Discussion of Evergreening by Faria-e-Castro, Paul and Sanchez Ryan Banerjee FINPRO, Halle, 5-6 May

Evergreening - summary

- Granting of a new loan to prevent a firm defaulting on a existing loan
 - At a below market interest rate

Theoretical insight

- This paper shows that <u>forbearance</u> by lenders, rather than <u>foreclosing</u> on the loan can be constrained efficient
 - But only in a certain region
- Why? In this region:
 - Loss in foreclosure (eg legal cost of insolvency + haircut when reselling assets in secondary market)
 - Is greater than
 - Lending to the firm at a below market interest rate so it can continue to produce and pay back at least some fraction of the original loan

Evergreening - summary

Empirical insight

- Banks with lower capital
 - More likely to assign firms a lower probability of default (PD)
 - More likely to provide credit to firms where their in-house PD is low relative to peers
- Implication -> weaker banks, more likely to evergreen

Comments

- 1. Is evergreening captured in the model really zombie lending?
 - If not, what is it?
- 2. Are the empirical findings regarding the influence of bank capital on evergreening consistent with constrained efficiency (in the dynamic model)
 - Could welfare be improved by giving / forcing banks to hold more capital?
- 3. What effect does the risk-free rate have on evergreening?

Comment 1: Evergreening and zombie lending

- Caballero, Hoshi and Kashyap (2008) came up with the idea that "subsidised credit" lending to risky firms at below market interest rates – could measure the extent of zombie lending
- This paper shows that subsidised credit, which at first sight seems perverse and often associated with negative externalities in other studies – may actually be efficient
- This insight is that also found in an ECB Working Paper: Barbaro and Tirelli (2021): "Forbearance vs foreclosure in a general equilibrium model"
 - Cost of foreclosing > cost of forbearance over some region of firm productivity

Comment 1: Evergreening and zombie lending

- BT (2021) also do not find congestion effects (due forbearance pushing up wages)
 - Because the higher level of demand – by not foreclosing outweighs congestion effects
 - In aggregate: cost paid on default > cost of continuation
- To get congestion effects probably need lending in the "Default" region
- Or cost of default transfered to others in the economy – eg lawyers or to distressed funds – rather than being thown away



Comment 1: No zombie congestion -> can we still do better?

- One insight from **BT** (2021)
 - Key friction in the model is the inability to take capital from a firm that enters the zombie zone and frictionlessly hand it to a productive firm
- Once loans are granted, the fungible loan/capital becomes specific to the firm
 - Key friction in this paper is "Specificity": Caballero and Hammour (1998)
 - Results in a hold-up problem -> the firm extracts rents
- What can you do about it
 - Facilitate capital reallocation: Eisfeldt and Rampini (2006)
 - Improve efficiency of insolvency proceedings: Becker and Ivashina (2021)
 - Force banks to sell NPLs (if bankcrupty costs are just transfers): Bonfim et al (2021)

Comment 2: Can welfare be improved by forcing banks to raise more capital

- Static model extension -> with bank capital
 - Low capital more associated with more evergreening
- Empirical analysis -> banks with low capital
 - More likely to provide credit to firms where their in-house PD is low relative to peers
 - Suggests something less benign that efficient evergreening?
- Dynamic model -> does not include bank capital
 - But bank capital seems to affect incentives to evergreen
 - In a general equilibrium where bank capital matters for evergreening
 - Would welfare be higher if resources were taken from one sector and given to banks to increase the bank's capital endowment *a*?

Comment 3: What effect do risk-free rates have on evergreening?

Range of zombie share estimates across definitions



Interest rates, bank health and zombie shares



Change in zombie anatomy post-2000



- Banerjee and Hofmann (2018; 2020): Ratcheting up in the share of zombie firms
- Lower interest rates go hand-in-hand with higher zombie shares and the effects are stronger in more external finance dependent sectors
- Reduced financial pressure since early 2000s
 - Zombies still less profitable compared to healthy firms, but don't shrink at a faster rate

Comment 3: What effect do risk-free rates have on evergreening?

- In the static model: $R^f = 1/\beta^k$
- $\frac{\partial(\hat{b}-\bar{b})}{\partial\beta^k} > 0$
- Therefore, the evergreening region becomes larger with lower risk-free rates
- Would be interesting to see in the dynamic model if a lower R^f economy sees
 - Evergreen firms shrinking at a lower rate
- If so, would be consistent with Banerjee and Hofmann's (2020) life cycle of zombie firms



Summary

- Great paper
- Insights on forbearance lending and GE consequences complement those in Barbaro and Tirelli (2021)
 - May see subsidised credit but if only found in the "efficient evergreening region" negligible negative effects in equilibrium
- Interested to see more on the role of bank capital. Can higher capital improve on the constrained efficient equilibrium
- Links between interest rates and evergreening could be expanded given the nice tractable model
- Dynamics of firms once they enter the evergreening region?

Extra slides

Life cycle of zombie firms – real variables



- Zombie performance deteriorates several years before zombification
- After zombification, firms shrink and productivity improves but never reaches level of non-zombie peers

Life cycle of zombie firms – financial variables



• Debt rises before zombification – on initial realisation of cash flow shock

• Leverage rises and ICR remains significantly below peers