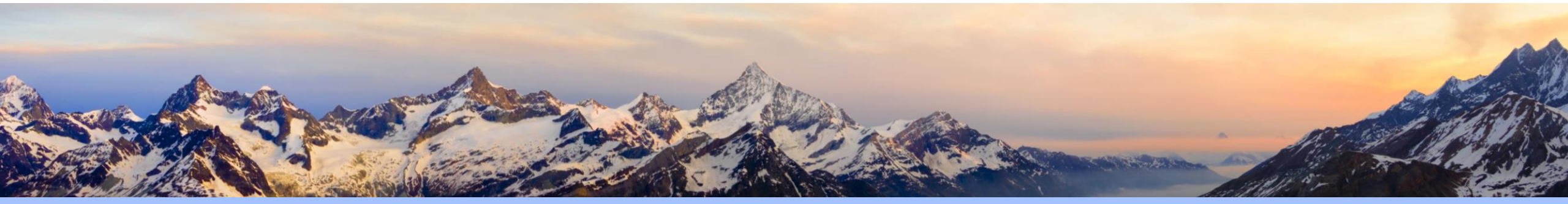


DeFi Lending Platform Liquidity Risk: The Example of Folks Finance

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Matthias Hafner, Romain de Luze, **Nicolas Greber**, Dr. Juan Beccuti (Swiss Economics);
Benedetto Biondi, Gidon Katten, Michelangelo Riccobene, Alberto Arrigoni (Folks Finance)



Background and Research Question

1. Liquidity Risk on Lending Platforms
2. Measurements



Findings

1. Risk mitigation with Lock & Earn
2. Optimal Lock & Earn Level



Conclusion and Q&A

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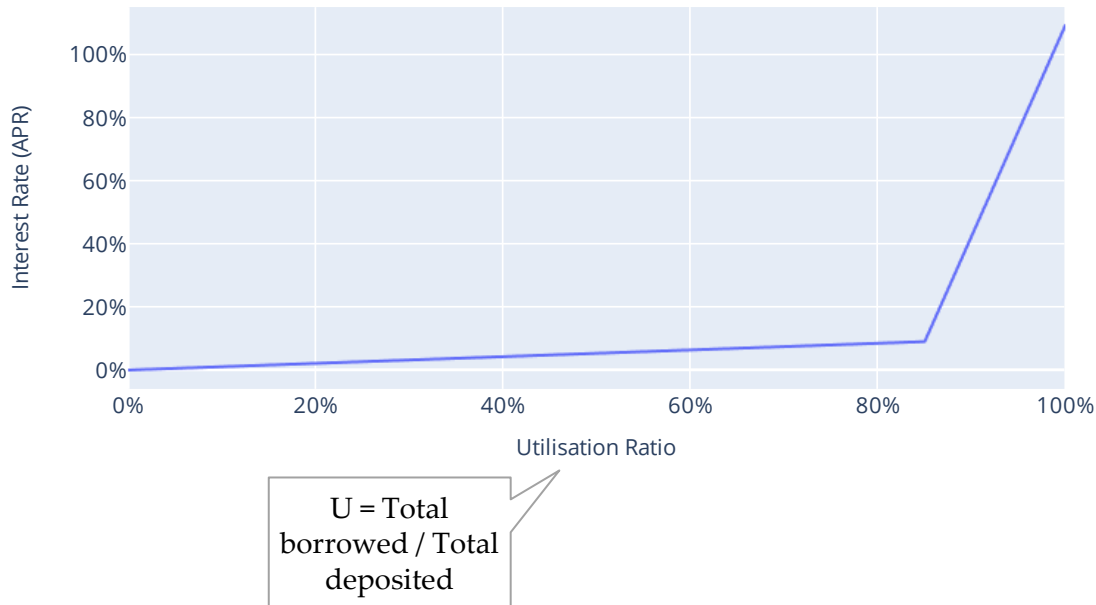
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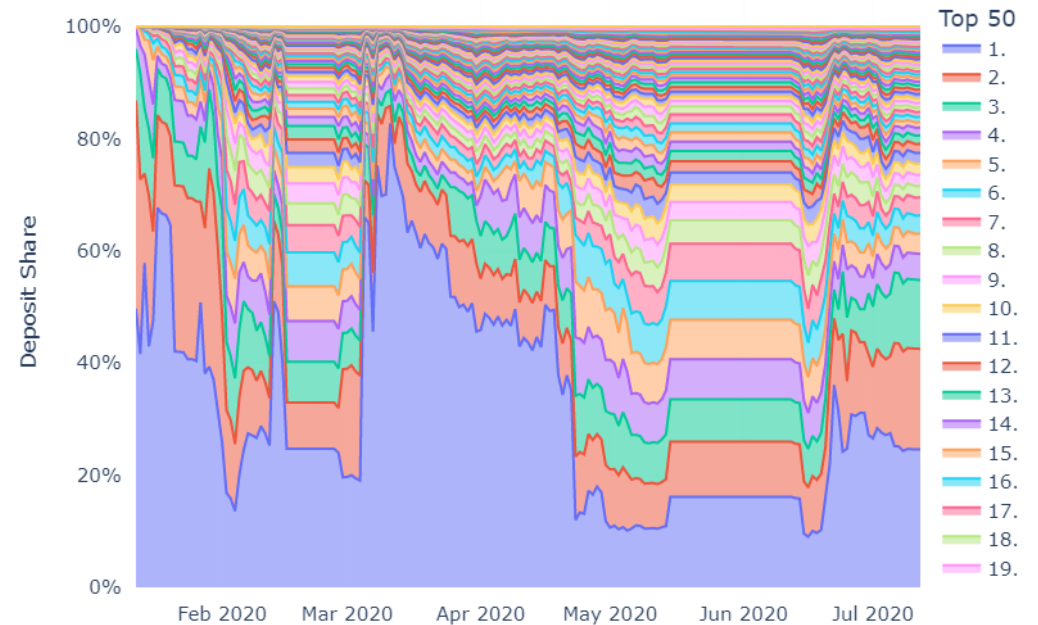
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Background I: Liquidity Risk on Lending Platforms

Relation between interest rates and utilisation ratio



High concentration of deposits



- A high utilization ratio means higher profits for the platform but induces a higher liquidity risk
- This is especially true when deposits are concentrated among a few users
- Thus, a trade-off must be made between profits and risk

Background II: Liquidity Risk Measurements

- **Concentration Ratio**
 - Share of m largest depositors.
 - $CR_m = \sum_{i=1}^m s_i$ with $s_1 \geq s_2 \geq \dots \geq s_n$.
- **Gini Index**
 - Measures the degree of inequality in deposit shares
 - $Gini = \frac{A}{A+B}$ (see figure)
- **Herfindahl-Hirschman Index (best suited)**
 - Measures the degree of inequality in shares
 - $HHI = \sum_{i=1}^m s_i^2$ with $s_1 \geq s_2 \geq \dots \geq s_n$.
 - Pro: considers the share of all depositors and the number of depositors

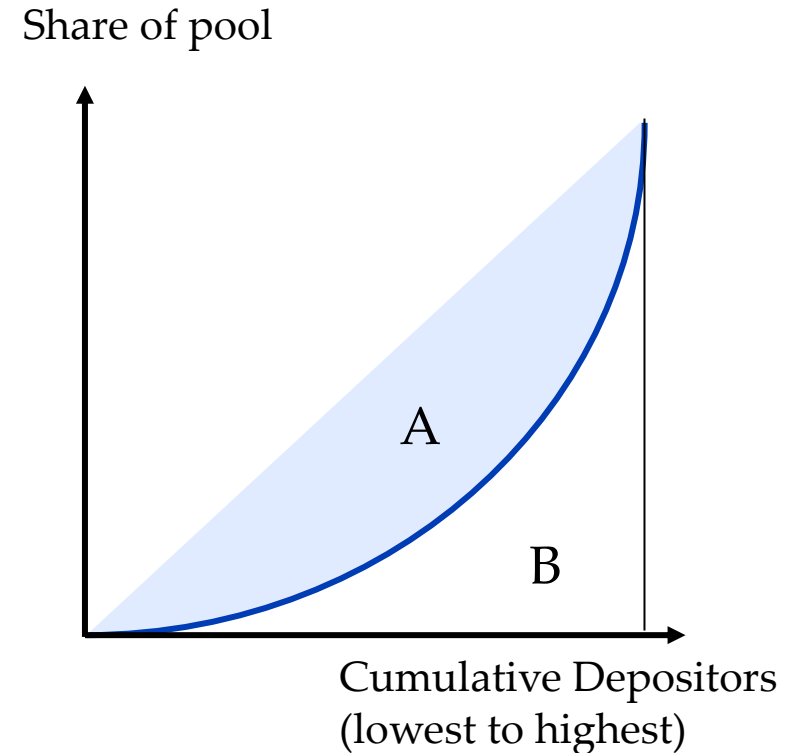


Figure: Calculation of the Gini Index

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Findings I: Risk Mitigation with Lock & Earn

How to lower the concentration of the deposit pool?

Solution: Lock & Earn (L&E)

L&E is a mechanism developed by Folks Finance, in which some depositors lock in their funds for a fixed period of time in exchange for rewards.

- > **Stabilizes pools** for long time (share of individual depositors relatively smaller)
- > **More total deposits**

Compensation for L&E participants needs to be higher than for normal depositors ($i_l > i_d$)
=> Trade-off between safety and cost

Findings II: Optimal Lock & Earn Level

Trade-off between safety and costs:

- Rule for the calculation of L&E Level:

$$L\&E = \frac{\text{Borrowed Amount}}{U_{max}} - (1 - \alpha) \text{Deposits}$$

with U_{max} = maximal utilization ratio and
 α = liquidity risk factor (between 0 and 1).

Implementation of L&E at Folks Finance

Folks Finance uses HHI to calculate L&E:

$$\alpha = s_1 \times f(HHI)$$

$$\text{with } f(HHI) = f(x) = \begin{cases} 1, & HHI < 0.15, \\ 1.25, & 0.15 \leq HHI < 0.25, \\ 1.5, & HHI \geq 0.25. \end{cases}$$

The formula prioritizes the size of the largest depositor s_1 , while considering the distribution of other shares.

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Conclusion

1. HHI is the best approach to measure liquidity risk on lending platforms.
2. Lock & Earn (L&E) lowers the concentration of the deposit pool and results in a larger deposit pool size.
3. The compensation for L&E participants must be higher than ordinary depositors, creating a trade-off between safety and cost.

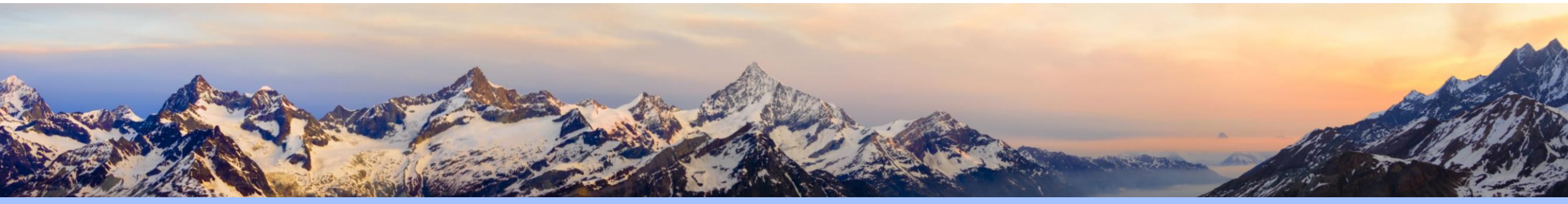
Thank you for your interest!

Nicolas Greber

nicolas.greber@swiss-economics.ch

Swiss Economics, Ottikerstrasse 7, CH-8006 Zürich

www.swiss-economics.ch



Appendix I: All three steps in the proof

