

# Estimating the Liquidity- Profitability Frontier: The Credit Union Perspective

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# Purpose of our research

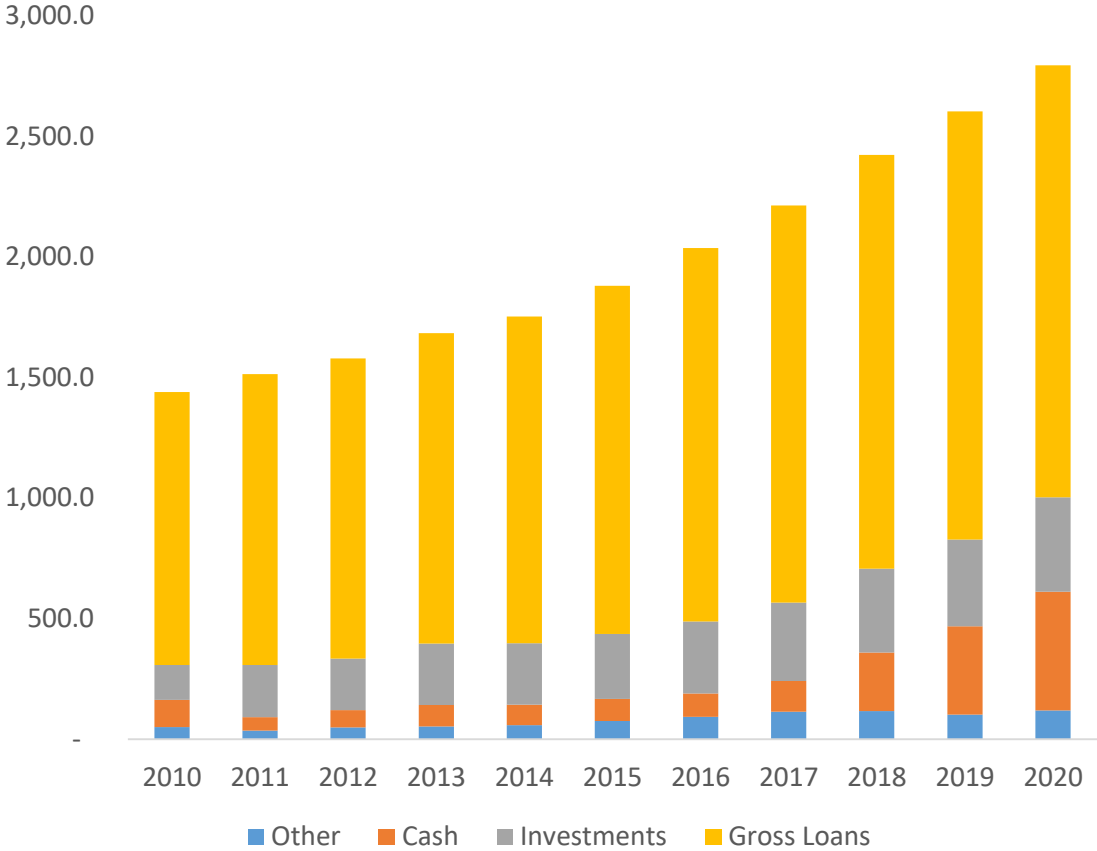
- This study seeks to:
  1. establish the nexus between the loan to deposit ratio and profitability within the credit union movement and,
  2. to ascertain whether there is an optimal range for the loan-to-deposit ratio.

# Contribution to existing literature

- With the onset of the Covid-19 pandemic, the question of credit union liquidity became more pertinent as there was much discussions on various types of forbearance for institutions and customers alike.
- This reality triggered a closer look from the regulators in simulating the potential impact of the increased liquidity demands on the credit union sector.
- The existing framework target commercial banks
- It would therefore be prudent to determine optimal levels for the LTD in Credit Unions

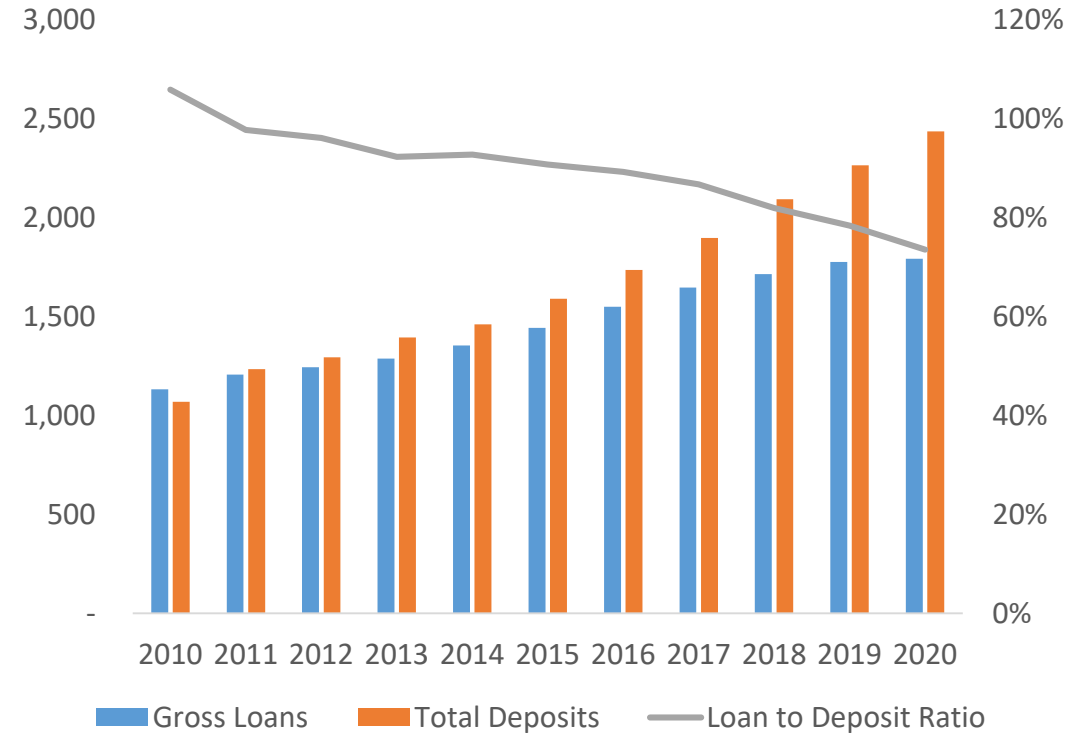
# Structure of Credit Union Sector

YEAR	No. of Credit Unions	Members ('000)
2016	34	179
2017	33	188
2018	33	207
2019	33	208
2020	33	218

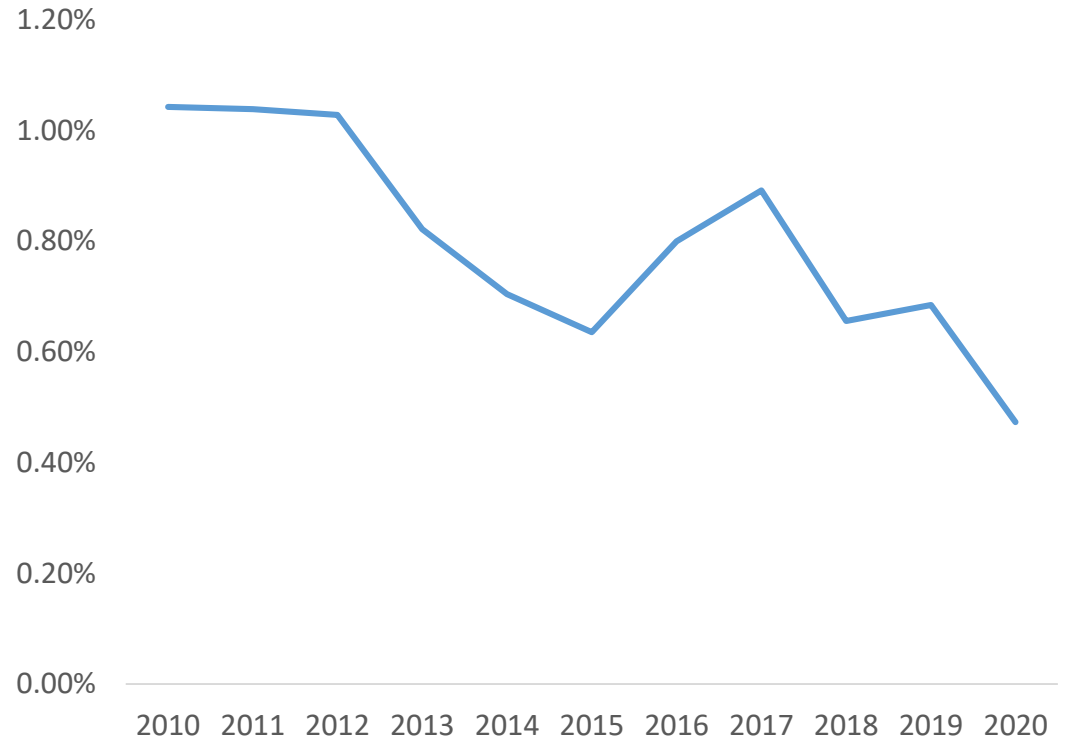


# Credit Union Performance

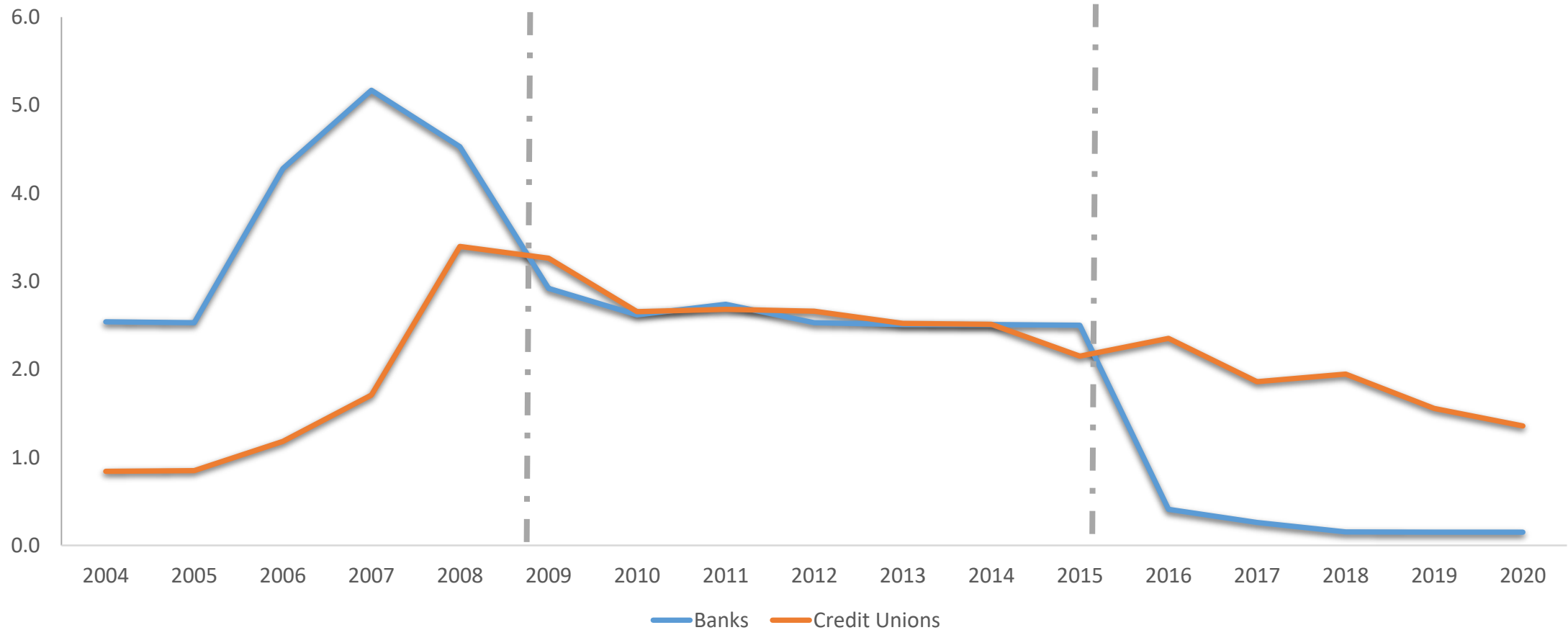
## Liquidity



## Profitability



# Commercial Bank Minimum Interest Rates vs Credit Union Rates



# Observations During Covid-19

## Initial concerns:

- Significant layoffs
  - ⇒ Decline in liquidity
  - ⇒ Decline in deposits
  - ⇒ Increases in NPLs
  - ⇒ Decline in profitability

## Response:

- Loan Moratorium (by entities)
- Regulatory Forbearance
- Ongoing dialogue on stability

## Key Stats

	Mar 2020	Mar 2021
Total Assets	2,654.3	2,836.4
Total Loans	1,774.5	1,786.7
Total Deposits	2,314.4	2,472.0
LTD	76.7%	72.3%
NPLs	9.6%	13.8%
ROA	0.9%	0.6%
Liq Assets% of Deposits	23%	28%

# Existing Literature

Paper	Author	Findings
The Impact of Risk Factors on the Financial Performance of the Commercial Banking Sector in Barbados	<b>Wood &amp; McConney (2018)</b>	Negative relationship between liquidity and financial performance.
Impact of Loan Deposit Ratio on Profitability: Panel Evidence from Commercial Banks in Malaysia	<b>Rengasamy (2014)</b>	High LTD: Exposure to liquidity challenges Low LTD: Low Liquidity Risk, Constrained Revenue
The Impact of Liquidity Asset on Iranian Bank Profitability	<b>Shahchera (2012)</b>	A non-linear relationship between liquidity and profitability
A Macro-prudential Approach to Address Liquidity Risk with the Loan-to-deposit Ratio	<b>Van den End (2016)</b>	Established an upper limit and lower limit as boundaries in which liquidity ratios should be managed



# Methodology

$$ROA_{it} = \alpha + \sum_{j=0}^n \beta_j L_{it-j} + \sum_{j=0}^n \gamma_j M_{t-j} + \sum_{k=1}^n ROA_{it-k} + \mu_{it}$$

L is a Vector of idiosyncratic variables including:

- Loan to deposit ratio (ltd)
- Size (z)
- Non Performing Loans (npl)

M is a Vector of macro variables including:

- GDP Growth (y)
- Interest rate differential (ir)

- Dependent variable – Return on Assets (roa)
- i-cross section
- t-time
- N=4

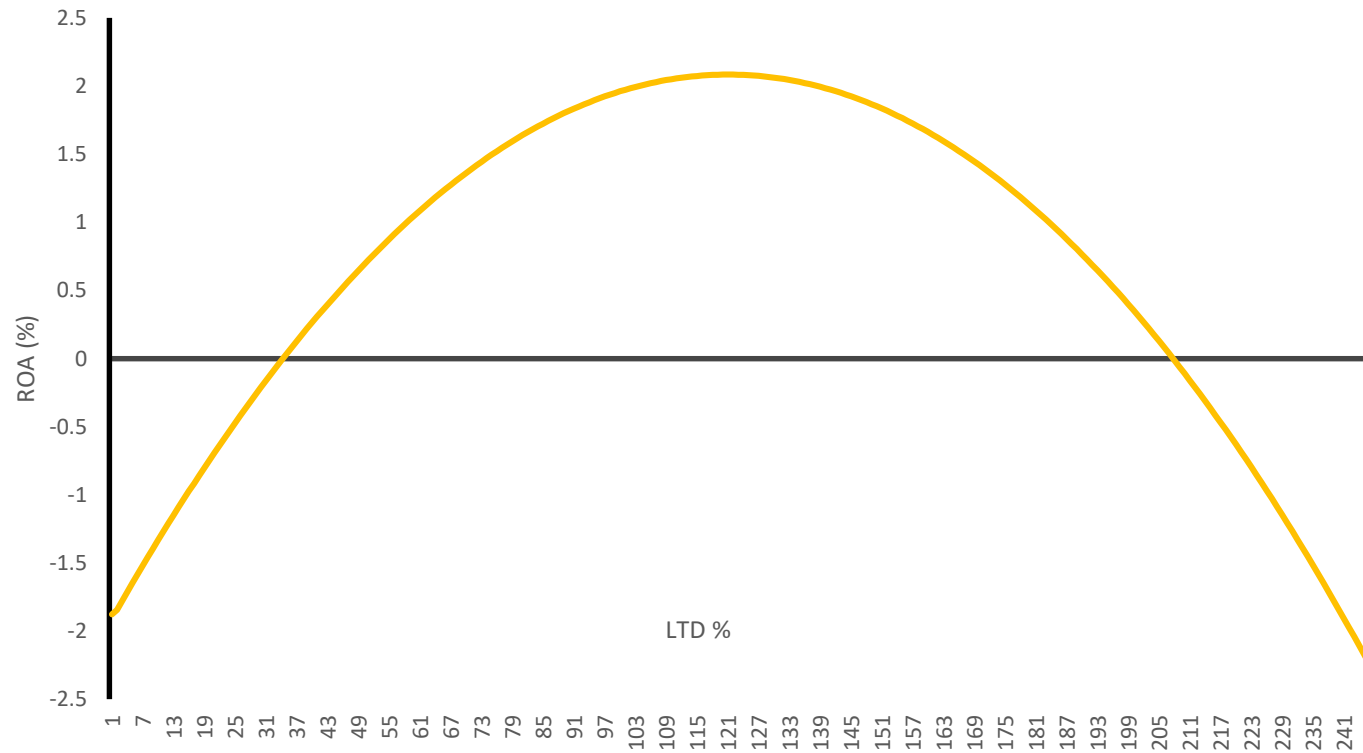
Variable	Apriori
LTD	+
LTD <sup>2</sup>	-
z	+
NPL	-
y	+
ir	+
roa(-1)	+

# Estimation Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Constant	-2.4522	0.8044	-3.0483	0.0024
LTD	0.0663	0.0210	3.1546	0.0017
LTD <sup>2</sup>	-0.0003	0.0001	-2.0661	0.0391
ROA <sub>(-1)</sub>	0.1667	0.0339	4.9140	0.0000
Y <sub>(-1)</sub>	0.0370	0.0124	2.9893	0.0029
IRD	0.1907	0.0263	7.2380	0.0000

# Estimating the Frontier

$$ROA_{it} = -2.452 + 0.066LTD_{it} - 0.0003LTD_{it}^2 + 0.167ROA_{it-1} + 0.191iIRD_t + 0.037Y_{t-1}$$



Conclusion