Portfolio Rebalancing by Mutual Funds in Response to Government Policy

Working Paper
Reena Aggarwal and Yuchen Luo, 2024
Reporter: Yanrui Zhou

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Background and Motivation

- Tariffs are important policy tools.(Economic)
  - There has been considerable discussion on the impact of tariffs on inflation, economic growth, dollar, global supply chain.(Macro-Eco Level)
  - **Import tariffs (reduction)** can have effects on firms through **market competition.**(Firm Level)
- The impact they have on portfolio holdings and stock market returns of impacted industries has not been studied yet.(Finance)
- This paper studies whether tariffs influence **portfolio holdings** and **stock returns.**

Research Questions

Q1: **Whether import tariff reductions impact mutual funds' holdings?**

- Yes, fund tend to withdraw more from affected industries.

Q2: **In which case fund tend to withdraw more from affected industries?**

- When risk is higher and hard to tackle.

Q3: **Whether and how tariff reductions affect mutual funds' performance?**

- Tariff reductions make fund perform bad.

Contributions

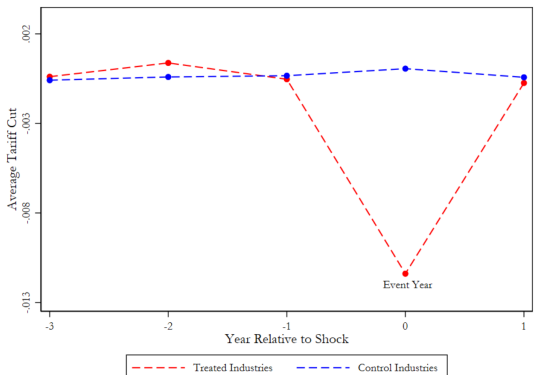
- The literature on investment under uncertainty.
  - Past Studies: have been centered on the effect of general macroeconomic uncertainty.
  - Extension: the effect of prediction uncertainty caused by trade policy changes.
- The literature on the effect of disruptions and distractions on portfolio management.
  - Past Studies: focused on market events, social events, natural events and political events.
  - Extension: examines the disruption effect of policy events.

Data

- Time period: 1990-2022.
- Data Source:
  1. Mutual fund **holdings data**: Thomson Reuters mutual fund holdings database.
  2. Portfolio stock's 3-digit standard **industry code**: Compustat SIC codes.
  3. **Fund characteristics** data: CRSP survivor-bias-free U.S. mutual fund database.
  4. U.S. **import tariff** data: from Peter Schott's website (Schott, 2008)
- Focus on large and non-transient tariff shocks.
  1. We focus on **manufacturing industries** and identify as **the major tariff reduction events**(Fr´esard, 2010; Valta, 2012).
  2. If an industry experienced multiple major tariff reductions during the sample period, we use the one with the largest tariff reduction.

Design

- **We include observations that are within a 5-year event window ([-3,1])) for each identified import tariff shock.** The final sample includes eight treatment years in which 23 industries experienced sudden and non-transient major tariff reductions.



1. The impact of import tariff reductions on portfolio choices

- Baseline regression: $Weight_{j,i,t} = \beta\, TariffCut \times Post + \gamma X_{i,t-1} + \delta_i + \theta_{j,t} + \epsilon_{j,i,t}$

Dependent Variable =	*Weight* (%)		
	(1)	(2)	(3)
TariffCut×*Post*	**-0.126*** **	**-0.165*** **	***-0.098****
	(-2.859)	**(-2.606)**	**(-2.679)**

- A mutual fund, on average, reduces by 12.6 percentage points of its total equity assets in industries that experience major tariff reductions.
- (2)-(3) examine whether the effect is only limited to funds with pre-event equity positions in affected industries.

1. The impact of import tariff reductions on portfolio choices

- Balance of covariates:
  1. **The two groups of industries were indistinguishable from each other** along all observable dimensions of industry characteristics.
- Validity of pre-event parallel-trend assumption:
  1. $Weight_{j,i,t} = \Sigma_{k=-1}^{+3} \beta_k TariffCut \times Year_k + \gamma X_{i,t-1} + \delta_i + \theta_{j,t} + \epsilon_{j,i,t}$
  2. The documented negative effect of major tariff reduction appears to be driven by significantly **different post-event trends.**

2. Heterogeneity effects: mechanism analysis

- Heterogeneity in fund characteristics:
  1. we estimate a nested triple-difference OLS model:
     $Weight_{j,i,t} = \beta_1 TariffCut \times Post \times HighCon + \ldots$
  2. HighCon is a dummy variable that equals one if the fund's in the top quartile sorted by the proxy of fund **portfolio concentration.**

Dependent Variable =	*Weight* (%)	
	Fund HHI	*Fund NumInd*
	(1)	(2)
TariffCut×*Post*×*HighCon* (β_1)	**-0.167****	**-0.220****
	(-2.024)	**(-2.215)**
TariffCut×*Post* (β_2)	-0.093**	-0.078**
	(-2.302)	(-2.084)

2. Heterogeneity effects: mechanism analysis

- Heterogeneity by Industry Characteristics:
  1. we estimate a nested triple-difference OLS model:
     $Weight_{j,i,t} = \beta_1 TariffCut \times Post \times HighBogIndex + \ldots$
     $Weight_{j,i,t} = \beta_1 TariffCut \times Post \times HighIndVol + \ldots$
  2. HighBogIndex captures accounting opacity; HighIndVol captures return volatility.

Dependent Variable =	*Weight* (%)	
	(1)	(2)
TariffCut×*Post*×*HighBogIndex* (β_1)	**-0.365*** **	
	(-3.223)	
TariffCut×*Post*×*HighIndVol* (β_1)		**-0.464*** **
		(-2.744)

  3. Examine an industry's vulnerability to entry threat.
  4. Puzzle: withdraw due to bad performance?
     $Performance_{i,t} = \beta\, TariffCut \times Post + \gamma X_{i,t-1} + \delta_i + \theta_{j,t} + \epsilon_{j,i,t}$

3. The impact of import tariff reductions on fund performance

- We estimate the following ordinary least square regression model:

$$FundAlpha_{j,t} = \alpha + \beta\, TariffExp \times Post + \gamma X_{j,t-1} + \theta_j + \delta_t + \epsilon_{j,t}.$$

1. Column (1): full sample;
2. Column (2)-(3): (never) reduce affected industries;
3. Column (4): use a nested triple-difference OLS model to test DiverseIndExp.

Dependent Variable =	*Fund Alpha* (%)			
	(1)	(2)	(3)	(4)
TariffExp×*Post* (β_1)	**-0.042*** **	**-0.058**	**-0.046*** **	**-0.049*** **
	(-3.275)	**(-1.381)**	**(-3.064)**	**(-3.632)**
TariffExp×*Post*×*DiverseIndExp* (β_2)				**0.106*** **
				(2.753)

Ideas

1. Test tariff shock and risk especially downside risk.
2. Could consider flow from different investors.
3. More studies between mutual fund and policy.
   - Mutual funds could forecast future policy;
   - Mutual funds also react to current policy.