**Result**

*Model Assessment*

At 1% significant level, the model returns a extremely small P-value of the F-test (0.000). Thus we have 99% confidence to reject the null hypothesis, and conclude that at least one variable in the model is statistically significant. Additionally, the R-squared of 0.869 suggests most of the variation in ROE can be explained by the model. Meanwhile, the Rooted Mean Squared Error (RMSE) of 2.558 is reasonably small, further validating reliability of this model, demonstrating a strong fit.

*Key Parameters*

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The statistical summary table shows that at the 0.01 significant level, the DID estimator (TP) of -2.516 shows statistically significant, so we can reject the null hypothesis and conclude a robust negative casual impact of the increased T1CR requirement on ROE. More specifically, after the policy change, the ROE among Canadian SIBs, on average, decreased by 2.516 percentage points compared to the US SIBs. And the graph on the right also validates the casual relation because of the trend that before 2014 the confidence level cover 0 level while after 2014, the confidence deviates. Furthermore, the coefficients of Leverage Ratio and adjusted EBITDA are estimated to be 0.613 and 0.727 respectively, both of which is statistically significant. This suggests that each 1 percentage point increase of Leverage Ratio is associated with 0.613 percentage points increase in the mean ROE and each 1 billion increase of the adjusted EBITDA is associated with 0.727 percentage points increase in the mean ROE. By contrast, neither banks’ market capitalization, the stock price, nor the Tier 1 Capital shows any statistically significant impact on ROE. Among the macroeconomic indicators, only CPI has a statistically significant estimator of 2.220 rather than GDP or RIR, meaning on average, an increase of 1 point on the CPI index leads to an estimated 2.220 percentage point increase in ROE.

Interpretation

*Comparison*

The result of the negative casual relation between a raise in T1CR requirement and the bank performance aligns with the findings by Le, Nasir, and Huynh who state that at the significant level of 1%, ROE drops 1 percentage point due to Capital Ratio rise by 0.87 % in Australia. However, this change is smaller than what we find in this study. This may be because Canadian banks traditionally operate with higher leverage, so even small changes in capital ratios can have a larger impact on their ROE because their equity base is relatively smaller relative to their assets.

*Bias*

The DiD estimator relies on the parallel trends assumption, that is, prior to the implementation of the new regulation in Canada, the return on equity (ROE) of Canadian banks should have followed a similar trend to that of US banks unaffected by the policy change in the control group. This assumption strengthens the impact of the policy change on the bank’s performance rather than other external factors. The trend is addressed as follow:



According to this graph, it’s unfortunately that the parallel trend assumption does not hold in this study—in fact the pre policy trend shows a contrast direction, where the mean ROE among the Canadian SIBs decreased but the increase among the US SIBs. This could lead to an overestimation of the negative impact of the increased T1CR requirement on ROE, casting doubt on the reliability of this DiD model.

This can be explained by the main reversion theory, which suggest that over time the mean ROE among the US SIBs will decline back toward its historical norm, which I higher than the base year of 2011. The biggest motivator can be that US banks are still in the recovery progress from the aftermath in the financial crisis in after 2008. Since the crisis was initiated exactly in the US because of the failure among US financial insinuations, it in general deteriorates the US SIBs more than Canadian SIBs. Thus it takes US banks more years to recovery when the performance is gradually getting better, leading to an increasing ROE continuously after 2010. However, since the Canadian SIBs shows resilient, making the prolong negative effects of the financial crisis milder after 2010. Thus the downward pre policy trend in Canada can be a normal economical move.

**Policy Implication**

*Discussion*

The negative casual relation between the increased T1CR requirement and the ROE of banks in Canada SIBs suggest a tradeoff between profitability and resilience of the banking system in Canada. Even though the new policy of the 2% increase was developed to raise banks’ capital buffer, improve risk tolerance and prevent future crisis happening, which ultimately controls the losses against future shocks, it sacrifices banks during normal economic conditions. However, finding such a break-even point requires a careful balancing act. It is crucial to identify a regulatory capital threshold that provides adequate protection without excessively constraining banks’ ability to generate returns for shareholders. Overly stringent capital requirements may lead to inefficient capital allocation, reduced lending, and slower economic growth, while insufficient capital levels increase systemic risk. Therefore, regulators must continuously assess the effectiveness of capital adequacy standards considering market dynamics, macroeconomic trends, and financial innovation.

Canadian SIBs are more resilient not only compared to the US comparable in this study, but also known having a table performance among all SIBs around the world. It’s noticeable that, even before the higher T1CR requirement imposed, the 6 SIBs in Canada already kept their T1CR above the new regulatory threshold of 6%, noted in the horizontal red dash line in the graph below. Even through before the policy change the T1CR shows a decrease trend, the tier 1 capital in all banks has been increasing overtime from 10``to 2018, which also drives the increase post policy change. And after the policy change officially announced in Canada, the T1CR in the 6 banks all raise again, further above the required level, addressing the more conservative operations among Canadian financial institutions. And this also explain the resilience where they have more buffer to absorb the shocks.

A graph with lines and dots

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*Limitations*

The year of 2014 cannot be seen as a clear cutoff of the policy change. It is in 2014 that Canada SIBs completed the implementation officially, and in 2018 that US SIBs completed, but it doesn’t mean the impact of this regulatory change start exactly in 2014 in Canada and not start strictly in US until 2018. It is in 2014 that Canada officially announced the completion, and in 2018 for the US. In fact, any policy implantation takes time, and we do not have any clue of an exact timepoint when the SIBs in either country started to raise their capital and more strictly regulate their own lending activities to work towards the new rule.

**Conclusion**

This study examines the impact of the increased Tier 1 Capital Ratio (T1CR) requirement from 4% to 6%, as implemented under Basel III, on the return on equity (ROE) of Canadian systemically important banks (SIBs), using a Difference-in-Differences (DiD) approach with US SIBs as the control group.

The empirical results reveal a statistically significant and economically meaningful negative causal effect of the policy change on Canadian banks’ ROE. Specifically, the DID estimator of -2.516 indicates that, on average, the ROE of Canadian SIBs declined by approximately 2.5 percentage points following the policy change, relative to their US counterparts.

However, while the intention behind increasing capital requirements is to enhance financial system stability and mitigate the risks of future crises, this analysis confirms the tradeoff between regulatory resilience and bank profitability. The reduced ROE highlights the potential cost of more conservative capital buffers, especially in a stable economy.

Nevertheless, the study also identifies limitations, most notably, a violation of the parallel trends assumption due to differing pre-policy ROE trajectories between the treatment and control groups. This discrepancy may result in an overestimation of the negative impact, potentially influenced by macroeconomic recovery dynamics unique to each country, such as the slower post-crisis recovery of US banks compared to the Canadian institutions.

From a policy standpoint, the findings emphasize the importance of calibrating capital requirements to ensure they do not unduly constrain bank performance. Canadian banks had already maintained capital ratios above the new threshold prior to its formal enforcement, suggesting that while the regulation solidified conservative practices, it may have compounded existing buffers beyond optimal levels. The challenge for regulators lies in finding a balanced point that sustains profitability while ensuring systemic safety.

Ultimately, this analysis contributes to the ongoing debate about the cost-benefit balance of banking regulations and calls for dynamic, data-driven adjustments to capital adequacy standards that reflect both market realities and long-term financial stability goals.

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