (FCRA, 1990): each EXIM transaction must be “subsidy neutral” or generate “negative subsidy”
 - Fees and interest collected on each transaction to offset defaults, cost of borrowing from US Treasury, and operational expenses
- Since 1992, EXIM returned **net profit of \$9 billion** to the U.S. Treasury
- Default rate on EXIM loans is capped at 2%.

- **EXIM's profitability or lack thereof won't affect the interpretation of real economic effects.**

Evidence of Missing Market in Trade Financing

EXIM Exposure

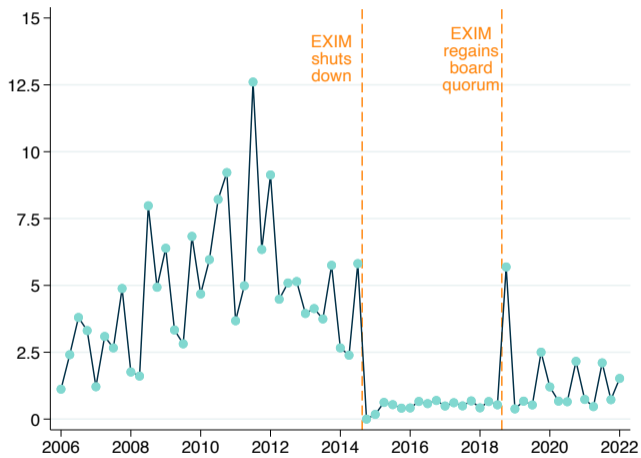
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Risk (by all)	2.265*** (0.743)	2.208*** (0.739)						
Risk (by financial)			1.702** (0.642)	2.027*** (0.607)				
Risk (by foreign)					1.570* (0.888)	1.433* (0.810)		
Risk (by domestic)							-0.005 (0.083)	0.041 (0.077)
Controls	—	✓	—	✓	—	✓	—	✓
Country FE	✓	✓	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓	✓	✓
R-squared	0.816	0.836	0.815	0.836	0.814	0.833	0.816	0.831
Observations	822	795	822	795	822	795	668	651

- 2015: **full shutdown** of EXIM for five months
 - Driven by Republicans (Tea Party, Paul Ryan) criticizing the bank for “providing corporate welfare”

- 2015–2019: **no board quorum** for four years
 - Full board = five people
 - Republican blocked nomination of three vacant seats
 - ⇒ EXIM **cannot approve long-term transactions** and loans larger than \$10M

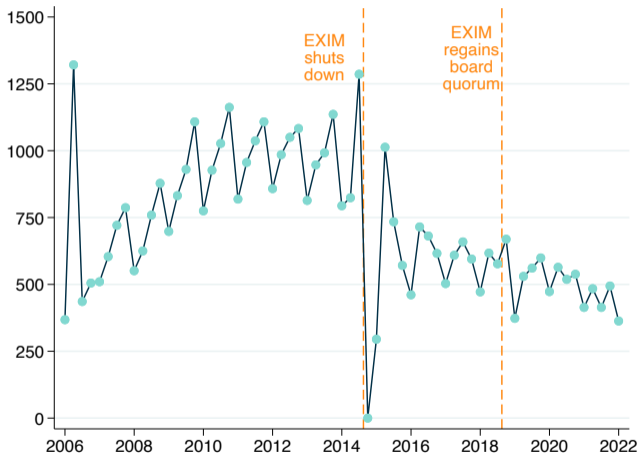
Effect of Shutdown on Operations

- Total value of new financial support (\$B): -84%



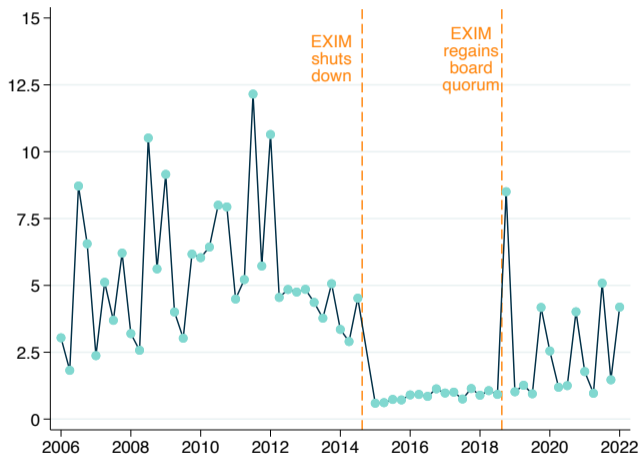
Effect of Shutdown on Operations

- Number of new loans: **-37%**



Effect of Shutdown on Operations

- Average loan size (\$M): -75%



Data

- EXIM dependence: EXIM loans
 - Loan level data: 2006–2022 (FOIA)
 - Matched on firm name
- Firm outcomes: Compustat
 - Panel: 2010–2019
 - Segment: includes foreign sales
- Firm exports: Datamyne
 - Universe of maritime exports at the firm \times product \times destination level
- Aggregate trade flows: BACI
 - Bilateral: country \times product \times year

Empirical Strategy

Firm i , in industry j , at time t :

$$Y_{i,j,t} = \beta_t \text{EXIM}_i \times \text{Post}_{\geq 2015} + \alpha_i + \gamma_{j,t} + \text{Destinations}_{i,t_0} \times \delta_t + X_{i,t} + \varepsilon_{i,j,t}$$

- EXIM_i : Firm received EXIM support over 2010–2014
- $\text{Post}_{\geq 2015}$: Year ≥ 2015 ; no staggered treatment

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- **Firm** : Remove level differences

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- $\text{Industry} \times \text{year}$: Industry specific shocks

Estimating Effect of Exposure to EXIM

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Top 10 destinations from 10-K (Hoberg-Moon, 2017)

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Top 10 destinations from 10-K (Hoberg-Moon, 2017)
- Firm ex-ante characteristics \times year : Additional firm controls

Parallel trends: outcomes between treated ($EXIM_i = 1$) and control ($EXIM_i = 0$) groups would have evolved similarly absent the reform, after controls

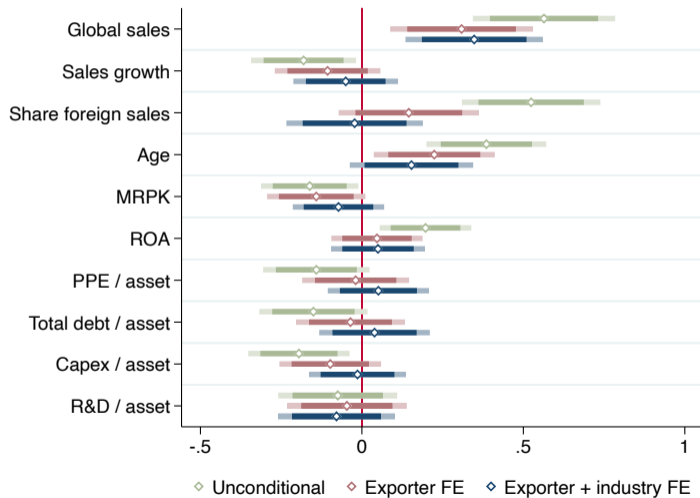
Does not require...

- **Random selection** of treated vs control \rightarrow firms (industries) with **EXIM** loans can be systematically different
 - Additional robustness using *within*-EXIM exposure
- **Random timing** of shutdown \rightarrow **EXIM** could have coincided with other macroeconomic events

Threat to identification: other unobserved reform/event coinciding with **EXIM** loan exposure in 2015

Covariate Balance (2010–2014)

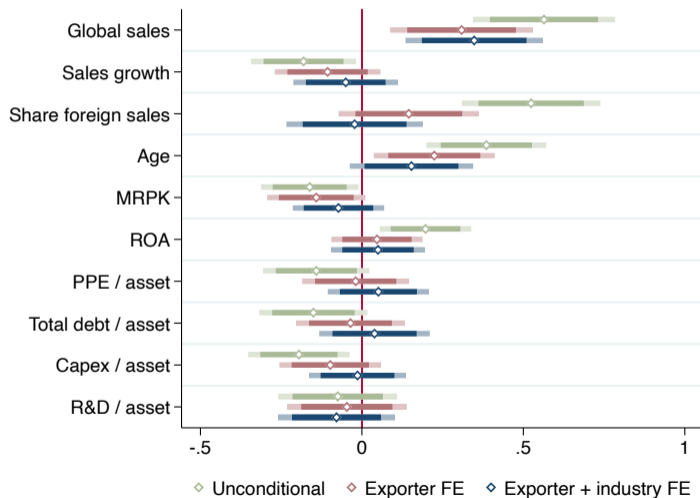
- Unconditionally different



(Industry composition)

Covariate Balance (2010–2014)

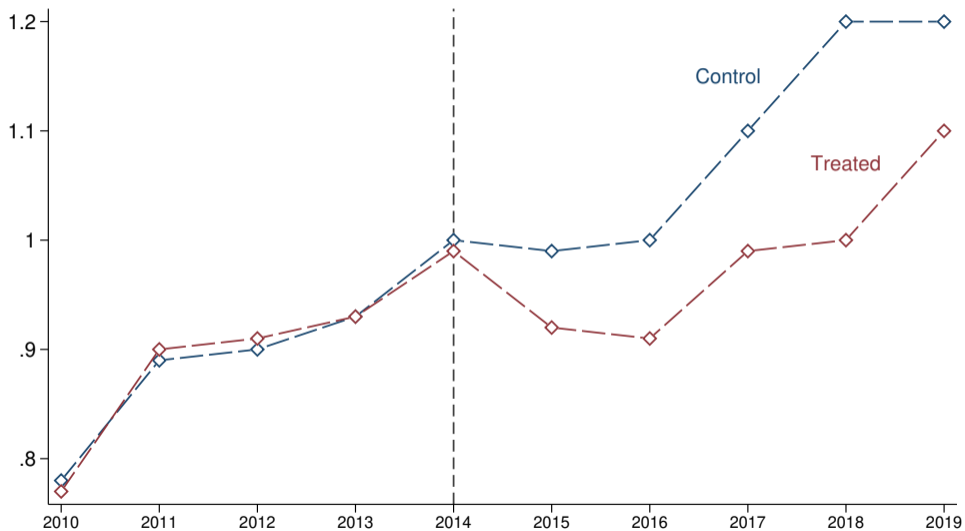
- Control for **industry** and **exporter**: reduced differences



(Industry composition)

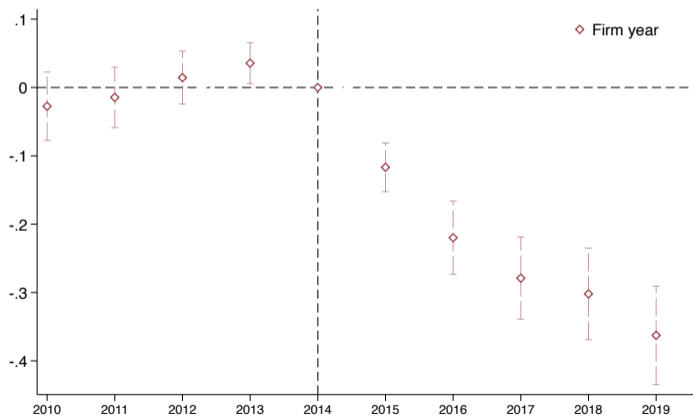
1. Is EXIM Support Inframarginal?

Impact on Firms' Global Sales: Raw Data



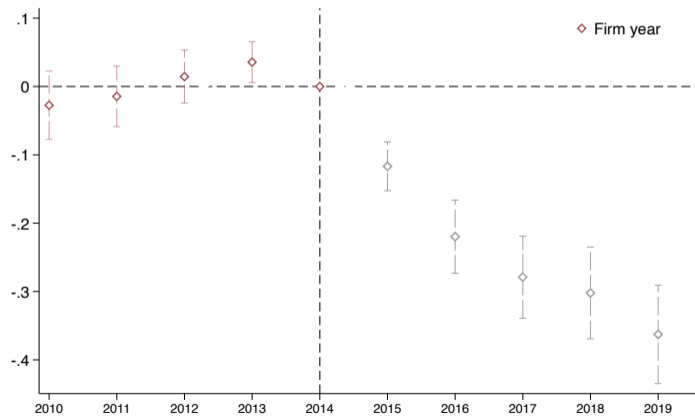
Impact on Firms' Global Sales: DiD Estimation

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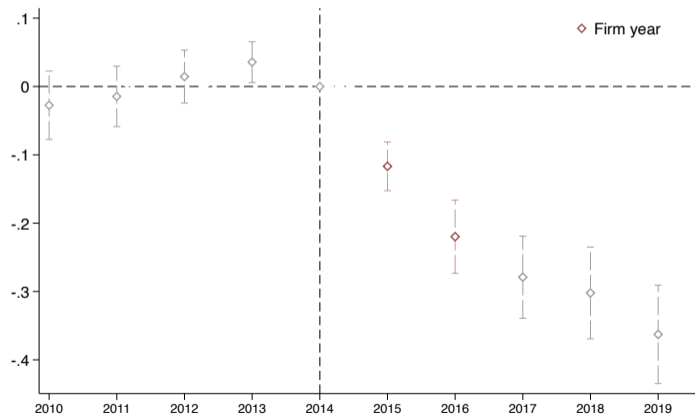
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- No differential pre-trend



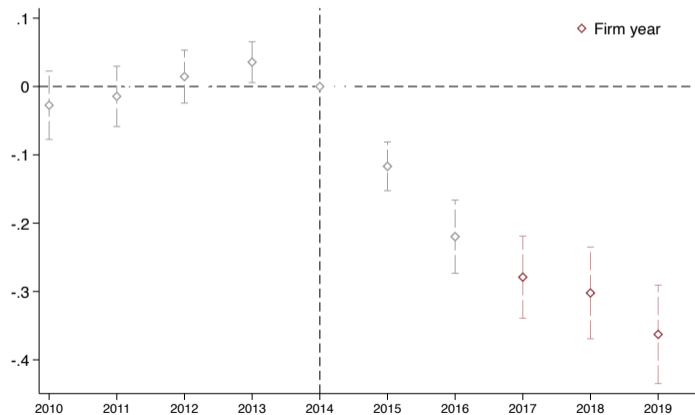
Impact on Firms' Global Sales: DiD Estimation

- Sharp drop



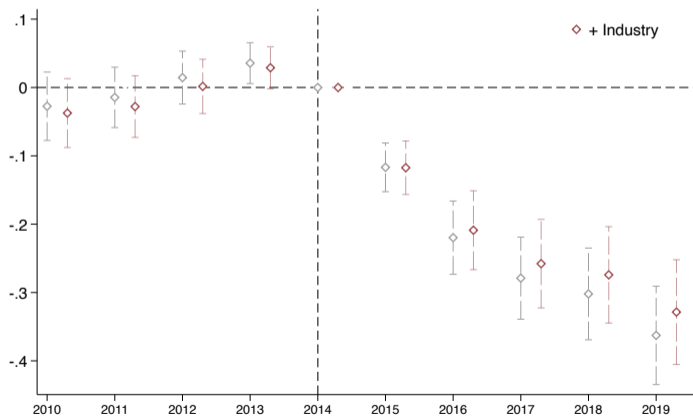
Impact on Firms' Global Sales: DiD Estimation

- No recovery



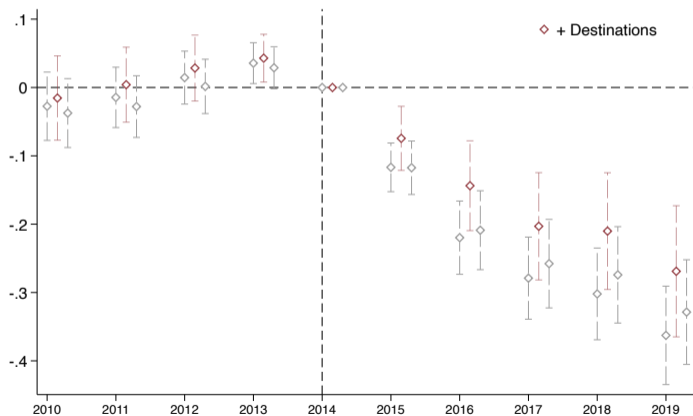
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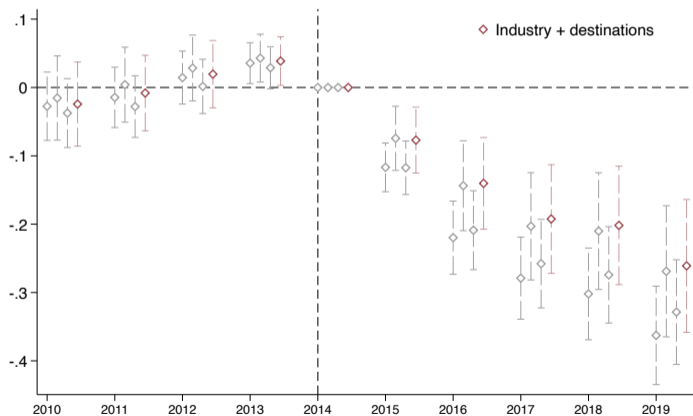
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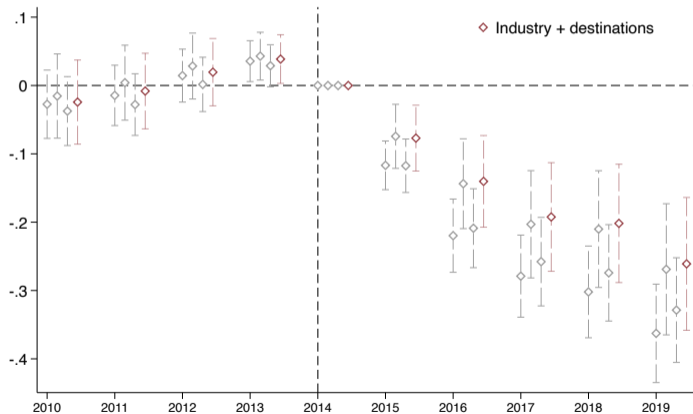
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Impact on Firms' Global Sales: DiD Estimation

- Average effect: -18%



Robustness to EXIM Exposure: Within-treatment Variation

- EXIM characteristics: \$10M contract or long-term support

$$Y_{i,j,c,t} = \beta EXIM_i \times Post \times EXIM\ characteristics_i + \alpha_i \\ + EXIM_i \times \delta_t + EXIM_i \otimes [\gamma_{j,t} + Destinations_{i,t_0} \times \delta_t] + \varepsilon_{i,j,t}$$

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<i>Dependent Variable</i>	Global sales		
	(1)	(2)	(3)
Treated \times Post	-0.18*** (0.030)		
Treated \times Post \times Large EXIM		-0.19*** (0.060)	
Treated \times Post \times Long-term EXIM			-0.20** (0.072)
<i>Fixed Effects</i>			
Firm	✓	✓	✓
Industry \times Year	✓	✓	✓
Destinations \times Year	✓	✓	✓
Treated \times Year	—	✓	✓
Observations	28,386	28,386	28,386

Additional Effects: Treated Firms Scale Down

- Decrease in **capital**, tangible and intangible (Peters and Taylor 2017)

	Tangible capital	Intangible capital	Employment	ROA
	(1)	(2)	(3)	(4)
Treated×Post	-0.16*** (0.040)	-0.18*** (0.044)	-0.093*** (0.034)	0.0062 (0.0074)
<i>Fixed Effects</i>				
Firm	✓	✓	✓	✓
Industry×Year	✓	✓	✓	✓
Destinations×Year	✓	✓	✓	✓
Observations	27,972	28,245	28,386	28,386

Additional Effects: Treated Firms Scale Down

- Decrease in **employment**

	Tangible capital	Intangible capital	Employment	ROA
	(1)	(2)	(3)	(4)
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Additional Effects: Treated Firms Scale Down

- **No** change in **ROA** → EXIM support **not** infra-marginal & just boosting firms' profits

(Event study)

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Channels

Financial Constraints Become More Binding: Why?

1. **Exports** are particularly sensitive to external financing

- Empirical challenge: Firm exports feature a lot of entry & exit, particularly **disaggregated** data with **product×destination** coverage

2. Firms cannot fully substitute to **alternative sources of financing**

Financial Constraints Become More Binding: Why?

1. Exports are particularly sensitive to external financing

- Empirical challenge: Firm exports feature a lot of entry & exit, particularly disaggregated data with product×destination coverage
- Solution:
 - Create balanced panel
 - Collapse average pre / post
 - Outcomes: midpoint growth rate = $(X_t - X_{t-1}) / [(X_t + X_{t-1}) \times 0.5]$

2. Firms cannot fully substitute to alternative sources of financing

Overall Reduction in Firm Exports

- Compustat Segment: “Foreign Sales”

<i>Sample</i>	Compustat Segment	Hoberg–Moon	Datamyne				
<i>Dependent variable</i>	Δ Foreign sales	Δ # 10K mention	Δ Maritime export				
<i>Unit of analysis</i>	Firm	Firm	Firm	Firm×destination×product			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Exim×Post	-0.16** (0.077)	-0.12* (0.070)	-0.39** (0.18)	-0.39** (0.17)	-0.33* (0.19)	-0.44*** (0.16)	-0.31** (0.15)
<i>Fixed Effects</i>							
Industry×Post	✓	✓	✓	✓	✓	✓	✓
Product×Post	—	—	—	—	✓	—	✓
Destination×Post	—	—	—	—	—	✓	✓
Observations	2,012	3,131	600	126,938	126,938	126,938	126,938

Overall Reduction in Firm Exports

- Hoberg–Moon: count in 10K mention of activity abroad

<i>Sample</i>	Compustat Segment	Hoberg–Moon	Datamyne				
	Δ Foreign sales	Δ # 10K mention	Δ Maritime export				
Unit of analysis	Firm	Firm	Firm	Firm \times destination \times product			
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<i>Fixed Effects</i>							
Industry \times Post	✓	✓	✓	✓	✓	✓	✓
Product \times Post	—	—	—	—	✓	—	✓
Destination \times Post	—	—	—	—	—	✓	✓
Observations	2,012	3,131	600	126,938	126,938	126,938	126,938

Overall Reduction in Firm Exports

- Datamyne: Maritime exports effect larger → consistent with **financing frictions**
(e.g., Amiti and Weinstein, 2011; Xu, 2022)

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	Δ Foreign sales	Δ # 10K mention	Δ Maritime export				
Unit of analysis	Firm	Firm	Firm	Firm \times destination \times product			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Exim \times Post	-0.16** (0.077)	-0.12* (0.070)	-0.39** (0.18)	-0.39** (0.17)	-0.33* (0.19)	-0.44*** (0.16)	-0.31** (0.15)
<i>Fixed Effects</i>							
Industry \times Post	✓	✓	✓	✓	✓	✓	✓
Product \times Post	—	—	—	—	✓	—	✓
Destination \times Post	—	—	—	—	—	✓	✓
Observations	2,012	3,131	600	126,938	126,938	126,938	126,938

Overall Reduction in Firm Exports

- Decompose firm export at the **product×destination** (market)

<i>Sample</i>	Compustat Segment	Hoberg–Moon	Datamyne				
	Δ Foreign sales	Δ # 10K mention	Δ Maritime export				
Unit of analysis	Firm	Firm	Firm	Firm×destination×product			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Exim×Post	-0.16** (0.077)	-0.12* (0.070)	-0.39** (0.18)	-0.39** (0.17)	-0.33* (0.19)	-0.44*** (0.16)	-0.31** (0.15)
<i>Fixed Effects</i>							
Industry×Post	✓	✓	✓	✓	✓	✓	✓
Product×Post	—	—	—	—	✓	—	✓
Destination×Post	—	—	—	—	—	✓	✓
Observations	2,012	3,131	600	126,938	126,938	126,938	126,938

Overall Reduction in Firm Exports

- Decompose firm export at the **product×destination** (market)
- Product×Post: compare firms exporting **same 6-digit product**

<i>Sample</i>	Compustat Segment	Hoberg–Moon	Datamyne				
	Δ Foreign sales	Δ # 10K mention	Δ Maritime export				
Unit of analysis	Firm	Firm	Firm	Firm×destination×product			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Exim×Post	-0.16** (0.077)	-0.12* (0.070)	-0.39** (0.18)	-0.39** (0.17)	-0.33* (0.19)	-0.44*** (0.16)	-0.31** (0.15)
<i>Fixed Effects</i>							
Industry×Post	✓	✓	✓	✓	✓	✓	✓
Product×Post	—	—	—	—	✓	—	✓
Destination×Post	—	—	—	—	—	✓	✓
Observations	2,012	3,131	600	126,938	126,938	126,938	126,938

Overall Reduction in Firm Exports

- Decompose firm export at the **product×destination** (market)
- Destination country×Post: compare firms exporting to **same country**

<i>Sample</i>	Compustat Segment	Hoberg–Moon	Datamyne				
	Δ Foreign sales	Δ # 10K mention	Δ Maritime export				
Unit of analysis	Firm	Firm	Firm	Firm×destination×product			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Exim×Post	-0.16** (0.077)	-0.12* (0.070)	-0.39** (0.18)	-0.39** (0.17)	-0.33* (0.19)	-0.44*** (0.16)	-0.31** (0.15)
<i>Fixed Effects</i>							
Industry×Post	✓	✓	✓	✓	✓	✓	✓
Product×Post	—	—	—	—	✓	—	✓
Destination×Post	—	—	—	—	—	✓	✓
Observations	2,012	3,131	600	126,938	126,938	126,938	126,938

Overall Reduction in Firm Exports

- Decompose firm export at the **product×destination** (market)
- Joint: absorb most possible unobserved **demand shocks**

<i>Sample</i>	Compustat Segment	Hoberg–Moon	Datamyne				
	Δ Foreign sales	Δ # 10K mention	Δ Maritime export				
Unit of analysis	Firm	Firm	Firm	Firm×destination×product			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Exim×Post	-0.16** (0.077)	-0.12* (0.070)	-0.39** (0.18)	-0.39** (0.17)	-0.33* (0.19)	-0.44*** (0.16)	-0.31** (0.15)
<i>Fixed Effects</i>							
Industry×Post	✓	✓	✓	✓	✓	✓	✓
Product×Post	—	—	—	—	✓	—	✓
Destination×Post	—	—	—	—	—	✓	✓
Observations	2,012	3,131	600	126,938	126,938	126,938	126,938

Firm Financing Friction Heterogeneity

- Proxies for financing frictions:
 - High **leverage** (e.g., Giroud and Mueller, 2016; Giroud and Mueller, 2019)

<i>Dependent variable</i>	Global sales			
	<i>Financing frictions proxy:</i>		Dividends	Hoberg and Maskimovic (2015)
	(1)	(2)	(3)	(4)
EXIM×Post	-0.18*** (0.037)			
EXIM×Post×Constrained		-0.16** (0.077)	-0.21** (0.087)	-0.25*** (0.081)
<i>Fixed Effects (interacted)</i>				
Firm	✓	✓	✓	✓
Destinations×Year	✓	✓	✓	✓
Industry×Year	✓	✓	✓	✓
Treated×Year	—	✓	✓	✓
Observations	26,732	25,592	25,297	25,438

Firm Financing Friction Heterogeneity

- Proxies for financing frictions:
 - Low **dividends** (e.g., Fazzari, Hubbard, and Petersen, 1988)

<i>Dependent variable</i>	Global sales			
		Leverage	Dividends	Hoberg and Maskimovic (2015)
<i>Financing frictions proxy:</i>	(1)	(2)	(3)	(4)
EXIM×Post	-0.18*** (0.037)			
EXIM×Post×Constrained		-0.16** (0.077)	-0.21** (0.087)	-0.25*** (0.081)
<i>Fixed Effects (interacted)</i>				
Firm	✓	✓	✓	✓
Destinations×Year	✓	✓	✓	✓
Industry×Year	✓	✓	✓	✓
Treated×Year	—	✓	✓	✓
Observations	26,732	25,592	25,297	25,438

Firm Financing Friction Heterogeneity

- Proxies for financing frictions:
 - High mention of financing frictions in 10K (Hoberg and Maksimovic, 2015)

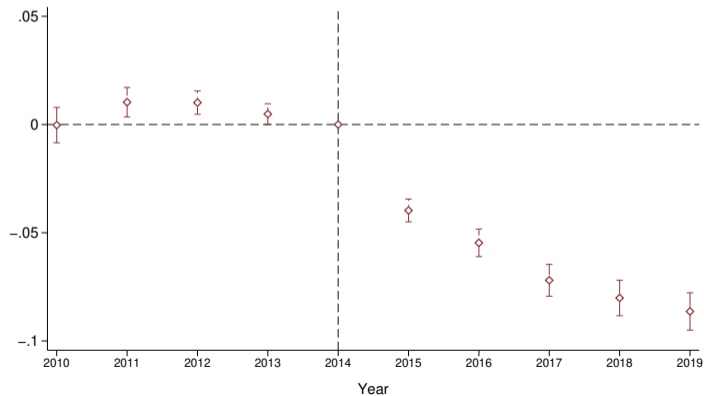
<i>Dependent variable</i>	Global sales			
		Leverage	Dividends	Hoberg and Maskimovic (2015)
<i>Financing frictions proxy:</i>	(1)	(2)	(3)	(4)
EXIM×Post	-0.18*** (0.037)			
EXIM×Post×Constrained		-0.16** (0.077)	-0.21** (0.087)	-0.25*** (0.081)
<i>Fixed Effects (interacted)</i>				
Firm	✓	✓	✓	✓
Destinations×Year	✓	✓	✓	✓
Industry×Year	✓	✓	✓	✓
Treated×Year	—	✓	✓	✓
Observations	26,732	25,592	25,297	25,438

- Quarterly sales: decline starts **exactly** after shutdown in June (Result)
- Additional firm controls: lobbying, state, fiscal month, size, profitability, leverage (Result)
- Remove the 10 largest beneficiaries (Result)
- Different level of SIC industry (Result) and HS products (Result)
- Different winsorization levels (Result)

2. Aggregate Impact of EXIM Support

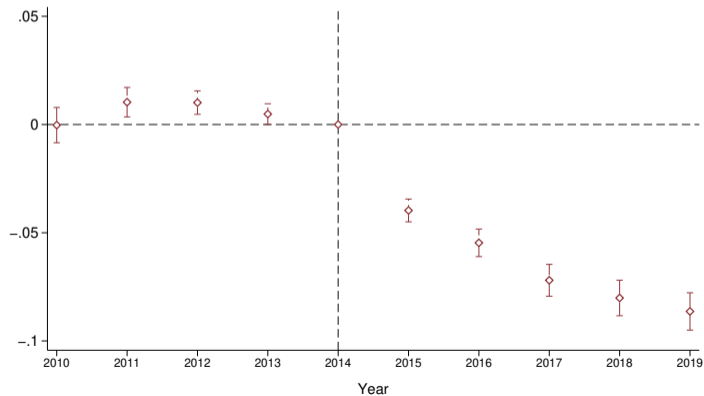
Aggregate Exports from US Drops

- Total export at the product×destination level from BACI
- Estimate: $Export_{p,d,t}/Export_{p,d,t=2014} = EXIM_p \times Post_{t \geq 2015} + \alpha_p + \gamma_{d,t}$
 $EXIM_p$: top quintile of total EXIM / total export pre shut-down



Aggregate Exports from US Drops

- Estimate: $Export_{p,d,t}/Export_{p,d,t=2014} = EXIM_p \times Post_{t \geq 2015} + \alpha_p + \gamma_{d,t}$
 $EXIM_p$: top quintile of total EXIM / total export pre shut-down
- Overall drop \rightarrow EXIM create exports \neq business stealing across US firms



1. EXIM support not **inframarginal** for firms
 - Average effect: \uparrow global sales, exports, K, L

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 - Creates trade for the US

1. EXIM support **not inframarginal** for firms ... because it **alleviates financing frictions**
 - **Average** effect: \uparrow global sales, exports, K, L
2. EXIM support **not inframarginal** in aggregate
 - **Creates trade** for the US
3. **How “efficient” was EXIM support?**
 - High **export opportunities** firms
 - High **MRPK** firms

3. Implications for Capital Allocation

Firms with Higher Export Opportunities are More Affected

Export opportunities: above median Δ US exports at the industry level (possibly correlated with US prod.)

<i>Dependent variable</i>	Global sales		
		US exports	Other countries exports
<i>Proxy for export opportunities</i>	(1)	(2)	(3)
EXIM×Post	-0.13*** (0.041)		
EXIM×Post×Export opportunities		-0.23*** (0.088)	-0.28*** (0.089)
<i>Fixed Effects (interacted)</i>			
Firm	✓	✓	✓
Destinations×Year	✓	✓	✓
Industry×Year	✓	✓	✓
EXIM×Year	—	✓	✓
Observations	12,281	11,319	11,308

Note: restricted to manufacturing firms

Firms with Higher Export Opportunities are More Affected

Export opportunities: above median Δ other developed countries exports (ADH, 2013; Hombert Matray, 2018)

<i>Dependent variable</i>	Global sales		
		US exports	Other countries exports
<i>Proxy for export opportunities</i>	(1)	(2)	(3)
EXIM×Post	-0.13*** (0.041)		
EXIM×Post×Export opportunities		-0.23*** (0.088)	-0.28*** (0.089)
<i>Fixed Effects (interacted)</i>			
Firm	✓	✓	✓
Destinations×Year	✓	✓	✓
Industry×Year	✓	✓	✓
EXIM×Year	—	✓	✓
Observations	12,281	11,319	11,308

Note: restricted to manufacturing firms

Firms with Higher Export Opportunities are More Affected

⇒ EXIM benefit firms more likely to have NPV > 0 projects ≠ supporting sluggish firms

<i>Dependent variable</i>	Global sales		
		US exports	Other countries exports
<i>Proxy for export opportunities</i>	(1)	(2)	(3)
EXIM×Post	-0.13*** (0.041)		
EXIM×Post×Export opportunities		-0.23*** (0.088)	-0.28*** (0.089)
<i>Fixed Effects (interacted)</i>			
Firm	✓	✓	✓
Destinations×Year	✓	✓	✓
Industry×Year	✓	✓	✓
EXIM×Year	—	✓	✓
Observations	12,281	11,319	11,308

Note: restricted to manufacturing firms

Misallocation Increases Within Listed Firms

- Estimate change in capital misallocation (Bau-Matray, 2022)
- With Cobb-Douglas, $MRPK = \frac{\partial Revenue_{it}}{\partial K_{it}} = \alpha_j^k \frac{Revenue_{it}}{K_{it}} \rightarrow$ within industries α_j^k is the same \Rightarrow $APK = MRPK$
- High MRPK = above industry median [2010–2014]

Misallocation Increases Within Listed Firms

- Estimate change in capital misallocation (Bau-Matray, 2022)
- High MRPK = above industry median [2010–2014]
- Capital shrinks more for high MRPK firms \Rightarrow **misallocation increases**

<i>Dependent variable</i>	Capital		
	Low	High	All
<i>Sample</i>	(1)	(2)	(3)
EXIM×Post	-0.044 (0.055)	-0.25*** (0.061)	
Treated×Post×MRPK			-0.21*** (0.087)
<i>Fixed Effects (interacted)</i>			
Firm	✓	✓	✓
Industry×Year	✓	✓	✓
Destinations×Year	✓	✓	✓
Treated×Year	—	—	✓
Observations	13,782	13,691	27,473

Export credit agencies are ubiquitous across countries, but usually difficult to evaluate their effects

US EXIM had large overall and allocative effects in a context with

- Developed financial markets
- Large, publicly listed firms

⇒ Empirical support for the special role of industrial policy for financing in international trade

Thank You!