Research Proposal

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Two Possible Avenues

1. News-noise driven uncertainty
2. Financial Shocks vs Uncertainty Shocks

Variables of Interest

$$\begin{aligned}\text{Cash Flow} &= \text{Undistributed Corporate Profits} \\ &+ \text{Consumption of Fixed Capital} \\ &- \text{Net Capital Transfers Paid}\end{aligned}$$

$$\text{Undistributed Corporate Profits} = \text{Corporate Profits} - \text{Dividends}$$

where **consumption of fixed capital** can be simply interpreted as capital depreciation and **net capital transfers paid** are unrequited transfers, e.g. charity.

Key Variable

$$\frac{\text{Cash Flow}}{\text{Corporate Profits}} = 1 - \frac{\text{Dividends} + \text{Consumption of K - K Transfers}}{\text{Corporate Profits}}$$
$$= 1 - \frac{\text{Cash Dispersion}}{\text{Corporate Profits}}$$

Cash Flow is a profit-related measure of internal funds available for investment. [The NIPA Handbook, December 2015]

Economic Intuition

- It is reasonable to think that after a **decrease in credit supply**, firms would attempt to decrease cash dispersion relatively to corporate profits $\Rightarrow$ increase cash flow relatively to current profits.

- It is reasonable to think that after an **increase in uncertainty**, corporate profits would decrease but firms would not attempt to decrease cash dispersion relatively to corporate profits since they do not need to increase cash flow relatively to current profits.
    - As a result an **uncertainty shock** should decrease cash flow relatively to current profits.

Suggestive Evidence

Run the following regression,

$$\frac{CF_t}{CP_t} = \alpha + B(L)X_{t-1} + \beta^F F_t + \beta^U U_t + \varepsilon_t$$

where CF_t and CP_t are cash flow and corporate profits as described above, X_{t-1} is a vector of control variables,

$$X_{t-1} = [GDP_{t-1}\ I_{t-1}\ C_{t-1}\ SP_{t-1}\ H_{t-1}\ U_{t-1}\ F_{t-1}\ CF_{t-1}/CP_{t-1}]$$

and F_t and U_t are proxies for financial shocks and uncertainty shocks, respectively.

Results

Benchmark regression,

$$\frac{CF_t}{CP_t} = \alpha + B(L)X_{t-1} + \beta^F F_t + \beta^U U_t + \varepsilon_t$$

- β^F is always positive and significant at 1%.
- β^U is either negative and significant at 10% or not significant.

Interpretation - Erosion of the Financial System

Graph

Interpretation - Erosion of the Financial System

Graph

Technically Speaking (I)

Assume you use OLS techniques to regress X_t on its own past

$$X_t = B_1 X_{t-1} + B_2 X_{t-2} + \cdots + B_p X_{t-p} + \iota_t$$

where $X_t = [U_t \quad Y_t \quad F_t]'$, U_t represents a proxy for uncertainty, Y_t a column vector of macro variables, and F_t a vector of financial variables.

Moreover, $\iota_t = [\iota_t^U \quad \iota_t^Y \quad \iota_t^F]'$ is a vector of time-varying innovations related to the corresponding variables.

In general, ι_t does not represent a vector of structural shocks since

$$\iota_t \iota_t' \neq I_n$$

which implies that innovations represent a (linear) combination of the structural shocks.

Technically Speaking (II)

Structural VARs methods aim to solve the following system in order to recover structural shocks

$$\iota_t = C s_t \quad \Rightarrow \quad s_t = C^{-1} \iota_t \quad \Rightarrow \quad s_t = A \iota_t$$

which is

$$\begin{cases} s_t^U = A_{11} \iota_t^U + A_{12} \iota_t^Y + A_{13} \iota_t^F \\ s_t^Y = A_{21} \iota_t^U + A_{22} \iota_t^Y + A_{23} \iota_t^F \\ s_t^U = A_{31} \iota_t^U + A_{32} \iota_t^Y + A_{33} \iota_t^F \end{cases}$$

1. **Latent variable** $\Rightarrow$ ι_t^U may not represent innovations to uncertainty
2. **Simultaneity** $\Rightarrow$ Each element of A is different from zero
3. **Reverse causality** $\Rightarrow$ ι_t^U may be lead by $s_{t,t+h}$, $h > 0$
4. **Financial shocks** $\Rightarrow$ $E[\iota_t^U \iota_t^{F\prime}] \neq 0$ and large

(1) Latent Variable

Not surprisingly, $Corr(VXO_t, JLN_t) = 0.4139$

However, $Corr(\iota_t^{VXO}, \iota_t^{JLN}) \in [-0.1865 \;\; 0]$

Which means that although the 2 raw series are highly correlated, once we control for available information at $t-1$ then they convey different information.

Solution. JLN proxy is consistent with the theoretical definition of uncertainty.

$\Rightarrow$ VXO measures **macro volatility** and not macro uncertainty.

(2) Simultaneity with other shocks

In general,

$$corr(\iota_t^{JLN}, s_t^Y) \approx 0$$

which implies that uncertainty innovations are fairly uncorrelated with macro structural shocks series derived in the literature.

s_t^Y are several series of macro structural shocks derived by the literature (possibly via narrative approach).

- Romer and Romer (2010) unanticipated tax shocks
- Martens and Ravn (2011) labor productivity shocks
- Leeper et al. (2013) anticipated tax shocks
- Kilian (2009) oil shocks
- ...

(3) Reverse causality with news shocks

- **JLN proxy** controls for the forecastable part of each variable
- Some structural shocks shown above are **anticipated**
- We can possibly control for **news shocks** to TFP
  - However, we will have to assume that TFP is fully exogenous
- **Surveys** can help for the short run horizon
  - SPF has the best timing
- Most importantly, we should control for the shocks and the **square of the shocks**
  - Potentially, uncertainty may evenly react for large shocks no matter the sign

(4) Financial Shocks vs Uncertainty Shocks

Stock and Watson (2012); Caldara, Fuentes-Albero, Gilchrist, and Zakrajzek (2016) shown that uncertainty shocks and financial shocks are deeply confounded.

$$corr(\iota_t^{EBP}, \iota_t^{JLN}) \approx 0.45$$

where ι_t^{EBP} is an innovation in the **excess bond premium** from Gilchrist and Zakrajzek (2012).

Literature did not succeed yet to disentangle the two exogenous sources:

- **External instruments** do not seem to be available
- **Internal instruments** are difficult to find because variables respond analogously to both shocks

(4) Financial Shocks vs Uncertainty Shocks - Solution (I)

I propose a **novel family of internal instruments** which can help out to disentangle the two exogenous shocks.

Economic Intuition.

- An exogenous deterioration of credit conditions should display the attempt of borrowers to fund their projects with **alternative sources** (at least on impact): internal cash flow, equity issuance, ...
- Alternatively, following real-options models (Bernanke, 1983; Brennan and Schwartz, 1985; McDonald and Siegel, 1986) after an uncertainty shock firms prefer to **wait-and-see** without undertake any investment.

(4) Financial Shocks vs Uncertainty Shocks - Solution (II)

Although the impact effect on investment is expected to be negative in both cases, I expect

- a financial shock to have a **negative impact** on internal cash flow;
- an uncertainty shock to have a **non-negative impact** on internal cash flow.

The two shocks can be disentangled via **sign restrictions** à la Uhlig (2005)