# Discussion:
# "Credit Crunches and the Great Stagflation"
# by Drechsler-Savov-Schnabl

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# Summary: Credit Crunches and the Great Stagflation

Idea: Regulation-Q caused 1966-1982 stagflation

- ▶ Fed's deposit rate ceilings (Reg-Q) became binding
- ▶ Outflow of core deposits caused credit crunch
- ▶ Credit crunch increased fin. costs (e.g., cost push a la Barth-Ramey-01)
- ▶ Firms raised prices (inflation) and cut output (recession)

Evidence:

1. Aggregate time series
2. XS: *manufacturing sectors (4-digit SIC) & years*
   - ▶ A: credit crunch ≈ agg. deposit flow
     crunch exposure ≈ Fin. dependence ≈ F(profit margin) sector level
   - ▶ B: credit crunch ≈ spread = FFR - deposit rate
     crunch exposure ≈ county level reg-Q exposure agg. to sector level

Discussion:

- ▶ XS-to-macro?
- ▶ What drives the XS?

# Req-Q period & Stagflation
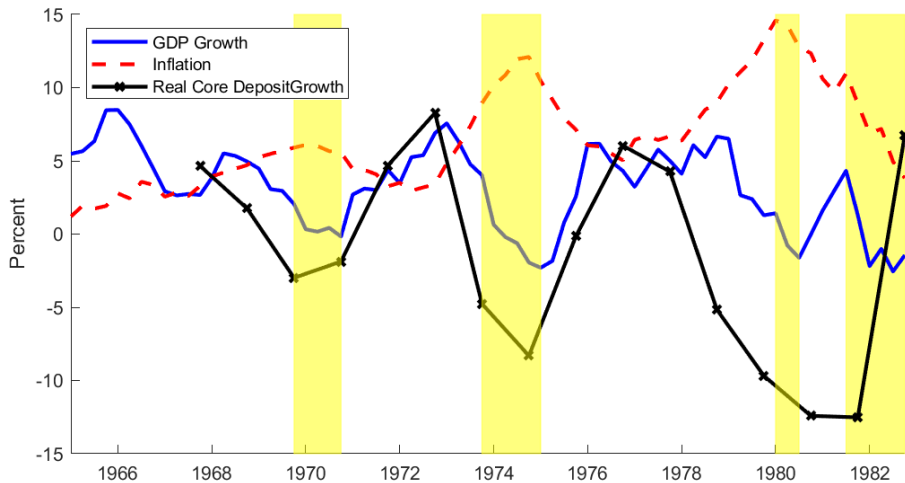
# Cross-sectional Fact 1: Binding Req-Q Period: 1966-1982

▶ Data: historical agg. FDIC & NBER CES Manufacturing

$$\Delta y_{i,t} = \gamma_i + \alpha_t + \beta \Delta D_t \times FinDep_i + \theta X_{i,t} + \varepsilon_{i,t}$$

# Cross-sectional Fact 1: Binding Req-Q Period: 1966-1982

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$$\Delta y_{i,t} = \gamma_i + \alpha_t + \beta \Delta D_t \times FinDep_i + \theta X_{i,t} + \varepsilon_{i,t}$$

|  | $\Delta$ Price | | $\Delta$ Output | |
|---|---|---|---|---|
|  | (1) | (2) | (3) | (4) |
| $\Delta$ Dep$_t \times$ Fin. Dep$_i$ | -0.24 | -0.29 | 0.63 | 0.57 |
|  | (-2.74) | (-3.15) | (2.82) | (2.60) |
| Controls | Yes | Yes | Yes | Yes |
| Time FE | Yes | Yes | Yes | Yes |
| Industry FE | Yes | Yes | Yes | Yes |
| Adjusted $R^2$ | 0.55 | 0.55 | 0.19 | 0.19 |
| $N$ | 7,344 | 7,344 | 7,344 | 7,344 |

▶ Aggregate fact consistent with micro-evidence

▶ Around 0.9% relative price increase and 1.7% relative output loss for more fin. dependent manufacturing industries for 15 pp deposit growth drop

# Post-Regulation-Q: No Stagflation
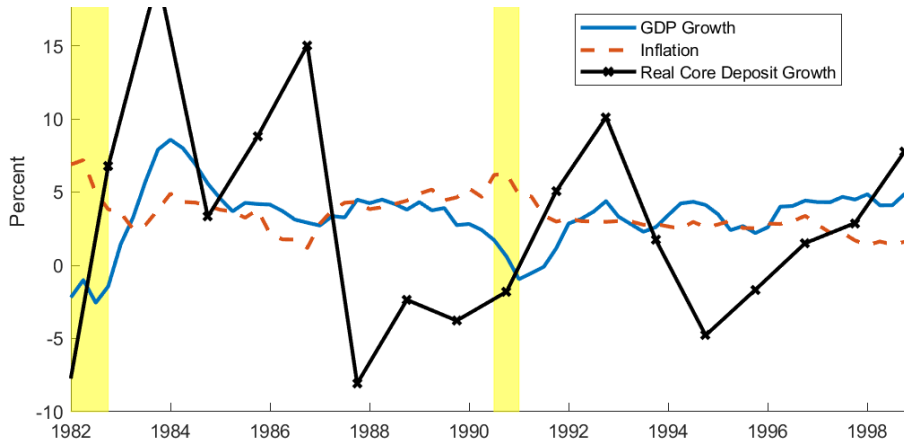


- ▶ No stagflation
- ▶ Large deposit swings

## Cross-sectional Fact 2: 1982-1998 No Reg-Q

| $\Delta y_{i,t} = \gamma_i + \alpha_t + \beta \Delta D_t \times FinDep_i + \theta X_{i,t} + \varepsilon_{i,t}$<br>Data: FDIC & NBER CES Manufacturing | $\Delta$ Price | | $\Delta$ Output | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| $\Delta$ Dep$_t \times$Fin. Dep$_i$ | -0.31 | -0.33 | 0.22 | 0.23 |
| | (-5.53) | (-6.34) | (1.78) | (1.97) |
| Controls | Yes | Yes | Yes | Yes |
| Time FE | Yes | Yes | Yes | Yes |
| Industry FE | Yes | Yes | Yes | Yes |
| Adjusted $R^2$ | 0.32 | 0.33 | 0.06 | 0.07 |
| N | 7,784 | 7,784 | 7,784 | 7,784 |

▶ Same XS-fact:
  Fin.dep. sectors raise prices & cut output as core deposits fall

▶ Different macro-fact: no stagflation

# Micro-Macro-Disconnect?
## Or why could Reg-Q mechanism fail to explain stagflation?

A. XS-fact explained by Reg-Q mechanism

- ▶ But manufacturing sector relatively small
- ▶ But countervailing general equilibrium effects, e.g., Δ relative prices accelerate secular shift to services, more outsourcing, Δ entry / exits

B. XS-fact not explained by Reg-Q mechanism

- ▶ Reg-Q-induced credit-crunch story?

# A: micro-fact may $\not\to$ macro-fact

▶ Large literature uses micro-estimates to understand policy responses

(e.g., Auclert-Dobbie-Goldsmith-Pinkham-19, Mian-Sufi-09, Parker-Souleles-Johnson-McClelland-13, Zwick-Mahon-17)

▶ Want agg. response $y$ to shock "$\varepsilon_t$" (e.g., credit crunch)

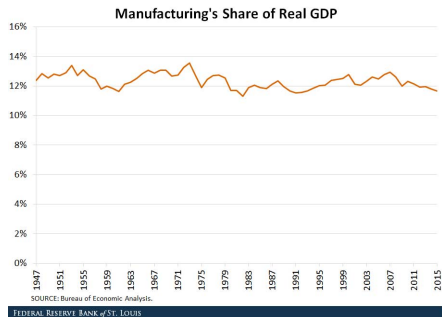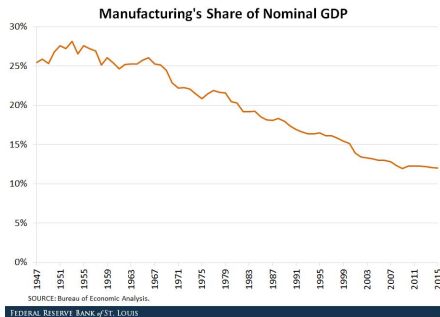$$\hat{y}_t = \underbrace{\hat{y}_{i,t}^{PE}}_{PE} + \underbrace{\hat{y}_{g,t}}_{GE}$$

▶ Causal micro-estimates

$$y_{i,t} = \gamma_i + \alpha_t + \beta \times \varepsilon_{i,t} + u_{i,t}$$

recover $\hat{\beta} = \hat{y}_{i,t}^{PE}$ assuming $\varepsilon_{i,t}$ and $\varepsilon_t$ imply symmetric effects

▶ Problem: possible GE effects soaked up by $\alpha_t$ time FE

$\alpha_t$ is "The Missing Intercept" (Wolf-21 studies stimulus checks)

▶ Typical solution involves some structure

e.g., Kaplan-Violante-18, von Lehm-Winberry-21, Winberry-21, Wolf-21

# A: Why XS fact may not aggregate



Manufacturing's Share of Nominal GDP

Manufacturing's Share of Real GDP

SOURCE: Bureau of Economic Analysis.
FEDERAL RESERVE BANK *of* ST. LOUIS

1. Small declining nominal GDP share

2. Even smaller but stable real GDP share

3. Prices in manufacturing grew less than in other sectors

# A: Financial Dependence and GDP Shares - all sectors

▶ Data: BEA (SIC 2-digit)
▶ Output shares of ex-gov N.GDP

| | FinDep | $< 66$ | 66-70 | 71-75 | 76-81 | $>= 82$ |
|---|---|---|---|---|---|---|
| manufacturing | | 30% | 29% | 26% | 25% | 20% |
| services+trade | | 37% | 38% | 40% | 41% | 46% |
| other | | 33% | 33% | 34% | 34% | 34% |

▶ But services + trade likely higher relative price growth

⇒ For mechanism to aggregate, need it stronger in services

# A: Financial Dependence and GDP Shares - all sectors

- ▶ Data: BEA (SIC 2-digit)
- ▶ Calculate "fin-dep" $= 2 - \frac{Sales}{Costs}$ using sales & input costs

|                 | FinDep      | $< 66$ | 66-70 | 71-75 | 76-81 | $>= 82$ |
|-----------------|-------------|--------|-------|-------|-------|---------|
| manufacturing   | High=0.54   | 30%    | 29%   | 26%   | 25%   | 20%     |
| services+trade  | Low=0.12    | 37%    | 38%   | 40%   | 41%   | 46%     |
| other           |             | 33%    | 33%   | 34%   | 34%   | 34%     |

- ▶ Service + trade less "fin-dep" than manufacturing
- ▶ Mechanism: ⇒ service sectors should have raised prices less
- ▶ But services + trade likely higher relative price growth

# A: Changing Composition of Manufacturing Sectors

- ▶ 66- 82: 6 least fin-dep. sectors gain 5% output share

- ▶ 66- 82: 6 most fin-dep. sectors loose 6% output share

| Industry Examples | FinDep | < 66 | 81-85 |
|---|---|---|---|
| Chemical & Pharma | | 8% | 10% |
| Electronics | Low | 4% | 4% |
| Machinery | | 15% | 20% |
| ... | | | |
| Transportation | | 17% | 14% |
| Primary Metal Industries | High | 8% | 5% |
| Textile Mill Products | | 3% | 2% |

- ▶ More entrants in low fin-dependent sectors
  Foster-Haltiwanger-Syverson 2008: entrants charge lower prices

- ▶ Akin to SUTVA violation or missing intercept problem

  - ▶ Price/output differences partially driven by less fin.dep sectors (more entrants) lowering prices higher sales

# B: XS-fact due to Reg-Q induced credit crunch?

► Data: $\mathrm{Corr}(\Delta \mathrm{Core}D_t, \Delta \mathrm{Total}L_t) > 0$

► Mechanism: less business lending $\Rightarrow$ higher prices & lower output

| 1966-1982 | $\Delta$ Price | $\Delta$ Output |
|---|---|---|

# B: XS-fact due to Reg-Q induced credit crunch?

▶ Mechanism: less business lending $\Rightarrow$ higher prices & lower output

▶ Data: credit boom/ more lending $\Rightarrow$ higher prices & lower output

| 1966-1982 | $\Delta$ Price | $\Delta$Output |
|---|---|---|
| $\Delta$ Real Business Loans$_t \times$ Fin. Dep$_i$ | 0.25 (2.43) | -0.73 (-5.02) |
| Controls | Yes | Yes |
| Time FE | Yes | Yes |
| Industry FE | Yes | Yes |
| Adjusted $R^2$ | 0.55 | 0.20 |
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▶ How to reconcile with XS fact around deposit growth?

$$\text{Corr}(\Delta \text{Core}D_t, \Delta \text{Business}L_t) = -0.63$$

## B: XS-fact due to Reg-Q induced credit crunch?

| 1966-1982 | Δ Price | ΔOutput |
|---|---|---|
| Δ Real Business Loans$_t \times$ Fin. Dep$_i$ | 0.25 | -0.73 |
| | (2.43) | (-5.02) |
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▶ Times are bad $\Rightarrow$ two independent effects

  ▶ Fed $\uparrow FFR \Rightarrow \Delta \text{Core} D_t \downarrow$
  ▶ Firms draw down credit lines $\Rightarrow \Delta$Business $L_t \uparrow$
    banks fund using market rate (does not yet explain intact)

▶ So maybe no credit crunch story - or just hard to detect at industry level

# B: Alternative Explanation for XS-fact

▶ FinDep: Constant $- F$(Profit Margin):

▶ "More financially constrained" $\approx$ low-profit-margin industries
   $\approx$ Liquidity constrained (higher Op-leverage) pre-1966 Compustat data



Figure axes: y-axis "Liquidity Constrained = SGA/Sales", x-axis "FinDep = Constant − Sales/Cogs"
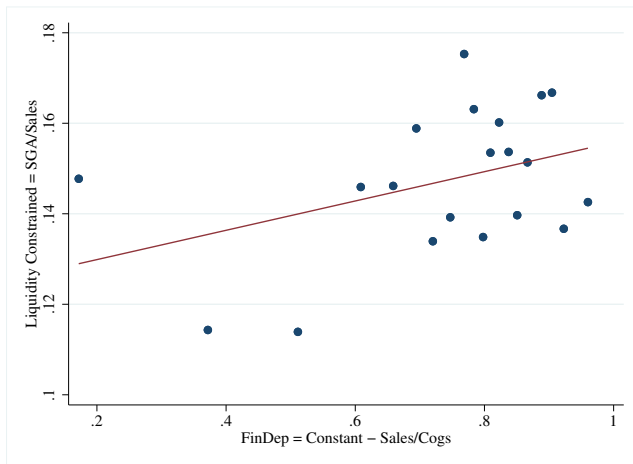
# B: Alternative Explanation for XS-fact

▶ Gilchrist-Schoenle-Sim-Zakrajšek-17: liquidity constrained firms increase prices & have low sales after neg. demand shock to preserve internal liquidity



Panel A. By liquidity ratio
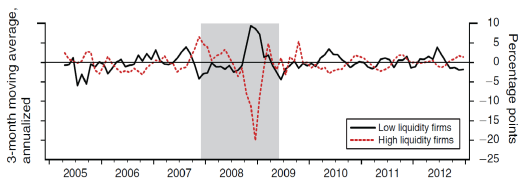
Panel B. By SGAX ratio

▶ Relies on financial friction but not Reg-Q induced bank-credit crunch
Would explain why micro-fact remains present post Reg-Q

# Suggestions to sharpen Reg-Q-mechanism

▶ Identification at industry level close to impossible
  Disaggregated data to nail Req-Q mechanism
  - ▶ US Census data for 1963, 1967, and 1972– present
  - ▶ Study banks' stock return reaction to ceiling removals in 1970, 1973, and 1978 – if banks were constrained from making profitable NPV investments relaxation of constrained, expect positive abnormal returns
  - ▶ Compustat not super populated but still stgh to learn from?

▶ Across state variation in intrastate branch restriction to validate Reg-Q exposure measure (stronger in states with restrictions)

▶ Reg-Q exposure: still might load up on regions with industries in decline, can you show this is not the case

▶ Why focus on manufacturing alone (BEA data even if just at 2 digits)

▶ International: UK coined "stagflation" in 1965; no deposit rate ceiling, so what's the reason there. Iain Macleod's 65 speech to Parliament:
  *"We now have the worst of both worlds—not just inflation on the one side or stagnation on the other, but both of them together. We have a sort of 'stagflation' situation. And history, in modern terms, is indeed being made."*

# Conclusion

▶ Compelling narrative of an important & topical question!

▶ Plausible: *Fed's deposit rate ceilings caused distortions*

▶ Micro-fact not as tightly linked to macro-phenomenon

▶ Interesting to quantify how much of stagflation micro fact explains

# Smaller issues

- ▶ 1973 revision of deposit rate ceilings introduced so-called "wildcard" deposit with 4-year maturity that had no ceiling. Distribution of deposits generally shifted towards longer maturity time deposits after that

- ▶ Fin dependence definition inconsistent between Table description and text (tables exclude energy, text includes energy)

- ▶ Description of Reg-Q measure could be improved. Earlier surveys have only limited states, but you seem to use anyways only the 1975 survey
  https://catalog.archives.gov/id/873795

- ▶ validation of fin measure
  - ▶ Census' Quarterly financial reports (QFR)
    2 digit SIC manufacturing sectors
  - ▶ Rather than recalculating "financial dependence" in this data: assigne financial dependence to QFR data
  - ▶ Virtually no diff in bank debt share, cash ratio etc.