Discussion of: "Default Cycles" by Wei Cui and Leo Kaas

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21th Annual DNB Research Conference
"UNCLOGGING THE CREDIT CHANNEL"
De Nederlandsche Bank
November 12-13, 2018

Roadmap of the discussion

1. Overview of findings
2. Praises
3. Criticisms and suggestions

Overview of findings

Motivation

- Persistent credit cycles
- Credit spread = excess bond premium + default risk

Overview of findings (cont.)

Approach

- Proposes a unified framework with self-fulfilling shocks to link credit cycles with spread and economic activity
- "*Dynamic*" complementarities generate two steady states:
  - Risky, low-activity steady state: high R, high default, self-fulfilling prophecies
  - High-activity steady state
- Self-fulfilling beliefs critical for default risk and credit spread and, consequently, aggregate dynamics (Bad belief raises spread and decreases real activity, but the propagation is through default risk)

Praises

Several fundamental aspects of the analysis are exciting

- Business cycles based on *complementarity*: Shocks initiate persistent behavior
- The framework allows for the commonly-observed but rarely-explain phenomenon of 'hysteresis'
- Financial frictions and credit spread are central to the analysis, yet the propagation mechanism is different

Criticisms and Suggestions (1)

Complementarity and the role of two steady states

Dynamic complementarity generates two steady states

- Risky steady state
- Normal (non-risky) steady state

However, the analysis is all about the risky steady state, but it does not have to be

- This choice impairs the full mechanism of complementarity
- What if shocks are large and drive the system to the alternative steady state?
- How does the system alternate across the two steady states?—paper should confront/discuss these issues

Criticisms and Suggestions (2)

Role of sunspot and fundamental shocks

The juicy story is about self-fulfilling prophecies, but the analysis allows for alternative interpretations

Recall sunspot shock (ϵ^b_{t+1}): $v_{t+1} = \widetilde{f}(\widetilde{X}_t, \widetilde{X}_{t+1}, v_t - \epsilon^b_{t+1})$

$$\tilde{\eta}_{t+1} = \log\left[\frac{(1-\lambda_{t+1})\zeta}{1-\xi_t}\right] - v_{t+1} \ , \tag{10}$$

$$\theta_t = \frac{\bar{\rho}_t(1+\Phi_t)}{\bar{\rho}_t(1+\Phi_t) - \mathbb{E}_t\left[\lambda_{t+1}G(\tilde{\eta}_{t+1}) + \xi_t(1-G(\tilde{\eta}_{t+1}))\right]} - 1 \ , \tag{11}$$

$$\mathbb{E}_t[G'(\tilde{\eta}_{t+1})(\xi_t - \lambda_{t+1})] = \mathbb{E}_t(1-G(\tilde{\eta}_{t+1}))\Big\{1 - \bar{\rho}_t(1+\Phi_t) - \mathbb{E}_t[G(\tilde{\eta}_{t+1})(\xi_t - \lambda_{t+1})]\Big\} \ , \tag{12}$$

with $\xi_t \equiv \rho_t\theta_t/(1+\theta_t)$.

May fundamental shocks be instrumental for default cycles? To what extent are shocks to bond premium (Φ), technology (μ^A), recovery ability (λ) important?

Criticisms and Suggestions (3)

Potential important role for future shocks

- Recall sunspot shock (ϵ^b_{t+1}):

$$v_{t+1} = \widetilde{f}(\widetilde{X}_t, \widetilde{X}_{t+1}, v_t - \epsilon^b_{t+1})$$

- Key feature: it is a shock in the future. Key finding: relevant to explain default risk and credit spreads
- What about future fundamental shocks that are anticipated today (i.e., news shocks or discount factor shocks)?
- It turns out that news shocks play an important role to explain the bond premium and the relevance of spreads for real activity (Gortz et al. (2016)). The paper could also speak to this literature

Criticisms and Suggestions (4)

Estimation of the model

- The stochastic processes estimated with annual data 1992-2016. 34 observations
- Shock processes estimated with ML. Are cross-equation restrictions used in the estimation? Why not estimating (some) structural parameters?

Criticisms and Suggestions (4) (cont.)

Empirical performance of the model

How does the model perform?—some mixed feelings on risky SS and no feelings on non-risky SS

Table 1: **Data vs. Model with Only Sunspot Shocks (Model Values in Brackets)**

Correlation	Spread	Recovery Rate	Default Rate	Output Growth
Spread	1	-0.40 (0.91)	0.64 (0.55)	-0.58 (-0.75)
Recovery Rate	-	1	-0.76 (0.16)	0.33 (-0.61)
Default Rate	-	-	1	-0.54 (-0.57)
Output Growth	-	-	-	1
Mean (%)	2.01 (2.01)	41.17 (41.17)	1.58 (1.58)	1.70 (1.70)
Std dev. (%)	0.86 (0.30)	8.97 (4.42)	1.05 (2.67)	1.90 (2.05)

Table 5: **Variance Decomposition in Percents**

	Exogenous Shocks to				
	EBP (1)	Collateral (2)	Sunspot (3)	Productivity (4)	All financial shocks (1) + (2) + (3)
Credit Spreads	98.25	0.18	1.57	0	100
Recovery Rate	77.15	19.59	3.26	0	100
Default Rate	22.06	44.56	33.38	0	100
Output Growth	41.16	3.32	17.63	37.88	62.12
Debt-to-Output	37.73	5.77	54.25	2.26	97.74

Conclusion

The study offers a novel perspective to explain persistent credit cycles. Central role of complementarity in conjunction to self-fulling beliefs and financial frictions

The idea that complementarity forces may be at work in financial markets is exciting and novel in a GE framework. In my view, it's the original and big takeaway of the analysis

I wonder whether non-fundamental shocks exclusively activate default cycles, or also fundamental shocks play a relevant role