Discussion of ”Cross-Sectional Financial Conditions, Business Cycles and The Lending Channel,” by Thiago Ferreira

Nicolas Crouzet

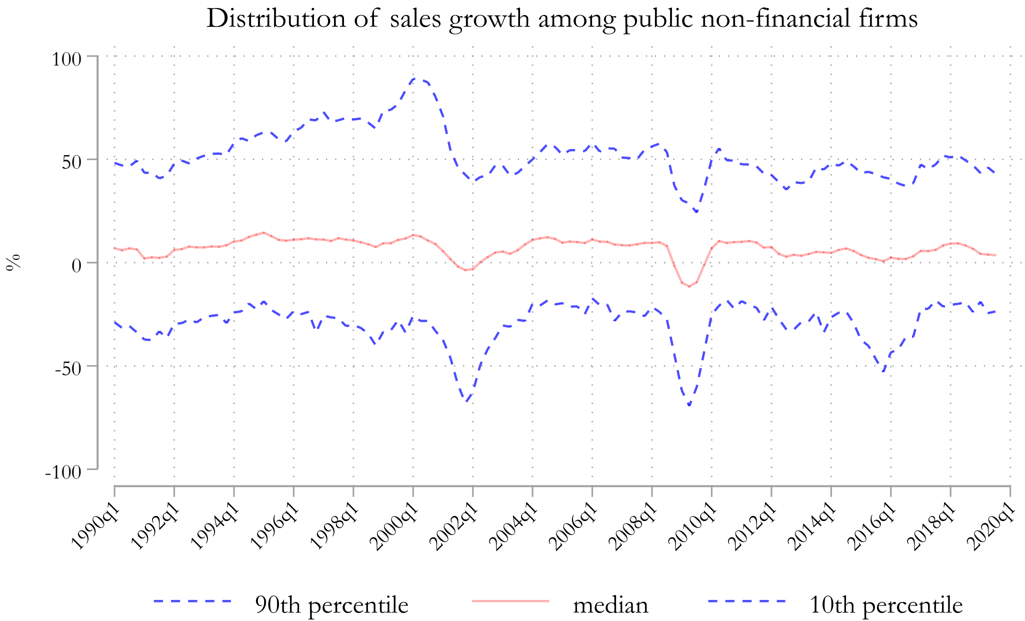
Kellogg

Overview

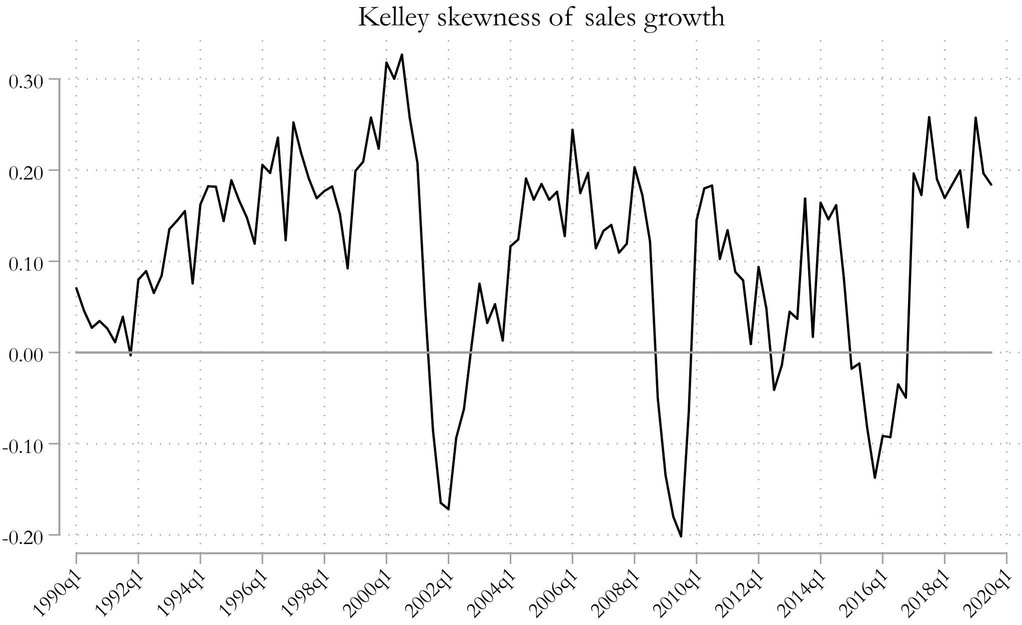
Skewness is cyclical

- The distribution of *realized* sales growth is more left-skewed in recessions

    Salgado, Guvenen, Bloom (2019)



Distribution of sales growth among public non-financial firms
100
50
0
-50
-100
%
1990q1
1992q1
1994q1
1996q1
1998q1
2000q1
2002q1
2004q1
2006q1
2008q1
2010q1
2012q1
2014q1
2016q1
2018q1
2020q1
90th percentile
median
10th percentile



Kelley skewness of sales growth
0.30
0.20
0.10
0.00
-0.10
-0.20
1990q1
1992q1
1994q1
1996q1
1998q1
2000q1
2002q1
2004q1
2006q1
2008q1
2010q1
2012q1
2014q1
2016q1
2018q1
2020q1

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Skewness is cyclical

- The distribution of *realized* sales growth is more left-skewed in recessions

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- The *options-implied* distribution of equity returns is more left-skewed in recessions

  Dew-Becker (2022)

Overview

Skewness is cyclical

- The distribution of *realized* sales growth is more left-skewed in recessions
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- The *options-implied* distribution of equity returns is more left-skewed in recessions
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This paper:

New measure of skewness, focused on financial intermediaries

Skewness of Realized equity returns of Financial intermediaries — "SRF"

Overview

Main findings

- SRF leads the cycle by 3-4 quarters
- SRF is positively correlated with banks’ ROA and primary dealers’ equity capital ratio
- SRF predicts growth in aggregate outstanding loans to corporations
- SRF predicts capex by public firms

Overview

Main findings

- SRF leads the cycle by 3-4 quarters
- SRF is positively correlated with banks' ROA and primary dealers' equity capital ratio
- SRF predicts growth in aggregate outstanding loans to corporations
- SRF predicts capex by public firms

Comments

1. Empirics
2. Banks vs. non-bank financial intermediaries
3. Interpreting the evidence

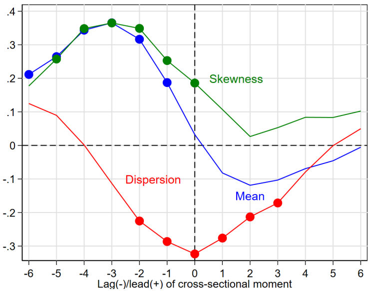
Comment 1(a): third and first-moment shocks

	Financial Firms		
Variable =	Mean	Dispersion	Skewness
Variable	0.74***	0.54	0.74***
Uncertainty	-0.07	-0.28	-0.07
Real Fed Funds	0.34	0.28	0.35
Term Spread	0.89***	0.86***	0.94***
EBP	-0.44*	-0.71**	-0.32
R^2	0.37	0.34	0.41

SRF predicts 4-quarter ahead GDP growth

Comment 1(a): third and first-moment shocks

(A) Stock Returns, Financial Firms



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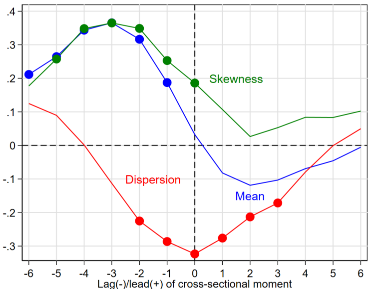
But SRF is highly correlated with first moment of equity returns of Financial Intermediaries

Comment 1(a): third and first-moment shocks

(A) Stock Returns, Financial Firms



SRF predicts 4-quarter ahead GDP growth

But SRF is highly correlated with first moment of equity returns of Financial Intermediaries

<u>Suggestion:</u> in predictive regressions, control for first moments throughout

Comment 1(b): cross-sectional vs. within-firm skewness

$$r_{i,t} = r_{m,t} + \varepsilon_{i,t}$$

Dew-Becker (2022):

S&P 500 options $\rightarrow$ "aggregate" skewness

single-name options $\rightarrow$ "firm-level" skewness

idiosyncratic skewness = residual

only "idiosyncratic skewness" is procyclical

This paper:

cross-sectional skewness = combination of aggregate and idiosyncratic

Suggestion: use panel dimension to construct within-firm measures?

Comment 2: which financial intermediaries?

<u>SRF predicts</u>

Corporate loan growth (aggregate)

Capex (firm-level)

$\therefore$ *"SRF is a barometer of the credit channel"*

<u>SRF does not predict</u>

Bond or commercial paper growth (aggregate)

Comment 2: which financial intermediaries?

Traditional (bank) credit channel

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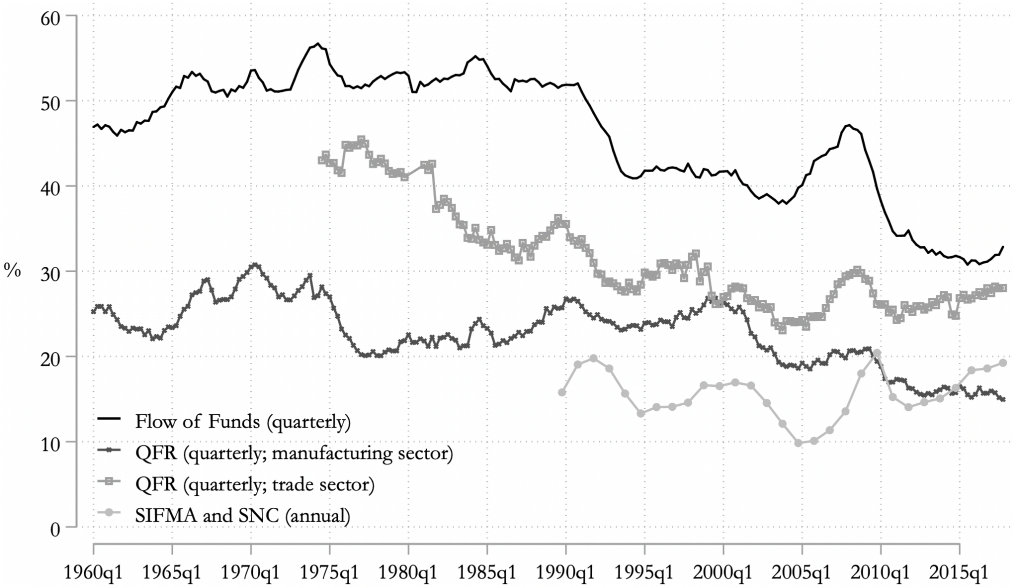
Traditional (bank) credit channel [Crouzet, 2021; Schwert, 2021; Berg et al., 2021]

Loans account for a shrinking share of corporate debt

The loan share in corporate debt has been declining since 1990

[Crouzet, 2021]



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Within loans: institutional investors (CLOs, loan funds) are replacing banks

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Emerging (non-bank) credit channel [Li and Yu, 2021; Crouzet and Darmouni, 2022]

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Bonds; pension funds/insurance companies $\sim$ 40%; Mutual funds $\sim$ 20%

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- Different liability structure

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Different liability structure

Suggestion: How bank-centric is SRF?

Separate banks from other intermediaries

Are the effects of SRF concentrated on firms that use loan markets actively?

Comment 3: Interpreting the evidence

"The cross-sectional state of financial firms' balance sheets is an important component of business cycles"

Model

Cross-sectional moments of banker net worth are not state variables

Skewness comes from assuming that shocks to returns on bankers' investments are skewed

Broader question: where does skewness come from?

Are "fundamentals" skewed?

Or is skewness a manifestation of underlying frictions?

A simple model (1/2)

[Crouzet and Darmouni, 2022]

Non-financial corporation (NFC)

AK w/ capital quality shocks: $K_{t+1} = \xi_t \, (I_t + (1-\delta)K_t), \quad \xi_t \sim F(.) \quad$ i.i.d.

all-equity financed

Household

can buy NFC shares (utility cost χ)

can buy bank liabilities

Bank

issues equity and deposits s.t. leverage constraint $\overline{x}$

buys NFC shares

limited liability + exit if liquidated; replaced only in the following period

A simple model (2/2)

Equilibrium

$$\zeta_t = \mathbf{1}\{\text{intermediary default}\} = \mathbf{1}\{\xi_t \leq \xi_L\}$$

when $\zeta_t = 0$: household holds all NFC shares; no active intermediary

when $\zeta_t = 1$: intermediary holds all NFC shares; intermediary leverage is $\bar{x}$

$\therefore$ balanced growth with shocks:

$$\begin{aligned} K_{t+1} &= \xi_{t+1}(1+g_t)K_t, \\ g_t &= \zeta_t g_L + (1-\zeta_t) g_H, \quad g_L < g_H. \end{aligned}$$

Question: Are returns skewed? Does skewness depend on ζ_t?

Realized returns

Equity returns of NFC:

$$
\begin{aligned}
R_t^{(e)} &= (A + 1 - \delta)\xi_t \\
\text{skew}(R_t^{(e)}) &= \text{skew}(\xi_t)
\end{aligned}
$$

Equity returns of intermediary:

$$
\begin{aligned}
R_t^{(i)} &= \frac{(A + 1 - \delta)}{1 - \overline{x}} (\xi_t - \xi_L)\, \zeta_t \\
\text{skew}(R_t^{(i)}) &> \text{skew}(\xi_t)
\end{aligned}
$$

Intermediary shares are a call option on NFC shares

Interpreting the results

Interpretation 1 (this paper): Skewness of fundamentals is pro-cyclical

i.e. ξ_t, the shock *to non-financial firms*, has pro-cyclical skewness

but then why focus on SRF, instead of non-financial firms?

Interpretation 2: Intermediation induces pro-cyclical skewness

if only levered (bank) intermediaries: call option intuition hard to escape

if other types of intermediaries (e.g. mutual funds)

limited intermediary leverage $\therefore$ equity returns of intermediaries are more left-skewed

amplification of negative shocks if investor outflows lead to fire-sales [Ma et al., 2021]

Conclusion

Summary: SRF correlates with

- $4q$-ahead GDP growth
- Intermediary balance sheet strength
- Loan growth

Suggestions:

- Document realized skewness within intermediaries
- Disaggregate SRF across types of financial intermediaries
- Are ”fundamental” shocks skewed, or do financial frictions induce skewness?