# Corporate Insolvency Rules and Zombie Lending

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# On the Importance of "Zombie" Lending

- Definition
  - "Zombie" lending or zombie loans is lending to otherwise insolvent firms
  - To clarify, insolvency is a financial, not operational problem: an operationally viable firm might have a capital structure that is not sustainable
    - Bankruptcy/restructuring framework must recognize that insolvency is not the same as lack of business viability

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- Why is it important:
  - It leads to misallocation of capital in the economy which stifles competition and long-term growth by channeling scarce capital to less productive firms
  - For example:
    - Japan: Hoshi and Kashyap (2004), Peek and Rosengren (2005), Caballero, Hoshi, and Kashyap (2008)
    - Europe: Banerjee and Hofman (2018), McGowan, Andrews, Millot (2018), Blattner, Farhino and Rebello (2019), Acharya, Eisert, Hirsch (2019), and Andrews and Petroulakis (2019)

# Causes of Zombie Lending: Traditional View

- A typical mechanism envisioned behind zombie lending puts banks' incentives at the heart of the problem:
  - Bank wants to avoid recognizing the deteriorated condition of the borrower due to a risk-shifting motive as in Jensen and Meckling (1976)
  - Stress the importance of regulatory capital constraints: banks try to avoid recognizing non-performing loans in order to maintain regulatory capital requirements, and by extending loans they can avoid borrower later payments and defaults (which trigger increased capital requirements) as in Caballero, Hoshi, and Kashyap (2008)

- This traditional view of zombie lending abstracts from insolvency resolution, inefficiencies are seen as driven by bank incentives alone

- A standard policy implication, therefore, is ex-post realignment of incentives through the removal of troubled assets from insolvent banks' balance sheets, or ex-ante policies aimed at reducing risk-shifting motives (e.g., higher capitalization)

# Our View: Insolvency Resolution Matters for Zombie Lending

- It is well known that there is significant and persistent cross-country heterogeneity in the efficiency of insolvency procedures:
  - Djankov, Hart, McLeish and Shleifer (2008), World Bank Survey
  - Davydenko and Franks (2008) look at France, Germany and the U.K.
  - Adalet McGowan and Andrews (2018) look at OECD countries

- **We argue that if insolvency is very costly, restructuring is less attractive for lenders, and hence zombie lending becomes more prevalent**

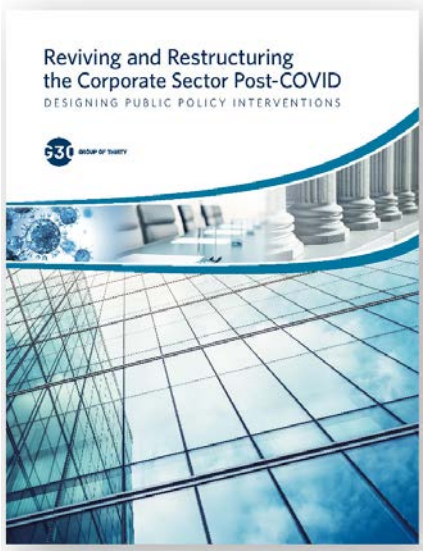
- To be clear, it is not a competing hypothesis, banks' incentives still matter, but solely targeting banks' incentives in the policy response cannot resolve the "zombie" issue

# The Bigger Picture

Improvement in the insolvency regime is of macroeconomic importance for three reasons:

- Traditionally, the focus has been on the connection between the strength of the insolvency framework and the development of the debt market (and, consequently, access to credit, and economic growth)

- After the COVID shock, the attention was drawn to the fact that the bankruptcy/restructuring framework must allow for resolution of high volume of bankruptcies in a reasonable time frame; moreover, one size might not fit large and small firms



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- **Emphasis in my presentation today is on the long-term spillovers on economic growth through the zombie lending channel**

# Data

- Our central explanatory variables measure the effectiveness of the restructuring framework at the country level from the World Bank annual "Doing Business" report which compares business regulation in a wide range of countries (see Djankov, Hart, McLiesh, and Shleifer, 2008)
- Caveat: a catch-all approach that oversimplifies the hypothetical scenario

# Data

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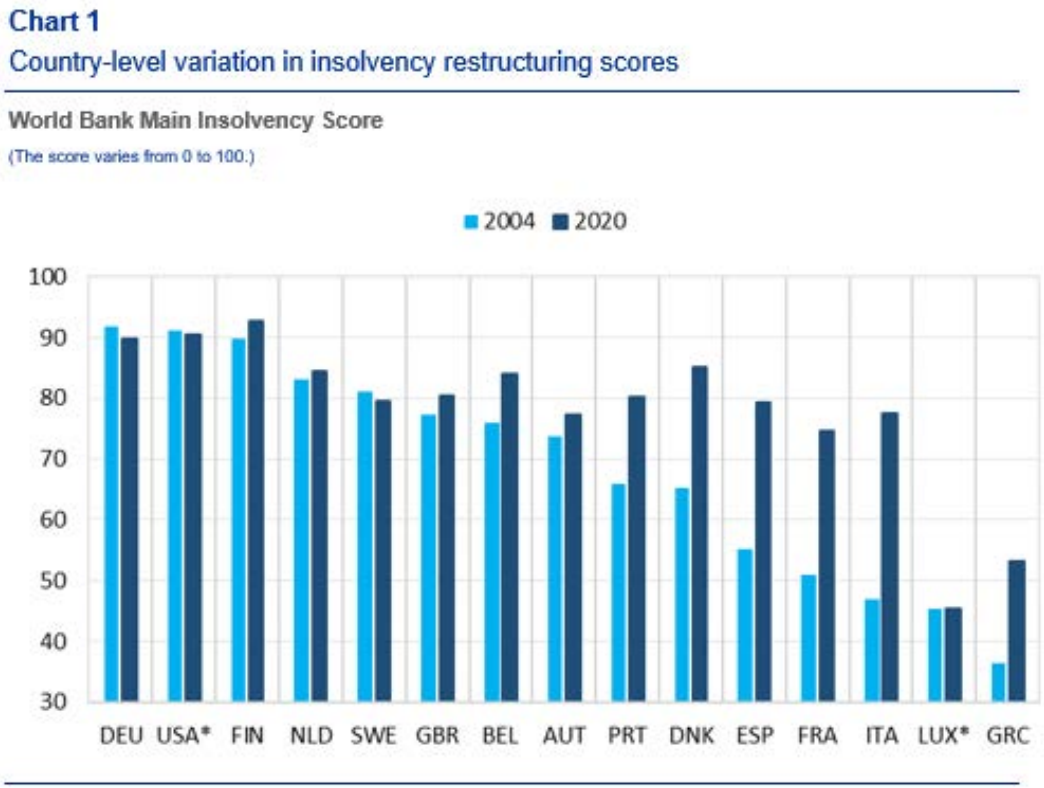
- Caveat: a catch-all approach that oversimplifies the hypothetical scenario
- In what follows we will look at four main variables (2004-2020):

| Variable | Range | Definition | Sign (higher efficiency) |
|---|---|---|---|
| Recovery Rate Score | 0 to 100 | The expected creditor's net recovery rate for a standardized scenario, which takes into account resolution costs and time among other factors | (+) |
| Strength of Insolvency Framework Score | 0 to 100 | Whether the country adopted international practices in (i) commencement of insolvency proceedings, (ii) management of the debtor's assets, (iii) reorganization proceedings and (iv) creditor participation in insolvency proceedings. | (+) |
| Insolvency Restructuring Score (or Main Score) | 0 to 100 | Simple average of the two measures above | (+) |
| Resolution Time | | A component of the Recovery Rate Score, the expected number of years to resolution of insolvency in years | (-) |

# Data

**Chart 1**

Country-level variation in insolvency restructuring scores




Sources: World Bank.
Notes: (*) US and Luxemburg data starts in 2014.

# Development of the "Private Debt" Market vs. Strengths of the Insolvency System

- Private (non-bank) debt development
  - This is a post GFC phenomenon
  - Typically closed end funds structure, often affiliated with a larger alternative/"private equity platform"
  - They lend across the spectrum of firms, with a large emphasis on distressed and mid-cap firms (i.e., higher risk-higher expected return as compared to bank lending)
    - Between higher risk and finite fund horizons, private debt creditors are particularly dependent on the existence of an effective insolvency system
  - Highly sophisticated creditors that actively engage in customized credit solutions: between expertise, flexible institutional mandates and low coordination costs (as this debt is not widely held), private debt creditors are also well positioned to put forward private resolutions of insolvency (i.e., the weight is firmly on the insolvency rules)

# Development of the "Private Debt" Market vs. Strengths of the Insolvency System

- The dependent variable is the number of private deals closed in the lead three-year window.

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| ***Insolvency restructuring score*** | 9.902*** | -- | -- | -- |
| | (3.485) | | | |
| ***Recovery rate score*** | -- | 4.009 | -- | -- |
| | | (2.813) | | |
| ***Strength of insolvency framework*** | -- | -- | 13.68*** | -- |
| | | | (3.148) | |
| ***Resolution time*** | -- | -- | | -170.2** |
| | | | | (76.90) |
| ***GDP growth*** | 8.821 | 7.666 | 11.76 | 8.225 |
| | (15.86) | (16.17) | (15.88) | (16.02) |
| ***Bank capitalization*** | -21.27* | -23.51* | -18.94 | -23.45* |
| | (11.94) | (12.30) | (12.12) | (12.11) |
| ***Constant*** | -228.1 | 258.8 | -491.3 | 828.0*** |
| | (345.6) | (296.2) | (346.6) | (249.3) |
| **N** | 151 | 151 | 156 | 151 |
| $R^2$ | 0.072 | 0.034 | 0.140 | 0.052 |

# Zombie Lending and Insolvency Framework (1)

- The intensity of use of the formal bankruptcy system as a proxy for effective restructurings (the opposite of zombie lending)

  Dependent variable: growth rate in bankruptcies with respect to the preceding two-year average.

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| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| ***GDP growth*** | -0.216* | -- | -- | -- | -- | -- |
| | (0.123) | | | | | |
| ***I (Negative GDP growth)*** | | 0.937 | -6.383* | -5.830* | -7.519* | 5.965*** |
| | | (0.805) | (3.711) | (3.067) | (3.940) | (2.111) |
| ***Insolvency restructuring score*** | -- | -- | -0.0129 | -- | -- | -- |
| | | | (0.0248) | | | |
| ***Insolvency restructuring score *Stress year*** | -- | -- | 0.0874* | -- | -- | -- |
| | | | (0.0491) | | | |
| ***Recovery rate score*** | -- | -- | -- | -0.0121 | -- | -- |
| | | | | (0.0205) | | |
| ***Recovery rate score *Stress year*** | -- | -- | -- | 0.0796** | -- | -- |
| | | | | (0.0397) | | |
| ***Strength of insolvency framework*** | -- | -- | -- | -- | -0.0276 | -- |
| | | | | | (0.0237) | |
| ***Strength of insolvency framework*Stress year*** | -- | -- | -- | -- | 0.114** | -- |
| | | | | | (0.0520) | |
| ***Resolution time*** | -- | -- | -- | -- | -- | -0.312 |
| | | | | | | (0.598) |
| ***Resolution time*Stress year*** | -- | -- | -- | -- | -- | -3.533*** |
| | | | | | | (1.222) |
| **N** | 224 | 224 | 184 | 184 | 197 | 184 |
| $R^2$ | 0.014 | 0.006 | 0.018 | 0.023 | 0.030 | 0.069 |

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# Zombie Lending and Insolvency Framework (2)

- Firm level evidence requires a definition of zombie at the firm level (our dependent variables)

- We depart from the standard methodology in two ways:

    - We look directly at interest rates on loans, rather than inferring it from accounting statements; given that the existing narrative focuses on bank-driven zombie lending, it makes sense to focus on the cost of bank loans, as opposed to aggregate interest expense

    - We draw the line for what we consider to be unusually “cheap”, and therefore potentially subsidized credit at “AA” loan rating (instead of bond rating)

# Zombie Lending and Insolvency Framework (2)

Dependent variable: 1 if loan (all-in) interest rate on the loan is cheaper than the "AA" cut-off

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| ***Insolvency restructuring score*** | 0.475** | -- | -- | -- |
| | [0.164] | | | |
| ***Insolvency restructuring score *Stress year*** | -0.501** | -- | -- | -- |
| | [0.174] | | | |
| ***Recovery rate score*** | -- | 0.034 | -- | -- |
| | | [0.112] | | |
| ***Recovery rate score *Stress year*** | -- | -0.029 | -- | -- |
| | | [0.148] | | |
| ***Strength of insolvency framework*** | -- | -- | 0.321*** | -- |
| | | | [0.070] | |
| ***Strength of insolvency framework*Stress year*** | -- | -- | -0.297*** | -- |
| | | | [0.067] | |
| ***Resolution time*** | -- | -- | -- | -8.377** |
| | | | | [3.870] |
| ***Resolution time*Stress year*** | -- | -- | -- | 4.940 |
| | | | | [4.506] |
| ***Log(Loan amount)*** | -1.101 | -0.780 | -0.320 | -1.098 |
| | [0.751] | [0.800] | [0.369] | [0.726] |
| ***Loan maturity*** | -0.016 | -0.024 | -0.005 | -0.014 |
| | [0.017] | [0.015] | [0.009] | [0.015] |
| ***I(Revolving line)*** | 4.178*** | 4.448*** | 4.230*** | 4.123*** |
| | [1.068] | [0.951] | [0.386] | [1.046] |
| ***Log (assets), t-1*** | 4.149*** | 3.959*** | 3.426*** | 4.208*** |
| | [1.239] | [1.295] | [0.484] | [1.242] |
| ***Book leverage, t-1*** | -13.209 | -12.099 | -12.705*** | -12.501 |
| | [7.808] | [8.093] | [2.150] | [8.163] |
| ***I (Negative GDP growth)*** | 35.865** | -0.088 | 21.339*** | -8.209 |
| | [14.517] | [11.760] | [5.751] | [6.741] |
| **Fixed effects: Year/Industry** | Yes/Yes | Yes/Yes | Yes/Yes | Yes/Yes |
| **N** | 103,339 | 103,339 | 224,677 | 103,339 |
| $R^2$ | 0.122 | 0.111 | 0.152 | 0.116 |

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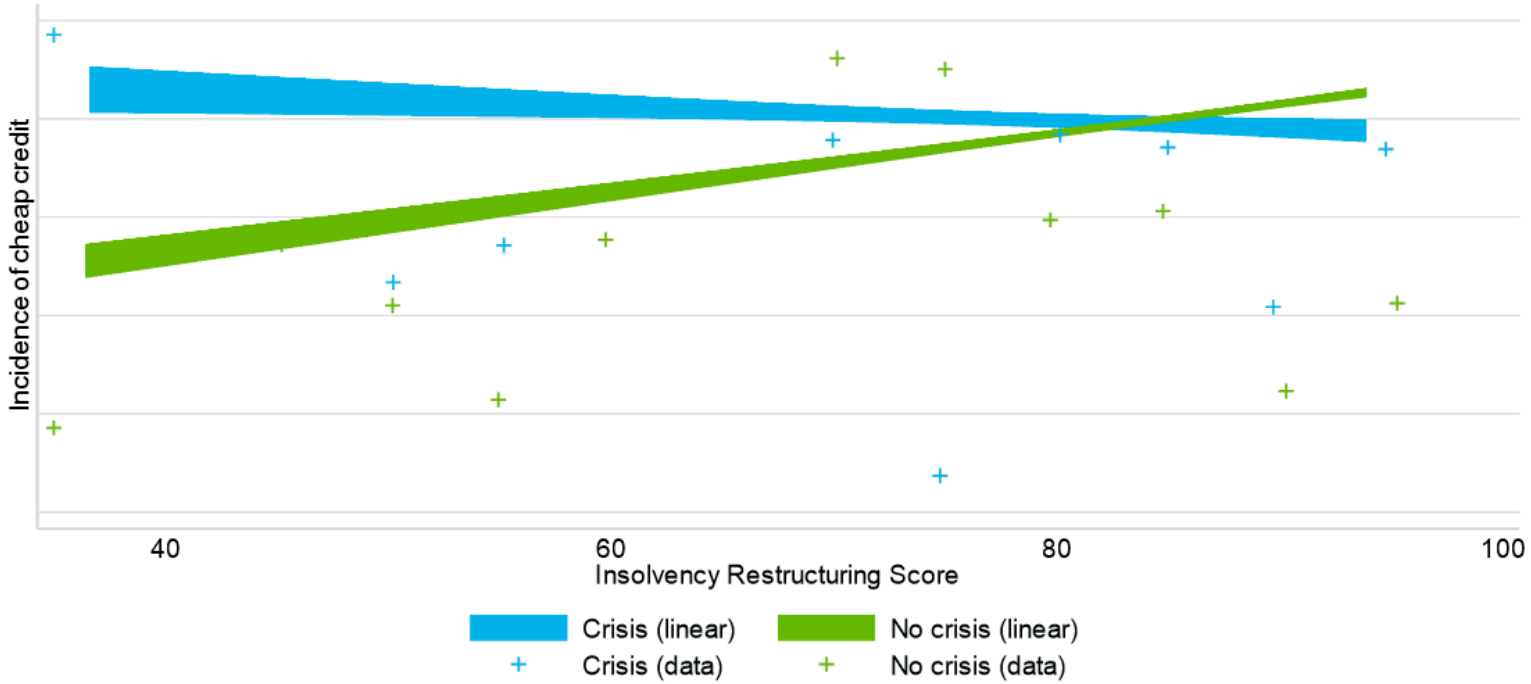


- This result is robust to:
  - Controls for bank capitalization
  - Alternative definition of "Stress year"/"Crisis"

# Final Remarks

- Emphasis in my presentation today was on spillover effects of economic shocks on long-term growth through the zombie lending channel and *due to* weak insolvency framework

- Targeting banks as a policy response to zombie lending somewhat helps, but cannot fundamentally resolve the problem (because this is no longer just a problem of alignment of incentives)

- Importantly, weak insolvency processes also create zombie lending incentives for *all types of creditors* and not just banks

- Finally, reform of formal insolvency procedures is likely to be more effective if it can be broad-based and standardized across countries

    - Formal insolvency processes often set a floor for resolution efficiency, and private resolutions can improve upon it

    - For such expertise to emerge and be competitive, there must be sufficient scale to justify such expertise building