

Potential Economic Impact of PTIF Funds on Bank Deposits

Presented to the State of Utah's Asset and Investment Review Task Force

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Table of Contents

Executive Summary	3
Key Findings	4
Policy Recommendation: Targeted Pilot Program	4
Implementation Framework	6
Why Now?	9
Potential Benefits	9
Appendix	11
Supporting Analysis and Technical Background	11
Existing Fund Allocation and Economic Profile	11
Utah’s Economic Profile	13
Mechanisms for Local Economic Impact	15
Impact of Bank Deposits on the Local Economy	20
Methodology	21
Money Multiplier Effect	23
Income Multiplier Effect	23
Sensitivity Model	23
Model Simulation and Results	27
Recommendations and Next Steps	28
Key Policy Implications	28

This report represents an independent analysis and professional judgment of its authors, based on the best available data and methodologies as of November 3, 2025. While we are committed to accuracy and rigor, all findings, projections, and policy recommendations are subject to future developments, data limitations, and changing economic conditions. This document is intended to inform decision-making and should not be construed as binding legal or financial advice. Stakeholders are encouraged to use their own judgment and consult additional expertise as appropriate.

Executive Summary

Utah's Public Treasurer's Investment Fund (PTIF), counts over 750 different public entities as investors. Because of the varied investor base the state treasurer is required to manage the assets according to fiduciary principles. This means the fund pursues the best risk-adjusted returns for the risk-tolerance of its mandate for the participating entities. Each investor, however, is able to choose to pursue other goals, on their own. The largest investor is the state, with \$13 billion in the fund. This report focuses on the ability of the state to allocate a small share of their assets to implement a pilot study, as outlined in this report.

This report does **not** assume that reallocating state funds toward local bank deposits will automatically lead to increased lending or economic growth. Instead, it provides a **data-driven, model-based evaluation** of the “*potential*” economic effects **if**, and only **if**, certain conditions are met - specifically, if participating institutions voluntarily choose to use additional deposits to expand lending within the communities of Utah.

No State in the Republic (to date) has **previously** implemented a CD allocation pilot tied to measurable local lending outcomes; all estimates in this report represent **hypothetical scenario - based modeling**, not predictions. The purpose of this work is to establish whether a properly designed **pilot program** - voluntary, evaluative, and based entirely on existing QDL infrastructure - could provide the State of Utah with meaningful information about how state investment reserves may or may not influence local lending behavior, economic activity, and state revenue.

The Economic Opportunity

Economic literature indicates that local lending can produce multiplier effects within regional economies. However, whether *additional state fund deposits* would translate into additional Utah lending *cannot be known in advance* and has *never been empirically tested* in the United States. Economic benefits become measurable only in cases where banks choose to deploy a meaningful portion of additional deposits *solely* focused on Utah-based lending. Potential benefits of the study include:

- **Expanded lending capacity** for Utah businesses and households.
- **Increased local economic activity** through capital formation and investment.
- **Enhanced tax revenues** from the broadened economic base.
- **Strengthened community financial infrastructure** supporting long-term resilience.

The critical variable determining success is based solely and specifically on **local lending intensity** - the proportion of new deposits that banks deploy as loans within the economy of Utah. **The economic modeling identifies a 20% local lending deployment rate as the threshold where economic gains become meaningful for the state.**

Key Findings

The Multiplier Effect:

IF and When Utah banks lend locally, the appropriated funds circulate through the economy and in theory should create a quantifiable multiplier effect:

- Each dollar deposited enables lending (after reserve requirements).
- Loans fund business investment, household consumption, and community development.
- Recipients should generate income, pay Utah state taxes, and also maintain further deposits that should further enable lending into the community.
- The cumulative effect, economically executed specifically in the community, should produce economic gains well beyond the initial deposit.

Our conservative modeling assumes a 20% reserve ratio and an income multiplier of 2.0 - parameters consistent with established economic literature.

Economic Impact at 20% Local Lending

Based on specific parameters including the 10.09% tax revenue rate in Utah¹:

- \$100 million in new deposits **could** generate approximately \$128 million in new lending **IF** banks achieve 20% local deployment.
- The lending activity would, in theory, generate an estimated \$12.9 million in additional tax revenue for the state and for the local governments.
- The potential economic benefits materialize over a 2-5 year horizon as the proposed deposits **should** convert to loans, and loans **should** generate income, and that income **should** produce incremental tax revenues.

Policy Recommendation: Targeted Pilot Program

The State of Utah may explore and potentially implement a thoughtfully designed **pilot program** that would leverage the existing qualified depository framework currently in place with the State while creating additional and quantifiable incentives to encourage impact based local lending. This potential framework and approach should build on established safety standards rather than creating new regulatory structures.

¹ The 10.09% tax revenue rate for Utah is sourced from the Tax Policy Center and reflects state and local tax revenue as a share of personal income. The measure includes revenues from corporate, general sales, individual income, property, and selective sales taxes, and excludes federal aid, user charges, and miscellaneous general revenue.

Program Design Principles

1. Implement within Existing Infrastructure:

- Participant banks must currently be on the Utah Department of Financial Institutions' Qualified Depository List as required by the state's Money Management Act.
- Qualified Depositories leverage the existing collateralization, safety, and creditworthiness standards currently in place for the State of Utah qualified depository program.
- No new regulatory qualification process needed.
- This approach would represent a modest evolution of the current practice, not a radical departure, and would require no new regulatory implementation.

2. Voluntary, Self-Selecting Participation:

- Open to all the institutions currently on the Utah Qualified Depository List.
- Banks should only opt in if they are confident in their ability to deploy funds locally.
- TBD Quarterly reporting requirements would serve as a performance screen for institutions truly committed to local lending.

3. Accountability Through Transparency:

- The Quarterly Reporting may initially consist of loan-to-deposit and loan-to-assets ratios including an initial baseline to most effectively align a quantifiable framework.
- An independent third party (university or regulator partnership) collects, aggregates, and protects all personal and confidential data.
- Accountability will focus on measurable local lending growth without mandating specific loan categories.

4. Aligned Incentives:

- One-year CDs (renewable annually based on performance) provide stable funding for potential lending expansion.
- The Banks that demonstrate meaningful lending growth may receive competitive rates and renewal eligibility based on performance.
- The Banks failing to report metrics or achieve lending growth would be subject to penalty rates (determined by policy) back to the state for non-performance.
- The aligned incentive structure ensures that only the institutions fully committed to the program would benefit from program participation.

5. Appropriate Scale

- The **potential pilot** allocation should remain modest relative to the state's cash reserves.
- Minimums and Maximums based on the institution's size ensure meaningful yet safe participation.
- The **Pilot Program** approach and scope allow for a proper evaluation period, before broader implementation.

Optimal Program Design Derived From Analysis

Current modeling indicates when participating banks deploy at least 20% of new deposits into local lending the effects may be as follows:

- Meaningful economic impact: The Local multiplier effects potentially generate substantial tax revenue and economic activity if deployed into the community
- Achievable target: The local Utah banks that may be **Deposit-Constrained** community banks can realistically reach this level with proper funding and oversight
- Natural selection bias: Only the banks positioned to lend locally will find this program attractive and confident in their capabilities and capacity to lend effectively into the community.

Banks unable or unwilling to achieve this lending intensity will naturally opt out or face a penalty for not deploying the appropriated capital into the community. The program should clearly self-select for institutions genuinely committed to expanding the local credit markets in Utah.

Implementation Framework

Eligibility Criteria

Requirement	Rationale
Listed on Utah Department of Financial Institutions' Qualified Depository List	Ensures institutions already meet State safety, collateralization, and creditworthiness standards—no new qualification process needed
Voluntary opt-in with commitment to quarterly reporting	Self-selection ensures only institutions confident in local lending capacity participate
Acceptance of annual renewal contingent on performance	Creates accountability while maintaining PTIF flexibility

- **Key Point:** Limiting eligibility to institutions already on the Qualified Depository List, this program leverages Utah's existing robust safety framework. The Department of Financial Institutions has already vetted these institutions for security of public funds. This pilot simply creates incentives to direct more PTIF assets to qualified depositories opting into the pilot.

Proposed Scale Parameters

While final allocation amounts remain subject to Legislative input and banker feedback, we suggest consideration of the following framework:

Institution Size	Indicative Minimum CD	Rationale
Small (<\$500M assets)	\$2-5M	Meaningful without overwhelming smaller institutions
Medium (\$500M-\$2B)	\$5-10M	Sufficient scale to measure lending impact
Larger community banks (>\$2B)	\$10-20M	Proportional to balance sheet capacity

Total pilot scale: Estimated \$50-150 million across participating institutions, maintaining minimal impact on overall liquidity and diversification of the state’s investment reserves.

We emphasize that these figures are illustrative. Optimal sizing should emerge from dialogue with qualified institutions about their capacity and appetite for participation. Institutions on the Qualified Depository List range from small community banks to large regional institutions, but we anticipate that primarily community banks will opt in, given the program structure.

Reporting and Accountability

Quarterly Metrics Required:

- Loan-to-deposit ratio (relative to pre-program baseline)
- Loan-to-assets ratio (relative to pre-program baseline)
- Total loan growth (absolute dollars deployed)

Data Management:

-
- Independent entity (university research center or regulatory partnership) aggregates and anonymizes bank-level data.
 - The state treasurer and other government officials summarize trends without disclosing individual institution details.
 - Strong confidentiality protections encourage honest participation and protect competitive information.

Penalty Mechanism:

- Banks failing to report: Ineligible for renewal and/or pay penalty rate (to be determined).
- Banks reporting but showing minimal lending growth: Ineligible for renewal and/or pay penalty rate.
- Clear consequence structure ensures program integrity and self-selection of committed participants.

Program Structure

Year One:

- One-year CDs issued to qualifying participating institutions from the Qualified List.
- Quarterly reporting begins immediately upon CD issuance.
- Baseline lending metrics established in the first quarter.

Annual Renewal:

- CDs renewable each year based on performance.
- Only Banks demonstrating meaningful local lending growth would be eligible for renewal at competitive rates.
- Banks failing to meet lending thresholds or reporting requirements ineligible for renewal or subject to penalty rates.
- Annual review allows the state to reallocate funds to highest-performing institutions.

This annual review structure maintains full flexibility for the state while providing sufficient stability for banks to make meaningful lending commitments. Banks confident in their local lending capacity will welcome the opportunity; others will naturally decline participation.

Evaluation Timeline

Phase	Timeline	Focus
Pilot Launch	Year 1	Establish baselines, onboard participating institutions from the Qualified Depository List
Monitoring Period	Years 2-3	Track lending deployment, measure initial multiplier effects, refine participation based on performance
Impact Assessment	Years 4-5	Evaluate tax revenue impacts, assess pilot outcomes, identify highest-performing institution types
Decision Point	Year 5+	Determine program expansion, modification, or sunset based on evidence

Why Now?

The State of Utah is uniquely positioned to implement this initiative due to:

- Strong fiscal foundation and above-average growth trends.
- Existing QDL infrastructure ensures compliance without adding burden.
- Declining number of community banks and rising demand for local credit.
- National opportunity for Utah to establish a **first-of-its-kind, evidence-based model**.

Potential Benefits

For the State of Utah's Economy:

- Expanded credit access for small and medium-sized enterprises, particularly in rural and underserved markets
- Strengthened community development lending capacity
- Enhanced local economic resilience through distributed financial infrastructure
- Additional tax revenues from multiplier effects and wealth creation.

For Utah-based financial institutions:

- Stable, predictable funding source enabling strategic lending growth without volatile funding costs
- Reduced funding volatility supports longer-term relationship lending.
- Competitive advantage for institutions demonstrating local commitment and community focus.
- Ability to serve customers currently underserved by larger institutions.

For Small Pool of State Funds:

- Maintain adequate safety through existing Qualified Depository standards.
- Minimal liquidity impact via a one-year renewable structure.
- Demonstration of innovative public fund stewardship, building on proven infrastructure.

For Policymakers:

- Clear accountability metrics for program evaluation.
- Evidence-based framework for scaling future decisions.
- Replicable model for other potential public investment strategies.
- Accountable and transparent demonstration of the impact of public funds.
- Builds on existing regulatory infrastructure rather than creating new regulatory burden.

Appendix

Supporting Analysis and Technical Background

The following sections provide the economic analysis, methodology, and technical modeling that support the pilot program recommendations. This material is provided for transparency and to enable rigorous evaluation of the program's analytical foundation.

Existing Fund Allocation and Economic Profile

As of Q4 2024, Utah's state-managed assets totaled approximately \$35 billion, with record investment earnings of \$1.8 billion realized during the calendar year 2024.

By June 30, 2025, the total value of the state's investment portfolio was \$34.46 billion, maintaining a 360-day annualized yield of 4.42%. This portfolio is structured for short duration and high liquidity, meeting daily cash flow needs and prioritizing principal preservation.

A substantial portion of assets are allocated to Agency Notes—debt securities issued by government-sponsored enterprises or federal agencies—chosen for their high quality and favorable yields compared to direct US Treasuries. Additionally, 20.66% of holdings are in US Treasury notes, offering enhanced safety and liquidity.

Utah's reserves generally limit exposure to Certificates of Deposit, resulting in modest direct economic impact within local communities. This analysis addresses whether increasing allocations to CDs, specifically with institutions on the Qualified Depository List, could boost in-state economic activity without compromising the priorities of safety and liquidity. All potential depository institutions adhere to rigorous qualification processes administered by the Department of Financial Institutions; this analysis therefore focuses on strategies for optimal deployment rather than eligibility criteria.

Utah's Economic Profile

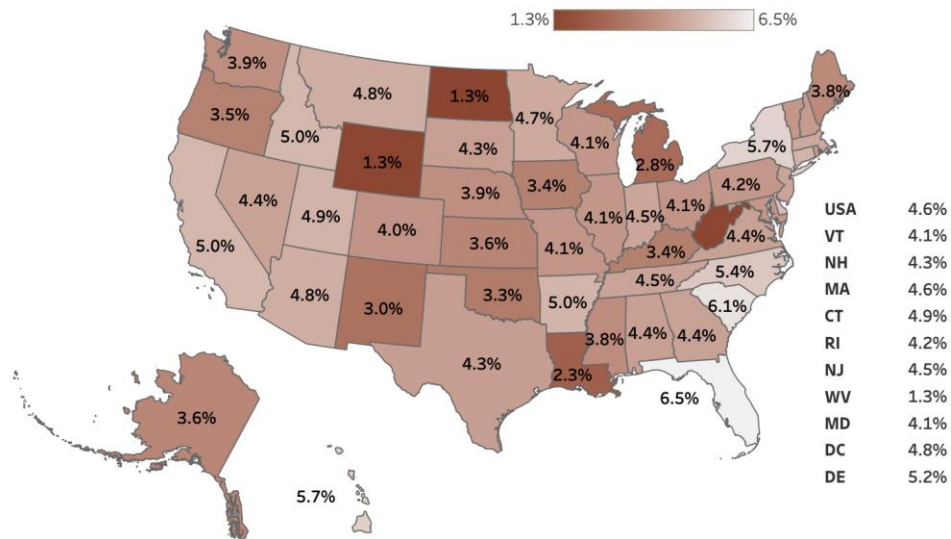
Utah's economy has demonstrated consistent resilience and robust growth over the past two decades. As of 2025 Q2, Utah's GDP stands at 4.9%, outpacing several regional peers and sustaining one of the strongest long-term growth trajectories in the United States. The chart below suggests that Utah's growth performance remains well above the national average across most periods, reflecting the state's strong fundamentals and low volatility in employment and output. Overall, Utah's economy offers a stable foundation for evaluating localized investment strategies such as state deposit reallocation.

Utah's personal income growth trends underscore the resilience of household earnings and the broader consumption base. From 2000 to 2024, annual income growth averaged 4-6%, significantly outperforming the national average. There were temporary downturns in tandem with the financial crisis and pandemic; however, they have been followed by sharp recoveries, with

double-digit rebounds in some quarters. The chart on Utah’s Total Tax Revenue shows a significant and sustained increase in tax receipts. There has been a threefold increase in nominal terms from 2000 to 2024. Similar to income growth, tax revenues experienced periodic contractions, followed by rapid rebounds in subsequent years. This trajectory in both the personal income and tax revenue reflects not only higher economic activity but also an expanding and diversified response of the tax base to various economic downturns. For the purposes of the study, this trend reinforces the tax revenue feedback mechanism embedded in the adapted model, whereby increased local lending and income generation from state deposits can further enhance the fiscal base. Strong revenue performance also underscores Utah’s capacity to sustain prudent experimentation, such as reallocation of investment funds towards local deposits, within the confines of a well-designed program that adheres to the same risk standards as outlined in the Utah Money Management Act.

Quarterly Gross Domestic Product By State
Year-Over Change

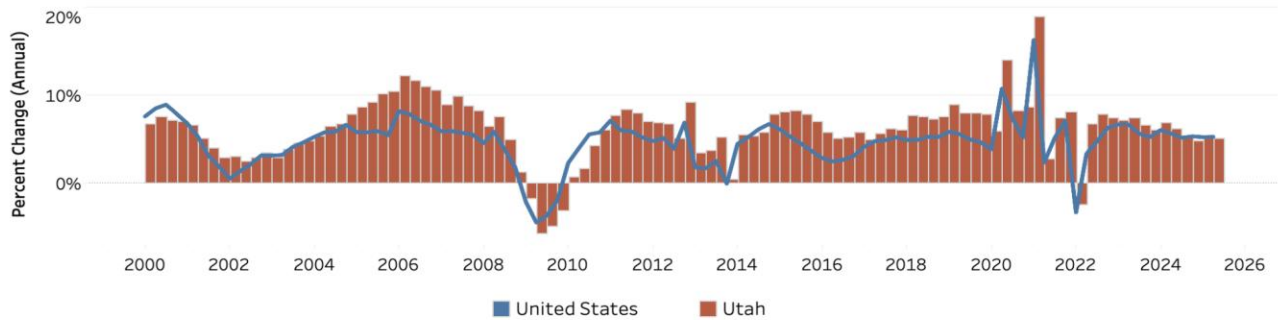
2025Q2



Source: U.S. Bureau of Economic Analysis

Source: <https://gardner.utah.edu/utah-economy/utah-economic-dashboard/>

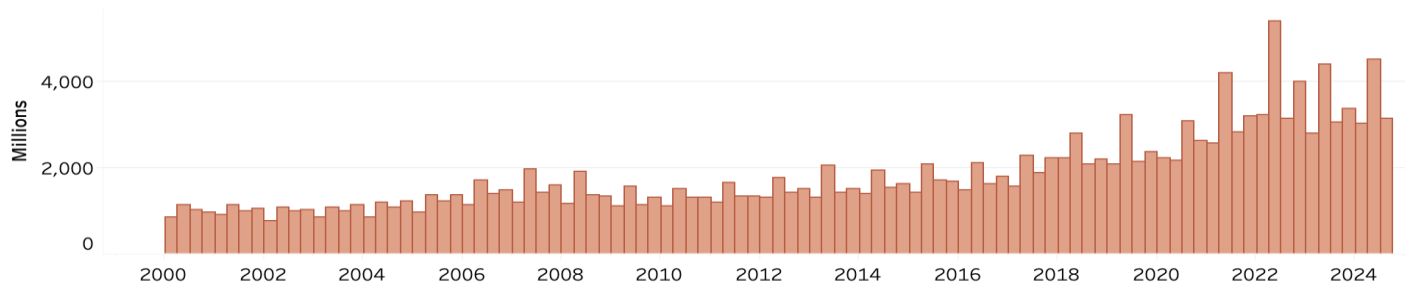
Utah Personal Income Growth 2000 Q1 to 2025 Q2



Source: U.S. Bureau of Economic Analysis

Source: <https://gardner.utah.edu/utah-economy/utah-economic-dashboard/>

Utah Total Tax Revenue 2000 Q1 to 2024 Q3



U.S. Census Bureau – Quarterly Tax Survey

Source: <https://gardner.utah.edu/utah-economy/utah-economic-dashboard/>

Mechanisms for Local Economic Impact

A Peek into Certificates of Deposits (CDs)

This project seeks to evaluate the economic benefits that could accrue to Utah's economy—particularly to its local communities—by allocating a portion of public funds to deposits in institutions on the Department of Financial Institutions' Qualified Depository List rather than investing primarily in market securities such as agency notes, U.S. Treasury securities, or money market instruments. At the heart of this study lies a key question: What level of economic benefit could Utah unlock by placing a greater share of public funds into Certificates of Deposit (CDs) at qualified community and regional banks? We explore whether such a shift can strengthen Utah's

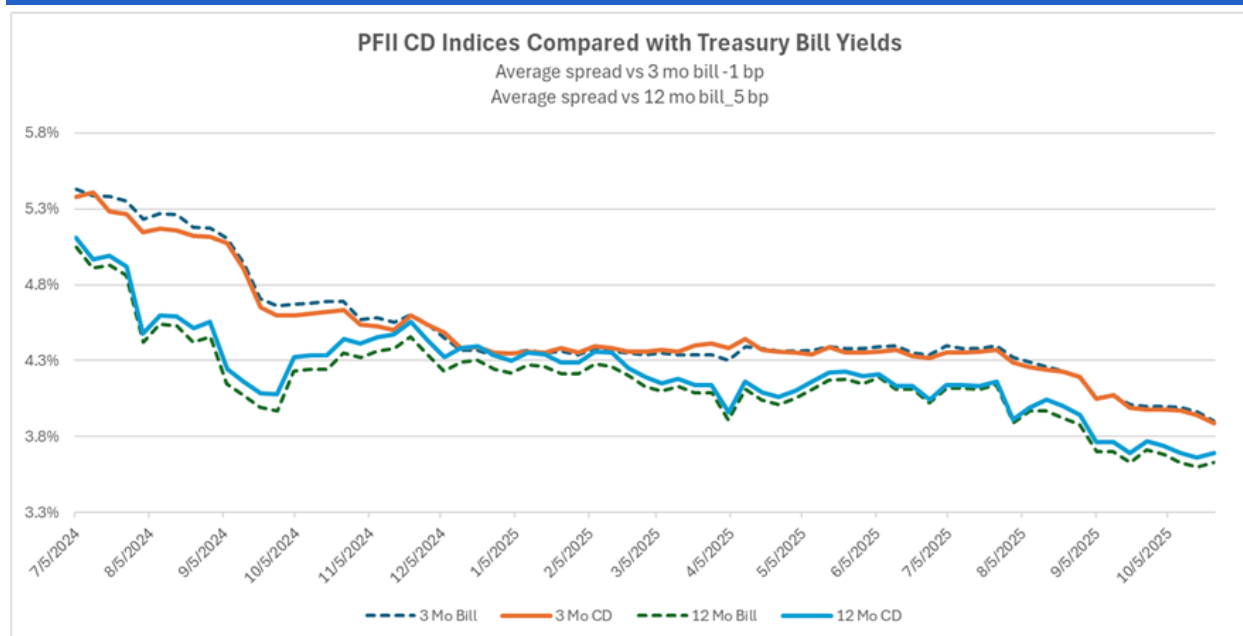
financial ecosystem by amplifying local lending, expanding business and household credit access, and generating deeper in-state economic multipliers that circulate capital back into communities.

According to a Bank for International Settlements' study, Certificates of Deposits are the instruments most widely used by non-financial and financial companies for short-term funding on an unsecured basis.² CDs are a relatively recent innovation. CDs were first issued by First National City Bank of New York in 1961, in response to US regulations introducing ceilings on banks' deposit rates. CDs can be non-negotiable or negotiable depending on whether their ownership can be transferred in a secondary market. Regardless, they serve functions comparable to time deposits, while their structure more closely resembles that of securities. For banks with a solid credit capacity, CDs are a flexible way to raise wholesale funding quickly. While there can be multiple considerations for a bank to issue CDs, most of the literature tends to focus on CDs from the bank's liability side, building an understanding of how banks raise money. There is limited work on the downstream effects—how using CDs in local banks could translate into more local lending, jobs, or an economic multiplier.

A report by the Public Funds Investment Institute provides an interesting insight into Bank CDs and their value creation as an available form of investment. The institute has developed a PFII CD index, which they have tracked and monitored for over a year now. As the study notes, **“PFII indices show collateralized CDs offer little, if any, rate advantage over investing in Treasury bills. Since we began compiling the indices in July 2024, the three-month CD index has averaged two basis points less than the rate on three-month Treasury bills.”**³ They also note that public units continue to invest in collateralized CDs despite the low advantage to treasury because of the familiarity and easy-to-buy nature of CDs. Although CDs are presumed to retain funds within local markets, evidence on how consistently those funds remain local is mixed and continues to be examined.

² Aquilina, Matteo, Andreas Schrimpf, and Karamfil Todorov. 2023. “CP and CDs Markets: A Primer.” *BIS Quarterly Review* (18 September). https://www.bis.org/publ/qtrpdf/r_qt2309e.htm

³ Margolis, Marty. “Bank CDs: Available for Investment, But Is There Value?” *Public Funds Investment Institute*, October 30, 2025. <https://pubfunds.org/bank-cds-available-for-investment-but-is-there-value/>



Source: The CD Indices are calculated and tracked by The Public Funds Investment Institute. <https://pubfunds.org/bank-cds-available-for-investment-but-is-there-value/>

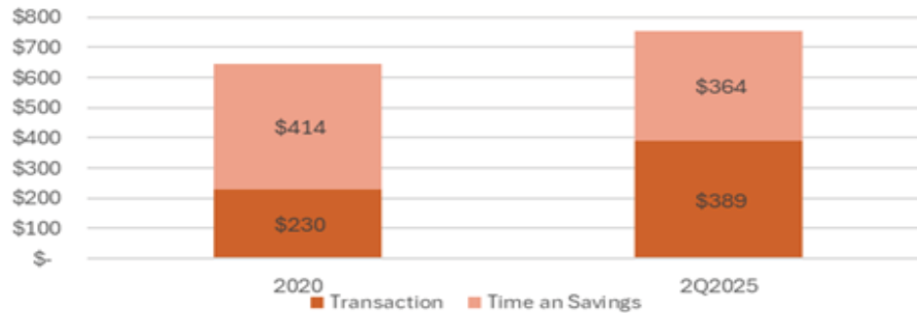
PFII’s analysis also helps explain why, despite expectations that CD rates should exceed Treasury bill yields, CD rates often do not. Several structural factors contribute:

1. **Banks prioritize fee-generating transaction services⁴** over offering higher-yielding CDs to attract deposits.
2. **Large banks can access cheaper wholesale funding**—including commercial paper, bonds, and negotiable CDs—reducing their need to price local CDs competitively.
3. **LGIPs intensify competition**, pushing banks away from competing purely on deposit rates and toward service-bundled accounts that offer below-market deposit rates, paired with earnings credits that are difficult to benchmark.

The PFII study has also tracked the mix of bank deposits and noted that they have changed. Transactions-based accounts gained \$159 billion while investment-type accounts (savings and time deposits CDs) lost \$50 billion. This marks a shift in how banks use market services and earnings credits, away from rate-based deposit gathering. Overall, the study concludes that selling transaction services is preferred from the bank’s perspective. This puts bank customers—state and local governments—at somewhat of a disadvantage when evaluating bank products.

⁴ Includes revenue derived from payments and transaction processing, card services, deposit account services, and lending-related fees. This excludes strategies relying solely on certificates of deposit for revenue generation or balance sheet management.

Bank Deposits Held by State and Local Governments (\$ billions)

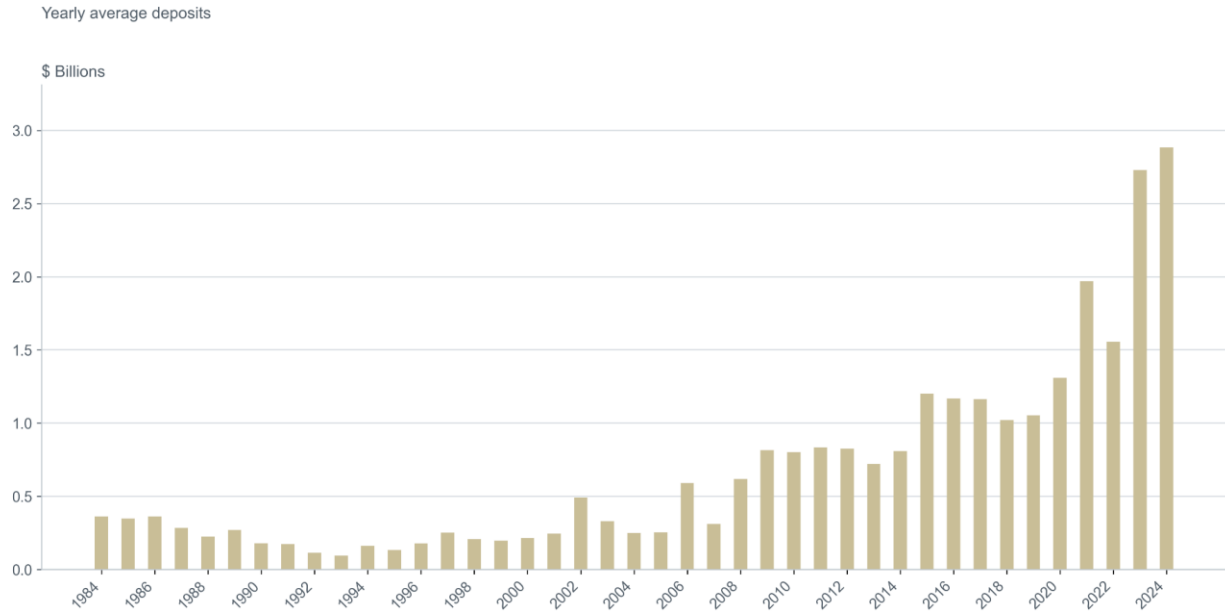


Source: Federal Reserve, PFII Calculations

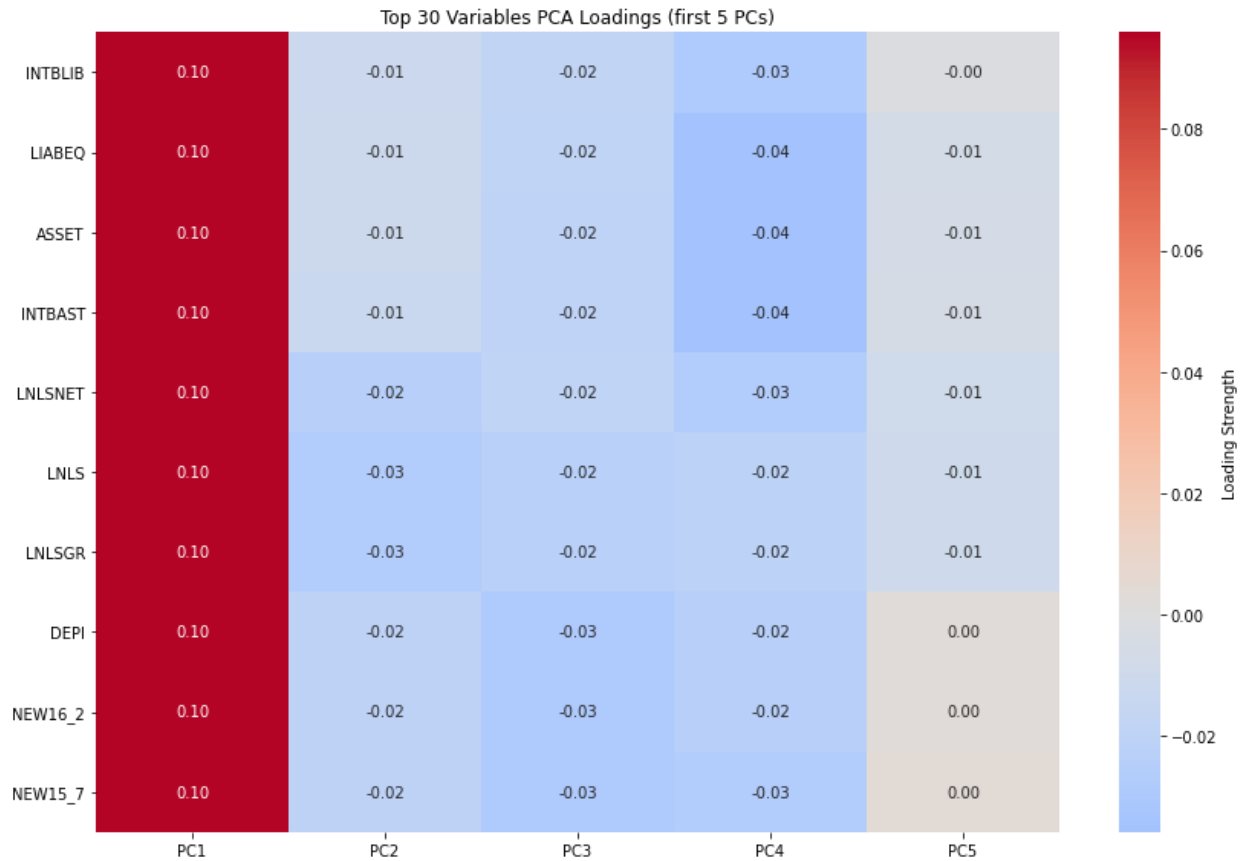
Source: <https://pubfunds.org/bank-cds-available-for-investment-but-is-there-value/>

Our analysis of FDIC data for Utah shows that deposits held by state and local government entities have **tripled since the 1980s and surged since 2020**, reflecting a significant surge in public-sector funds placed with Utah banks. While detailed data on the composition of Utah-specific public deposits are limited, we apply a principal component analysis (PCA) framework to panel data on bank balance-sheet characteristics, including deposits held by state and local governments, to identify the key financial drivers of public-sector deposit allocation. Deposits from state and political subdivisions appear to be driven primarily by “scale” variables—characteristics that reflect the size and balance-sheet strength of financial institutions. These determinants are tied to asset size, liabilities, deposit volumes, and loan portfolios, indicating that larger institutions have greater capacity to absorb and manage public-sector deposits. Funding structure also plays a critical role: the presence of both interest-bearing liabilities and interest-bearing deposits in the data suggests that states tend to favor banks with stable, deposit-based funding rather than those reliant on more volatile or wholesale sources. In addition, lending capacity emerges as an essential factor. Variables such as net loans and leases, gross loans and leases, and interest-earning assets point toward a preference for institutions that actively deploy deposits into lending.

Deposits - State and Political Divisions



Source: FIDC Summary of Deposits. Author's calculations.



Together, these insights suggest that CDs may now play a relatively limited role in attracting public deposits through rate competition alone. Instead, state and local governments appear to gravitate toward banks with broader balance-sheet strength, stable funding structures, and active lending capacity. For the purposes of this study, this underscores an important point: institutions on Utah's Qualified Depository List that are deposit-constrained and actively seeking to expand lending represent the optimal targets for this pilot program. These institutions—primarily community banks and credit unions—have both the incentive to participate and the capacity to convert deposits into productive local lending.

While the degree to which CD issuance translates into productive lending — and whether CD rates consistently outperform Treasury yields — remains debated, the underlying mechanisms warrant close consideration. Assuming a relatively frictionless balance-sheet environment, qualified CDs placed with local banks can generate immediate, direct local economic effects. In an ideal setting, such deposits expand the lending capacity of community and regional banks, enabling increased credit to small and medium-sized enterprises, households, and community development projects. This can foster business growth, job creation, and broader financial inclusion. Accordingly, a central aim of this study is to quantify the economic ripple effects associated with public fund placements and assess the extent to which local financial institutions can translate these deposits into meaningful, real-economy gains for Utah communities.

To maintain analytical continuity within the study, we make the simplifying assumption that funds deposited through CDs to institutions on the Qualified Depository List are fully translated into direct consumer and community development lending. In other words, every dollar placed in CDs is assumed to generate an equivalent dollar of lending activity within local financial institutions, thereby maximizing the direct local impact in our model. While actual lending deployment will vary by institution—which is why the program requires quarterly reporting—this assumption establishes the theoretical maximum impact..

These findings explain why CDs don't compete with Treasuries on interest rates alone—banks prioritize transaction services and access wholesale funding that reduces their need for deposit-based funding. However, this analysis misses the complete economic picture: when local banks convert deposits into local lending, the resulting economic multiplier effects—through increased capital formation, income generation, and tax revenues—can offset the rate differential. This is the mechanism our model quantifies. The key question becomes not whether CDs match Treasury yields, but whether the total economic benefit to Utah (including multiplier effects and tax revenues) exceeds the opportunity cost of the rate differential.

Impact of Bank Deposits on the Local Economy

This analysis draws upon an existing model framework originally developed by the **Docking Institute of Public Affairs on How Public Funds Investment Policy Impacts the Kansas Economy: An Analysis and Adaptation of Previous Research**, which examines the relationship between deposit allocation, money creation, and regional economic impact. The model has been **adapted for Utah**, with parameters updated to reflect state-specific conditions,

including reserve ratios, income multipliers, and tax revenue assumptions. While the core structure of the model remains consistent with the original, this adaptation allows for a more precise evaluation of Utah’s local institutional dynamics and public investment outcomes.

Methodology

While banks perform a range of functions, their primary role is to serve as intermediaries between those with surplus funds and those in need of financing.⁵ In fulfilling this role—and through the process of holding reserves—they effectively create additional money within the financial system. The process of money creation lies at the heart of the economic ripple effects that emanate from banking activity. Through this mechanism, banks play a pivotal role in shaping consumption and investment patterns, while their interconnected operations profoundly influence the overall stability of the financial system.

The deposit multiplier represents the maximum amount of money a bank can generate for each unit of reserves it holds, reflecting its central role in financial intermediation and money creation. The multiplier effect captures the relationship between the reserves a bank maintains and the funds it extends as loans. These loans circulate through the economy in several forms—such as deposits in other banks or as capital directed toward productive investments. Over time, the funds lent out re-enter the banking system, initiating a continuous cycle of deposits and lending that amplifies the overall money supply within the economy.

Money Multiplier Example

Suppose a bank maintains a 20% reserve ratio; the theoretical deposit multiplier would then be 5—the reciprocal of the reserve ratio. In a simplified, closed economy without regulatory frictions, a \$1,000 deposit could therefore generate up to \$5,000 in total money supply available for various economic activities. In practice, however, this multiplier is constrained by factors such as loan demand, banks’ willingness to lend, and regulatory requirements. When the closed-economy assumption is relaxed, out-of-state leakages further reduce the multiplier’s magnitude. Empirical studies estimate that with 50% of deposits leaking out of state and a 20% reserve ratio, the multiplier falls from 5 to 0.8. Even under a more conservative 10% leakage scenario, the multiplier declines from 5 to 3.2.

⁵ Gobat, Jeanne. 2025. “Banks: At the Heart of the Matter.” *IMF Finance & Development Magazine*, Back to Basics. Accessed [date you accessed]. <https://www.imf.org/en/Publications/fandd/issues/Series/Back-to-Basics/Banks>

Once deposits are circulated into the economy through lending, they generate additional economic benefits via the income multiplier, as recipients save a portion of their income and reinvest it in further productive activities. Based on initial research, multiple studies have published estimates of approximate multiplier ranges for all US states and the nation as a whole. This study assumes an income multiplier value of 2 to capture the secondary effects of such reinvestment on overall economic activity.

Furthermore, the study employs an estimated state and local tax revenue rate of 10.09% of personal income for Utah as a key parameter in the model, as published by the Tax Policy Center.¹¹ As a baseline, the model assumes an incremental \$100 million in public deposits at Utah banks. However, the pilot program scale would be determined by participating banks' capacity and size, with minimum thresholds established to ensure meaningful but manageable pilot scope. The total allocation would remain modest relative to the state's cash reserves, estimated at \$50-150 million across multiple participating institutions from the Qualified Depository List.

Study	Income Multiplier Range
Kansas Study ⁶	2
Crawford (2011) ⁷	1-2
Bolton (1996) ⁸	2
Bartik (2017) ⁹	1.5 - 3
Penn Budget Model and Carroll, C., Slacalek, J., Tokuoka, K. and White, M.N. (2017) ¹⁰	0.05-0.9 (National Estimates)

For this analysis, we adopt a conservative income multiplier of 2.0, which falls within the range of established empirical estimates and accounts for Utah's robust economic conditions. This parameter captures the secondary rounds of spending and income generation that occur as loan recipients use funds for business investment, household consumption, and other productive activities. While individual multiplier estimates vary by methodology and economic conditions, a value of 2.0 provides a reasonable, defensible baseline for policy analysis without overstating potential impacts.

⁶ Kansas Legislature. "FH Subcommittee REIT Testimony, November 18 2024." Kansas Legislature, 2024. https://www.kslegislature.gov/li_2024/b2023_24/committees/misc/fhsubreittesimony111824.pdf

⁷ Crawford, T. (2011). *Income Multipliers in Economic Impact Analysis: Review*. New Mexico State University, Las Cruces, NM. Guide Z-108.

⁸ Bolton, R. E. (1966). *Defense Purchases and Regional Growth*. Washington, DC: Brookings Institution.

⁹ Bartik, T. J. (2017). *New Evidence on State Fiscal Multipliers: Implications for State Policies*. Upjohn Institute Working Papers. Retrieved from https://research.upjohn.org/cgi/viewcontent.cgi?article=1293&context=up_workingpapers

¹⁰ <https://budgetmodel.wharton.upenn.edu/issues/2021/2/3/background-mpc-in-2021-economy>

¹¹ <https://taxpolicycenter.org/statistics/state-and-local-tax-revenue-percentage-personal-income>

Money Multiplier Effect

Assuming an initial increase of **\$100 million** in public deposits, of which **80% (or \$80 million)** is available for lending after accounting for reserve requirements, the money multiplier effect expands the total volume of deposits in the economy. Applying a multiplier of **2**, the total deposits generated amount to **\$160 million**. From this, the newly created loans are estimated at **\$128 million**, representing the portion of funds actively circulating within the economy to support consumption, investment, and business growth across Utah communities.

Income Multiplier Effect

The initial spending of **\$80 million**, corresponding to the portion of deposits deployed into the economy, triggers multiple rounds of income generation through the income multiplier process. With an assumed multiplier of **2**, the total new income generated is **\$160 million**. Adjusting for savings and other leakages, the **final personal income realized is approximately \$128 million**. Based on Utah’s estimated state and local tax revenue rate of **10.09%**, this translates into an additional **\$12.91 million** in tax revenue for state and local governments, strengthening public finances while supporting local economic activity.

Sensitivity Model

This section of the analysis examines the sensitivity of overall revenue generation by Utah’s local financial institutions. Assessing the broader impact of these institutions’ revenue performance serves two key purposes: first, it enhances the overall health and resilience of the state’s economy; and second, it strengthens the financial position of local institutions, thereby indirectly improving returns on state reserves. For this analysis, we assume a frictionless flow of funds among local institutions, the broader economy, and the state cash reserves, enabling the effects to circulate seamlessly across these interconnected entities.

As per Wong (2006) and the Kansas State Study conducted by Docking Institute of Public Affairs, the adapted model defines the Revenue function of Utah Local Institution as follows¹²:

$$\text{Revenue} = \text{Tax Revenues} + i(D) + i^*(A^*)$$

Where i = interest rate offered by Utah Banks, D = Deposits with Utah Banks, i^* = interest rate provided by out-of-state investments, and A^* = represents out-of-state investments and deposits. The tax revenue bucket can vary by source—individual state income taxes, state and local retail sales taxes, and state and local property taxes. In this study, tax receipts are treated as exogenous to the model.

12

https://www.kslegislature.gov/li/b2025_26/committees/ctte_s_fin_inst_ins_1/documents/testimony/20250313_20.pdf

Given that tax receipts don't change, a rational investor will allocate their deposits/assets to the asset offering the highest returns. On average, the CD rates offered by banks would be lower than the interest rates on out-of-state investments. The Kansas study outlines several reasons why local financial institutions tend to offer lower interest rates, with institutional size being a key factor. Smaller banks often face higher relative fixed costs, making certain investment products less profitable to offer. Moreover, certificates of deposit (CDs) primarily serve as a funding management tool for banks. Our literature review suggests that CD rates are influenced less by broader financial market conditions and more by the institution's internal balance sheet dynamics and liquidity management needs.

However, one advantage of placing deposits with Utah banks over out-of-state investments is the ability of Utah banking institutions to circulate funds back into the local economy. Utah banks have a better ability to track down high-quality local borrowers. Thus, out-of-state funds are less likely to seep back into Utah borrowers due to the high fixed costs of assessing them. While Utah banks are less likely to offer interest rates on par with other money market instruments, they offer the advantage of holding funds within the state and, in theory, boost the state economy by providing productive capacity through increased lending. When deposits are allocated to local financial institutions, they re-enter the economy through credit intermediation and capital investment, thereby increasing production capacity, employment, and income levels. As these positive economic effects materialize, they flow back to Utah's financial institutions through higher tax revenues—driven by an expanded tax base—and improved returns on local bank deposits.

Findings from the adapted model indicate that the apparent interest-rate disadvantage of Utah bank deposits relative to out-of-state investments may be offset by the economic gains from local lending activities that expand income and, in turn, the tax base. Building on this, the next question concerns how effectively Utah banks can reinvest deposits within the state by identifying and lending to local borrowers. This can be explored by analyzing their lending patterns and assessing the balance between in-state and out-of-state loan portfolios.

Since detailed information on the asset composition of Utah's financial institutions is limited and falls outside the scope of this study, the adapted model relies on a simplifying assumption regarding the structure of bank balance sheets. However, this presents a valuable opportunity to extend the analysis by examining banks' capacity to reallocate state deposits into lending activities and to deepen our understanding of how their balance sheets adjust in response to an infusion of new funds. Specifically, it assumes that total deposits are allocated between loan assets and other forms of assets, such as securities and reserves, represented by the following relationship:

$$\text{Deposits (D)} = \text{Loans (L)} + \text{Other Assets (O)}$$

In this framework, L denotes the volume of loans extended to Utah borrowers, while O captures all other assets held by the financial institutions. This formulation reflects the fundamental balance sheet identity of banks and provides a basis for analyzing how institutions respond when presented with additional deposits.

To further characterize the bank's lending behavior, the model defines the **Utah loan-deposit ratio**, $m = L/D$, which represents the proportion of total deposits reallocated into loans. This parameter serves as a key indicator of how effectively new deposits are transformed into productive lending within the state's economy.

A similar framework can be constructed for out-of-state investments, with slight adjustments to the underlying assumptions and variable definitions. Specifically, total out-of-state allocations are represented as:

$$A^* = I^* + O^*$$

Where I^* denotes the portion of out-of-state investments that eventually returns to Utah (for example, through indirect economic linkages or market flows), and O^* represents the share of assets created and retained outside the state using Utah's public funds. The share of out-of-state investments that effectively seep back into Utah's economy is expressed as: $m^* = I^*/A^*$

The Kansas study notes that, by construction, $L > I^*$, reflecting the assumption that Utah-based banks are better equipped to identify, evaluate, and extend credit to local borrowers than out-of-state investments generate limited feedback.

The difference between m and m^* affects the revenue function and, by extension, the effectiveness of putting state funds into bank deposits. Thus, we represent the revenue function in terms of the variables under consideration— m and m^* . Before we dive into exploring the revenue impacts, we build an understanding of how m affects tax revenues. The amount of capital Utah banks lend to the state directly affects the state's capital generation. Thus, the model defines the change in Utah Capital as follows:

$$\Delta k = m(\Delta D)$$

Additionally, the change in capital stock due to the injection of credit by out-of-state investments is given by:

$$\Delta k = m^*(\Delta A^*)$$

In addition to the general revenue function of Utah's local institutions, the model specifies the distribution of local government funds between Utah bank deposits and out-of-state investments, expressed as:

$$G = D + A^*$$

Under this framework, an increase in allocations to Utah banks is assumed to come at the expense of out-of-state investments, implying an inverse relationship such that:

$$D = -A^*$$

Consequently, the change in Utah's capital stock can be represented as:

$$\Delta k = m(D) - m^*(A^*)$$

Where $m(D)$ denotes the proportion of Utah deposits converted into local lending, and $m^*(A^*)$ represents the fraction of out-of-state investments that flow back into Utah. This formulation captures how shifts in fund allocation influence overall capital formation within the state.

Finally, the MR function of the state and local Utah institution can be simplified in terms of tax receipts as a function of in-state and out-of-state loans and capital stock effects, and additionally interest earned due to funds deposited in Utah financial institutions, minus the interest income foregone on out-of-state investments:

$$R = TaxReturn + i(D) + i^*(A^*)$$

$$MR = t(A)(m - m^*)(\Delta D) + i(\Delta D) - i^*(\Delta D)$$

$$MR = t(A)(m - m^*)(\Delta D) + (i - i^*)(\Delta D)$$

The model centers around two key components:

1. Utah Loan-to-Deposit Ratio (m):

This metric captures the proportion of deposits that Utah banks convert into loans within the state. A higher loan-to-deposit ratio indicates greater local lending, which in turn supports capital formation, stimulates income growth, and expands the tax base. Assuming a constant tax rate, higher incomes translate into increased tax revenues for local institutions. This ratio is a critical parameter in the study, as it reflects how effectively state funds—when placed in Utah banks—circulate through the economy to generate real economic activity.

2. Interest Rate Differential (Δi):

This represents the difference between the interest rates Utah banks offer on deposits and the returns from out-of-state investments. A larger differential, where Utah deposit rates are relatively lower, reduces the direct financial attractiveness of local placements and dampens the overall economic impact. Conversely, smaller differentials strengthen the case for local investment by minimizing the opportunity cost of depositing funds within the state.

Model Simulation and Results

*Model**Parameters*

Based on the stated assumptions and available data, the model variables are assigned the following baseline values:

- Tax Rate (τ): 10.09%
- Change in Deposits (ΔD): \$14 million
- Marginal Product of Capital (A): 1.05
- Proportion of Out-of-State Reinvestment (m^*): 0
- Interest Rate on Utah Deposits (i): 4%
- Interest Rate on Out-of-State Investments (i^*): 5%

1. Effect of the Utah Loan-to-Deposit Ratio (m)

To evaluate the effect of Utah's loan-to-deposit ratio, we vary the value of m while holding all other parameters constant. As m increases, the marginal revenue generated through local economic activity also rises. For the chosen parameter values, the **break-even point**—where the gain from expanded economic activity precisely offsets the loss in interest income—is estimated at **9.4%**. At this threshold, the economic gains from increased local lending compensate for the interest income the PTIF forfeits by investing in lower-yielding Utah bank CDs. Beyond 9.4%, the net effect becomes positive—local reinvestment creates more economic value than is lost through forgone interest returns. This finding aligns closely with the **Kansas State Study**, which reported a comparable threshold of **9.52%**.

2. Effect of Interest Rate Differentials ($\Delta i = i - i^*$)

This component illustrates how variations in the interest rate differential influence total revenue. When the differential is positive, the economic gains from increased local lending can outweigh the loss in interest income from lower-yielding Utah deposits.

In this analysis, the **interest rate on out-of-state investments (i^*)** is held constant at **5%**, reflecting limited control over external market rates. The **Utah loan-to-deposit ratio (m)** is assumed to be **20%**, and we vary the Utah deposit rate (i) accordingly.

The results suggest that the **break-even differential**—the point at which the state cash reserves would be indifferent between allocating funds to Utah banks or out-of-state investments—occurs at approximately **2.1%**. In other words, given that Utah banks lend 20% of their deposits to local borrowers, **out-of-state investment rates would need to exceed Utah bank deposit rates by at least 2.1 percentage points** for the state to be financially better off placing funds externally.

One key point to note is that each parameter may differ depending on the assumptions one makes. For this simulation, the threshold for interest rate differentials could change based on our assumption about how much Utah banks can loan to local borrowers.

M (Utah Loans to Deposit Ratio)	(i-i*)	
10%	-1%	Out-of-state investment rates should at least be higher than Utah bank rates by 1%
20%	-2.1%	Out-of-state investment rates should at least be higher than Utah bank rates by 2.1%
30%	-3.15%	Out-of-state investment rates should at least be higher than Utah bank rates by 3.15%

One additional point to be made out of the Kansas Study is that these are all long-term outcomes. The researchers estimated that the period for the deposits to transition to productive capital and for tax returns to be realized is 2 to 5 years. This can be further explored for the Utah context.

Recommendations and Next Steps

The simulation results demonstrate that a carefully designed CD reallocation program can generate meaningful economic benefits for Utah when participating institutions achieve at least 20% local lending deployment. The following recommendations translate these findings into actionable policy.

Key Policy Implications

Leverage Existing Infrastructure: All program participants should come from the Department of Financial Institutions' Qualified Depository List. This leverages existing safety standards, collateralization requirements, and institutional vetting—no new regulatory infrastructure is required. The State Treasurer's Office already maintains these relationships and monitoring capabilities.

Focus on Local Lending Intensity: The 20% local lending deployment threshold should serve as the program's core performance metric. This represents the point where economic multiplier effects justify the program investment. Quarterly reporting of loan-to-deposit and loan-to-assets ratios (relative to baseline) provides clear, measurable accountability without requiring disclosure of proprietary lending strategies.

Create Strong Selection Mechanisms: The program should be voluntary with clear performance expectations. Reporting requirements, the 20% lending threshold, and penalty provisions will naturally select for community banks and credit unions genuinely committed to expanding local lending. Large regional or national banks are unlikely to participate given administrative requirements relative to modest CD volumes—this natural selection is desirable and focuses resources where they generate maximum impact.

Maintain Flexibility Through Annual Renewal: One-year CDs renewable based on performance maintain investment flexibility while providing sufficient stability for banks to expand lending operations. Annual renewal decisions allow reallocation to highest-performing institutions and program exit if results disappoint.

Protect Confidential Data: An independent third party (university research center or regulator partnership) should collect, aggregate, and anonymize bank-level data before reporting summary trends to the state treasurer and other public officials. This protects competitive information while ensuring transparency and accountability.

Establish Clear Consequences: Banks failing to report metrics or achieve meaningful lending growth should face penalty rates (determined by policy) or ineligibility for renewal. This ensures only committed institutions benefit from program participation.

Implementation Priorities

Phase 1: Stakeholder Engagement (Months 1-3)

- Present findings and proposed framework to institutions on Qualified Depository List
- Solicit feedback on participation interest, capacity, and optimal CD sizing
- Engage Utah Department of Financial Institutions, Utah Bankers Association, and Utah Credit Union Association
- Identify likely participants and refine allocation parameters

Phase 2: Program Design (Months 4-6)

- Select independent third party for data collection and aggregation
- Establish confidentiality protocols and reporting templates
- Finalize CD minimums by institution size
- Define penalty rate structure (determined by policy)
- Create evaluation framework with clear success metrics and timeline

Phase 3: Legislative Action (Months 6-9)

- Draft enabling legislation incorporating:
 - Pilot structure and scale parameters
 - Eligibility limited to Qualified Depository List
 - Reporting requirements and timelines

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- Penalty mechanisms for non-performance
 - Annual renewal process based on results
 - Evaluation timeline with predetermined decision points for continuation, modification, or sunset
 - Secure Legislative approval and funding authorization

Phase 4: Pilot Launch (Months 9-12)

- Issue solicitation to all institutions on Qualified Depository List explaining opportunity, requirements, and expectations
- Accept opt-in commitments from qualifying institutions
- Establish baseline lending metrics (loan-to-deposit and loan-to-assets ratios) for each participant
- Issue initial one-year CDs
- Begin quarterly reporting cycle

Phase 5: Monitoring and Evaluation (Years 1-5)

- Collect quarterly metrics from all participants
- Track aggregate lending growth across program
- Monitor tax revenue impacts (with understanding that full effects materialize over 2-5 years)
- Annual renewal decisions based on performance
- Year 3-5: Comprehensive impact assessment
- Year 5: Decision point for program continuation, expansion, modification, or sunset

Critical Success Factors

Clear Communication: All institutions on the Qualified Depository List must understand the program is voluntary, performance-based, and focused on institutions genuinely capable of expanding local lending. Setting realistic expectations prevents later disappointment.

Rigorous Evaluation: Multi-year assessment with clear metrics enables evidence-based decisions about program continuation. Patience is essential—economic effects materialize gradually.

Flexibility: Annual renewal structure allows course corrections, reallocation to top performers, and program exit if results don't materialize.

Transparency: Public reporting of aggregate results (with individual bank confidentiality protected) builds trust and demonstrates accountability.

Realistic Scale: Modest initial allocation allows meaningful measurement without threatening the state's investment reserves.