Discussion of “Small and Large Firms over the Business Cycle”
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Summary of the Paper

- To what extent are individual firms heterogeneously reactive to aggregate shocks?

- Gertler & Gilchrist (1994): Small / Financially constrained firms are more sensitive to BC fluctuations (“Financial accelerator”)

- Empirical investigation using a representative survey of US firms

- Result: While small firms are indeed more reactive to shocks, the US economy’s granularity is such that the aggregate quantitative impact of this heterogeneity is close to zero
Underlying argument

- US economy is made of a (large) number $N$ of heterogeneous firms:
  \[ GDP \equiv \sum_{f} VA^f \]

- Aggregate response of the economy to a common shock decomposes as:
  \[ \varepsilon = \sum_{f} \omega^f \varepsilon^f \]

  where $\varepsilon$ (resp. $\varepsilon^f$) is the elasticity of the aggregate economy (resp. of firm $f$) and $\omega^f$ the share of firm $f$ in aggregate output (taken as fixed to simplify)

- (Abstracting from extensive margin effects)
Underlying argument (ii)

- By definition:

\[ \varepsilon = \bar{\varepsilon} + \text{Cov} \left( \frac{\omega_f}{\bar{\omega}}, \varepsilon^f \right) \]

with \( \bar{\varepsilon} \) the (simple) mean of elasticities

- Gertler & Gilchrist (1994): Small firms tend to be systematically more reactive to shocks and thus the Covariance is negative: \( \varepsilon < \bar{\varepsilon} \)

- Crouzet & Mehrotra: Difference is quantitatively small because the economy is granular:

\[ \varepsilon = \omega^S \varepsilon^S + (1 - \omega^S) \varepsilon^L \]

and \( (1 - \omega^S) \) is large (and rising): \( \varepsilon \approx \varepsilon^L \)
Data and empirical strategy

- A **representative, quarterly** panel of US manufacturing firms from 1977 to 2014 (balance-sheet variables): 8,122 out of 136,205?

- Evidence of heterogeneous $\varepsilon^f$:

  $$d \ln Sales^f = \sum_i \varepsilon^i Pctle^i d \ln GDP + Controls^f + \varepsilon^f$$

- Estimated by (weighted?) least squares (See Davezies & d’Haultfoeuille, 2009)

- Result: $\varepsilon^{[99.5,100]} < \varepsilon^{[0,99.5]}$

- Note that given the simultaneity bias ($\frac{d \ln GDP}{d \ln Sales^f} = \omega^f$), the estimated elasticity gap is a lower bound
Data and empirical strategy (ii)

- Aggregate impact of heterogeneous elasticities is close to zero:

\[
\varepsilon = \omega^S \varepsilon^S + (1 - \omega^S) \varepsilon^L \\
= \varepsilon^L + \omega^S (\varepsilon^S - \varepsilon^L)
\]

\(\omega^{[0,99.5]}\) small and declining (How small? Share in VA, Combined Domar weights?)

- To what extent is the heterogeneity in \(\varepsilon^f\) a consequence of heterogeneous financial constraints?
  - Probably not much given the difference is significant between the bottom 99.5% and the top 0.5%
  - Confirmed when estimated within groups of financially strong/weak firms (Endogeneity of these ratios?)
  - Estimates of the response of small and large firms to well-identified monetary shocks confirm the excess sensitivity of small firms, which is not significant however
Implications

- In a world of granularity, what we care about is the elasticity of large firms to various shocks.

- Large firms are less sensitive to economic downturns but they are more exposed to other risks...
  - Systemic shocks to the financial system
  - Foreign shocks (di Giovanni et al, 2018)
  - ER risk / liquidity shock in FX markets (Horny et al, 2018)

- ... When exposed to such shock, their reaction diffuses to the rest of the economy (Acemoglu et al, 2012)

- ... Impact on small firms is all the strongest since these firms tend to be poorly diversified (i.e. strongly dependent on their relationships with a small number of large firms)