Corporate viability assessment in Croatia

Ivan Huljak
Principal Advisor, Financial Stability Department

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Presenter views do not necessarily reflect the views of the Croatian National Bank

Agenda

1. Introduction
2. Corporate sector analysis in Croatian National Bank
3. Corporate viability and COVID-19 support
4. Conclusion

HNB

1. Introduction

The pandemic highlighted the need for a better understanding of the corporate sector

- The financial stability approach to the corporate sector viability before COVID-19 focused on its position in the banking book (Credit growth, Stress testing exercises, loan default, NPLs,...).

- However, the pandemic period exposed the need for a more holistic approach underscoring the importance of both:
    - Operating and
    - Financial business area.

The operating area is often (unrightfully) sidelined

Corporate sector P&L	
Sales	
- Variable cost	
= Marginal contribution	
- Fixed costs	(Operating leverage)
= EBIT	
- Interest	(Financial leverage)
= EBT **...**	

Source: Authors` depiction

Revenue decrease

Employee support

Supply chain disruptions / Inventory management

Input scarcity / price

Deb servicing capacity

Loan moratoria

Interest rates increase

NPLs

... however, the current environment suggests further advancements in analytical support will be needed

- Strong economic rebound and withdrawal of measures decreased the fear of / interest in corporate zombification.
- However, there are clear signs that the future support package will need to be more „selective” therefore requiring a deeper understanding of the corporate sector.
- Also, a better understanding of the corporate sector creates options for future work (ESG scores, Corporate Borrower-based measures, ...).

2. Corporate sector analysis in Croatian National Bank

The empirical approach

1. Gathering and interlinking the data

- Firm-specific database (national agency, FINA),
- Court registry (legal status, entrance, exit, age),
- Fiscal receipts (a proxy for revenue with 1 week lag),
- Bank data (individual loan quality) and
- Other (COVID-19 measures, Co2 emission survey, BACH database).

2. Adopting the concept

- Industrial organization is a good starting point:
  - Production and cost function
  - Efficiency,
  - Productivity,
  - Competition.
- Corporate finance can help in understanding corporate behaviour.

3. Introducing the new analytical tools

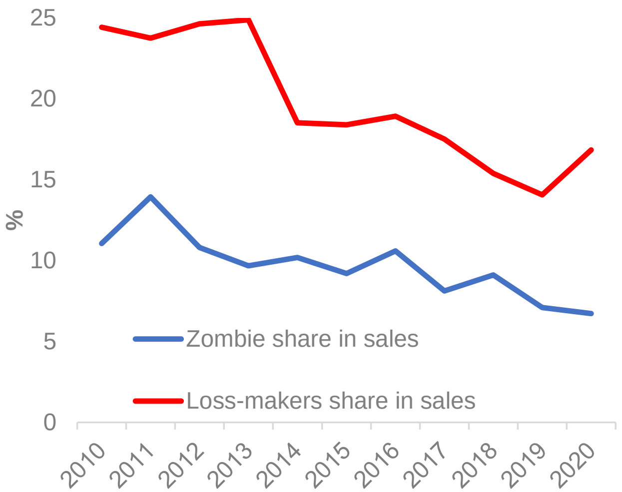
- Productivity and profitability decomposition.
- Distance to default (Altman Z-score).
- Competition metrics.
- Viability considerations.

4. Communication

- Financial Stability Report,
- Macro-prudential analysis,
- Other (public appearances).

Initial viability assessment – (classic) zombie detection

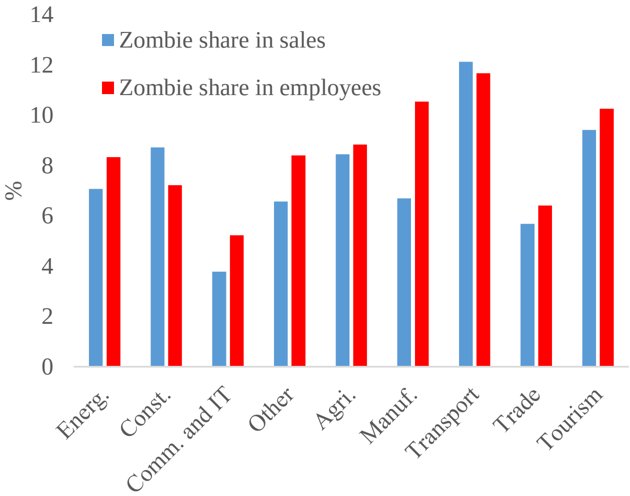
The share of zombie firms is comparable with the similar research



Note: Zombie is defined as a company not able to cover implied interest expense (at 5%) for three years in a row.

Source: HNB, FINA

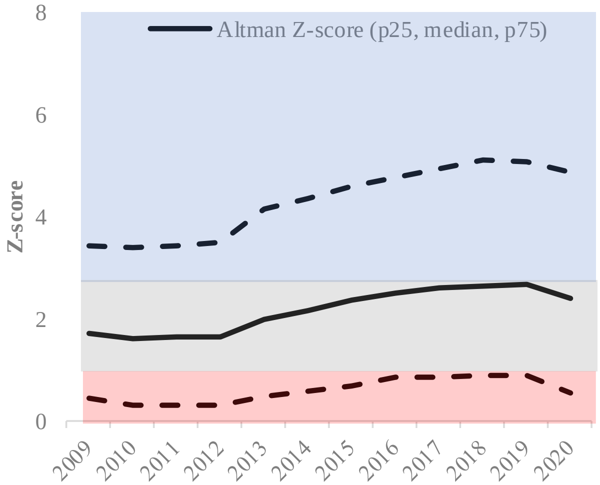
However, there are significant differences across activities (2020)



Source: HNB, FINA

Distance to default vs. actual default

Distance to default decreased in 2020 (but only slightly owing to support meassures)



Source: HNB, FINA

Altman Z-score significantly lower for firms in bankruptcy and zombies

		Zombie	
		No	Yes
Bankruptcy (legal)	No	2.8	1.0
	Yes	0.7	-0.1

Source: HNB, FINA, Court Registry

Stochastic frontier contribution (production function)

- Frontier analysis shows how efficient is a company in turning inputs into revenue while controlling for:
  - size,
  - financing structure,
  - economic activity.
- The efficiency calculation is not available for all companies and provides relative scores.
- However, it allows for additional information (technical change, economies of scale, shadow pricing, allocative efficiency).

Inefficiency comes from both, structural and time-variant component

Efficiency score (median)	**2008**	**2010**	**2012**	**2014**	**2016**	**2018**	**2020**
Persistent	69.5	69.9	70.4	70.9	71.2	71.3	71.3
Residual	76.6	75.7	76.8	76.9	76.9	76.6	76.6
Overall	53.2	52.9	54.1	54.6	54.8	54.6	54.6

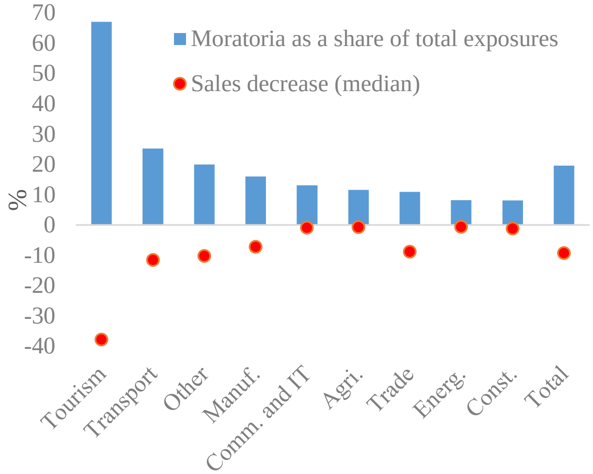
Note: Technical efficiency is calculated according to Kumbhakar, E. G., Tsionas, S. C. (2012)

Source: HNB, FINA

3. Corporate viability and COVID-19 support

Loan moratoria supported bank clients (and banks)

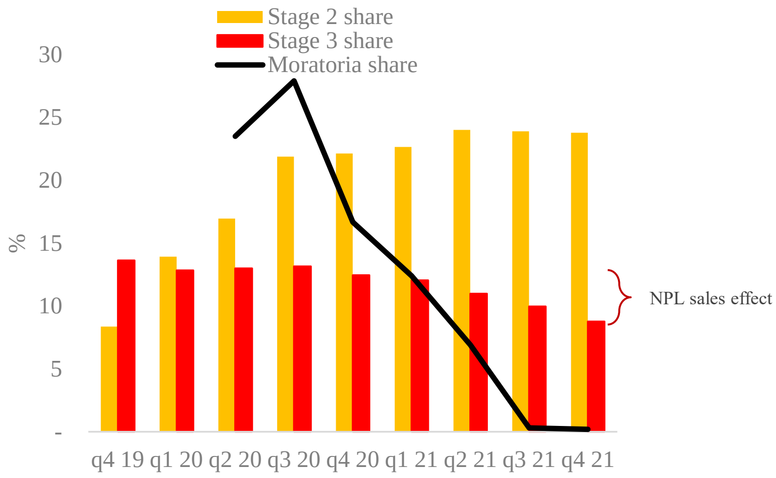
Moratoria structure mirroring the sales (2020) decrease and bank relationship



Note: Probit regression results - Probability of using the moratorium is higher for firms more affected by the pandemic (larger sales decrease), more financially vulnerable in 2019 (higher debt ratio and implicit interest rate, lower profitability and liquidity buffers) and using an investment loan.

Source: HNB

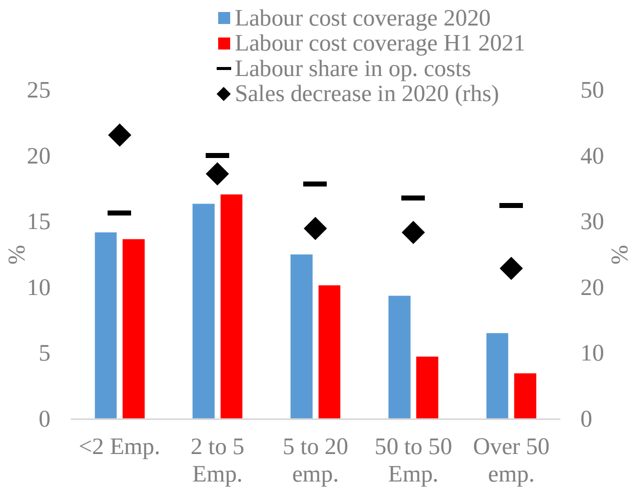
Loan quality concerns were reduced with strong economic rebound



Source: HNB

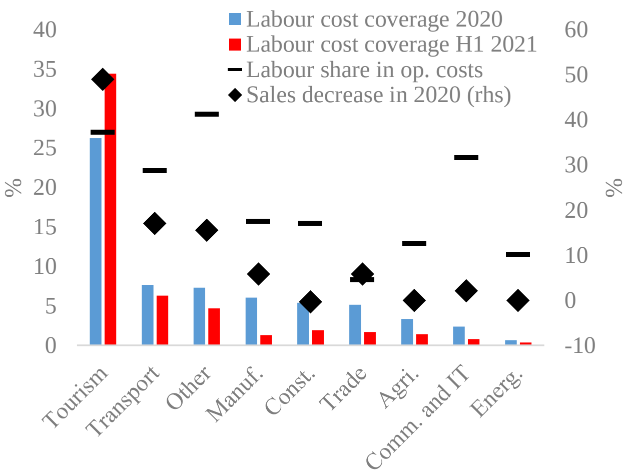
Fiscal support helped in preserving capacities

Smaller firms received relativelly more support (due to larger sales decreases and higher labour intensity)



Source: FINA; HNB

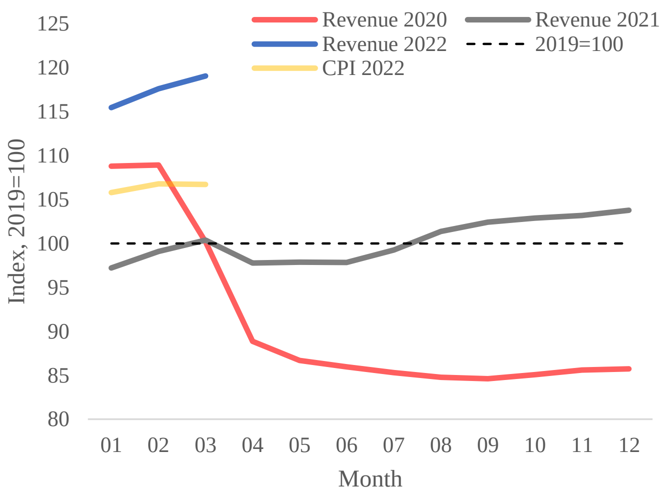
Tourism was the main beneficiary of employee support



Source: FINA, HNB

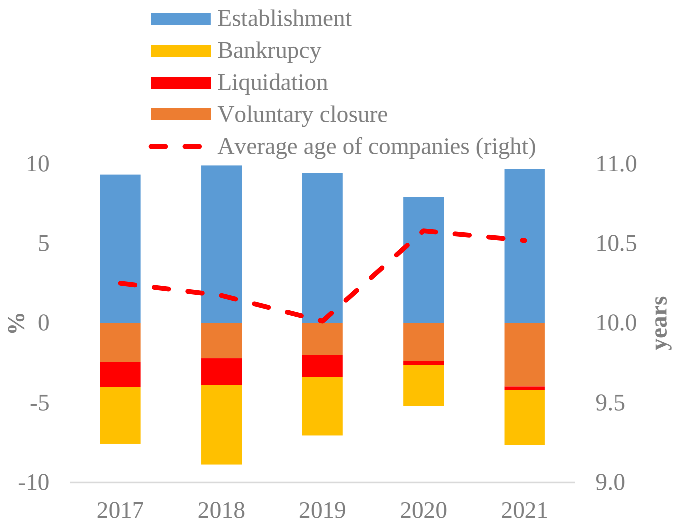
How did the firms fare during the pandemic?

Corporate revenue managed to recover in 2021



Source: FINA; HNB

Market structure recovred in 2021 (but insolvency regime remains slow)



Source: FINA; HNB

HNB

4. Conclusion

A challenging environment calls for more analytical work on NFCs

- With the strong economic rebound in 2021, we "grew out" of our fear of corporate zombification.
- The support package helped in the preservation of capacities and liquidity during the pandemic. However, the developments during the pandemic exposed the sensitivity of the corporate sector to a sudden stop in business activity.

- In the meantime, the outlook keeps deteriorating:
  - Supply chains disruptions (supporting inflation),
  - Debt levels and debt price increasing,
  - Fiscal space is narrowing.

Positive spill-overs from corporate sector analysis

- Once established the enriched corporate dataset allows for significant benefits for (Operating and) Financial Stability analysis:
    - NPL investors' performance (collection efficiency vs. banks),
    - FinTech companies' performance (pressure for the incumbent banks),
    - Supply chain disruption effects (inventory management),
    - Competition / market power (pass-through of price increase),
    - Climate risks (Shadow pricing of the Co2).

- Data quality assurance is a challenge, especially for smaller firms.

Thank you

ivan.huljak@hnb.hr

Refrences

Allinger, K. and Huljak, I. ” Operating leverage and its importance during the Covid-19 pandemic”, SUERF Policy Brief No 256, January 2022

Casey, C.J., Bibeault, D. and Altman, E.I., “Corporate financial distress: A Complete guide to Predicting, Avoiding, and Dealing with Bankruptcy”, Journal of Business Strategy (pre-1986), Vol. 5, Issue 000001, 1984, p. 102f.

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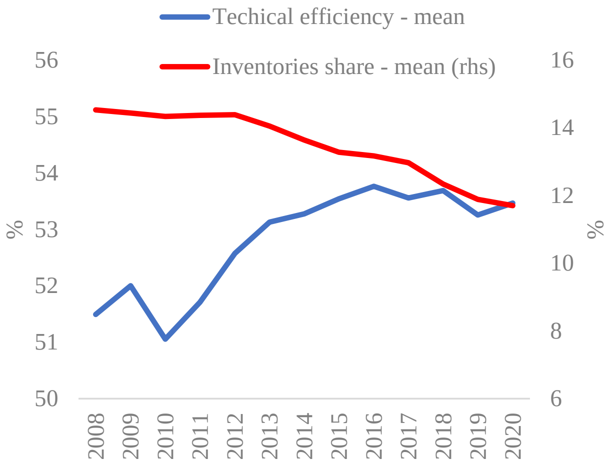
Appendix

Example: Risk vs. reward in inventory managment

Reducing inventories is supporting growth of operations (and risks)



Source: HNB and FINA

- Reducing inventories can support growth.
- It reduces the opportunity costs (priced at Weighted Average Cost of Capital).
- The increase in risk could be worth it, but only when the inventories are available to replenish (not a given these days).