Dollar borrowing by non-financial firms and the real effects of US monetary policy abroad

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Firm-level estimates of the real effects of US monetary policy on investment in 36 countries

- US monetary policy has significant real effects in all countries but largest in countries with pegged or managed exchange rates ("non-floaters").
- Stronger spillovers to investment in non-floaters arise from a relatively stronger response by firms with high leverage.
- These findings are based on transmission through international corporate bonds and suggest banking regulation is not enough to shore up the economy.

Motivation and contribution

- International transmission of monetary policy
- Previous papers focus on
  - **financial** spillovers
  - role of **banks** in the transmission
- **New** in my paper:
- estimate international **real** effects on investment
  - focus on
    - **non-financial** firms
    - international **corporate bonds**
  - identify **firm-financing spillover channel** (right-hand box)
    - blending out non-financial channels, e.g. agg. demand, information effects etc...

Identifying real effects through firm-financing spillovers

Identification approach combines two arguments:

1. **Firms with maturing debt shortly after monetary announcement more exposed relative to firms without.**
   - Firms with maturing debt experience drop in net worth and feasible borrowings, relative to those without maturing debt.
   - Argument formalized in simple theoretical framework.
2. **Exact timing of long-term debt maturity within a given quarter (before/after FOMC) exogenous.**
   - Bonds issued long before FOMC schedule known, many other determinants of issuance date
   - I verify that corporate bond maturity is approximately uniformly distributed over the FOMC cycle.
   - Monetary policy *shocks* adds additional layer of identification as they capture policy surprises.
   - Corporate bond issuance yields are significantly affected by the associated monetary shocks.

Specification

I regress firm-level investment on an interaction of the maturing debt dummy with the monetary policy shock:

$$\Delta k_{p,c,t} = a_p + a_{c,t} + b_1\ \mathrm{mp}^{\$}_{t-1} + b_2\ \mathrm{Mat}^{\$}_{p,t} + \beta\ \mathrm{mp}^{\$}_{t-1} \times\ \mathrm{Mat}^{\$}_{p,t-1} + \tau_1 X_{p,t-1} + \tau_2\ \mathrm{mp}^{\$}_{t-1} \times X_{p,t-1} + \epsilon_{p,t}$$

- $\Delta k_{p,c,t}$ = quarterly log-change in net property, plant and equipment
- Maturing-debt dummy:

$$\mathrm{Mat}^{\$}_{p,t-1} = \begin{cases} 1 \text{ if USD debt matures between FOMC2}_{t-1} \text{ and FOMC1}_t \\ 0 \text{ otherwise} \end{cases}$$

  - $\mathrm{FOMC2}_{t-1}$ = the last FOMC meeting of quarter $t-1$
  - robustness with various alternative schemes
- $\mathrm{mp}^{\$}_{t-1}$ is the high-frequency US monetary shock from $\mathrm{FOMC2}_{t-1}$
- vector of controls, firm and country×date fixed effects

Data

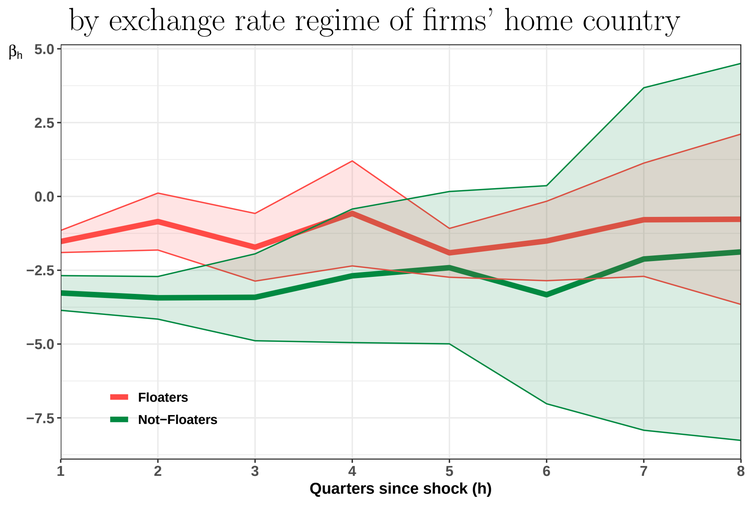
- Quarterly accounting: Compustat Global and Worldscope; Corporate bond info: Mergent, SDC, Dealogic
- 10431 non-financial firms from 36 countries (excl. utilities, public sector), 2003 Q1 - 2016 Q4 (excl. crises)
- Of 36 countries: 23 high income, 19 with floating exchange rate
- De-factor exchange rate regime classification from Ilzetzki, Reinhart, Rogoff (2019)

Overview of findings

1. Investment reductions after US montary tightening significant in all countries, but largest in non-floaters
2. Relatively stronger spillovers in non-floaters arise from firms with high-leverage
3. Exchange rate fluctuations contribute to heterogeneity: Amplify in non-floaters, dampen in floaters
4. Simple theoretical framework of currency choice rationalizes findings 1-3: Exchange rate management allows smaller and less productive firms to borrow in foreign currency → raises financial vulnerability.

Dynamics of investment responses

Response of real investment outside of USA to US monetary tightening by exchange rate regime of firms' home country



Estimates of coefficient on maturing×shock interaction at different horizons using local projection method.

Sample split by net leverage and exchange rate

	Dep-var: $\Delta k_{p,t}$			
	(1)	(2)	(3)	(4)
$\mathrm{mp}^{\$}_{t-1} \times \mathrm{Mat}^{\$}_{p,t-1}$	−1.769**	−2.081**	−0.943**	−1.528**
	(0.760)	(0.803)	(0.375)	(0.616)
$\mathrm{mp}^{\mathrm{ER}}_{t-1} \times \mathrm{Mat}^{\$}_{p,t-1}$		0.031		0.054
		(0.057)		(0.044)
$\mathrm{mp}^{\$}_{t-1} \times \mathrm{Mat}^{\$}_{p,t-1} \times \mathbb{1}^{\mathrm{nflt}}_{c,t}$	−2.881***	−1.783*	−1.089	−0.354
	(0.805)	(0.898)	(1.183)	(1.382)
$\mathrm{mp}^{\mathrm{ER}}_{t-1} \times \mathrm{Mat}^{\$}_{p,t-1} \times \mathbb{1}^{\mathrm{nflt}}_{c,t}$		−0.123**		−0.082
		(0.048)		(0.073)
Firm Net Leverage	High	High	Low	Low
Obs	104,063	104,063	101,933	101,933
Adjusted R^2	0.169	0.169	0.218	0.218

- Net leverage = (debt - cash)/Total assets
- $\mathrm{mp}^{ER}_{c,t-1}$ = chg. over FOMC day in exchange rate of country c against USD (>0 =$-strength)
- $\mathbb{1}^{\mathrm{nflt}}_{c,t}$ equals 1 if c is non-floater
- Split by exporter status inconclusive
- Robust with other leverage measures
- Robust to controlling for
  - Short-term debt share
  - Financial development

Conclusion

- US monetary policy has significant real effects outside of the USA. Exchange rate management associated with significantly stronger spillovers.
- Importance of leverage by non-financial firms & corporate bond borrowing $\implies$ banking regulation not enough to shore up economy.
- Increasing use of international bond markets & tax havens: Challenge might get magnified in the future. Even capital controls might become ineffective.

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