

ECONOMIC EFFECTS OF CRYPTOCURRENCY ADOPTION ON TRADITIONAL BANKING SYSTEMS

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Abstract

The institutionalization of cryptocurrencies and blockchain-based decentralized finance (DeFi) that occurred within a short time, since the launch of Bitcoin in 2009, has significantly destabilized the banking systems of the past, replacing centralized intermediation and trust in the sovereign with the algorithmic and peer-to-peer trust models. This review combines the complex economic impacts of cryptocurrency use on traditional banks relying on empirical research, central bank discussions, and theories. The most notable effects are deposit disintermediation (stablecoins taking 5-15 percent of narrow money in high-adoption cases), lower demand of traditional payment services, net interest margins (NIMs) compression by 10-30 basis points in impacted segments, and credit disintermediation acceleration as DeFi lending protocols expand. In particular, stablecoins are threats to the transmission of monetary policy because they undermine the money multiplier, augment the volatility of velocity, and disrupt the ability to control the short-term rate of interest set by the central bank. The positive countervailing effects are seen because banks react by providing crypto custody services, blockchain pilots, tokenized deposits, and collaborating with DeFi platforms, which allow them to diversify their revenue and gain efficiencies. Nevertheless, regulatory fragmentation, AML/KYC compliance expenses, cybersecurity risks, and systemic risks in case of stablecoin runs or correlated crypto-bank failures are crucial issues. The discussion points to a two-way trend: in the short-term, the pressure of competition will be high, and in the long-term, the convergence will also occur, and traditional banks will either adapt to the use of DLT or will lose the market share gradually in payments, savings, and credit intermediation. Policy implications highlight the necessity of coordinated regulation, central bank digital currencies (CBDCs) as a competitive reaction, and macroprudential instruments to preserve financial stability in the context of a rapid increase in crypto adoption.

1. INTRODUCTION

The financial environment in the world is in the midst of a paradigm shift that is questioning the axioms of centralized intermediation. With the

advent of the blockchain technology and decentralized finance (DeFi) since the advent of Bitcoin in 2009, there has emerged a competitive paradigm that is not subject to the traditional

jurisdiction of sovereign central banks and commercial financial institutions (Nakamoto, 2008; Zetsche et al., 2020). This is described as a shift in institutional trust, in which the value is controlled by a centralized intermediary, to algorithmic trust, in which transactions are authenticated by immutable ledgers and peer-to-peer protocols (Werbach, 2018). By 2025, digital asset adoption is leaving the realm of speculation among retail users to an institutionalization phase, in which conventional banks are forced to align legacy infrastructures with distributed ledger technology (Arner et al., 2020). The economic impacts of this shift are complex, and they include the profitability of banks, the effectiveness of monetary policy, and the stability of the entire two-tier banking system (Bains et al., 2022). Conventional banking models are established on transformation of maturity

whereby short-term liabilities in the form of deposits are invested in long term assets like loans. This cycle is disrupted by cryptocurrencies, especially stablecoins, which provide alternative stores of value and mediums of exchange that can completely circumvent the commercial banking system (Eichengreen, 2019; Gorton and Zhang, 2021). This upheaval compels a reassessment of the role of banks as the main gatekeepers of the economy since digital assets offer cheaper, faster, and more easily accessible financial services, especially in developing markets (Prasad, 2021). The appearance of blockchain technology can be seen as a radical change in the sphere of institutional trust to algorithmic trust, which is placed in decentralized networks. The Figure 1 shows the structural difference between conventional banking systems and decentralized financial structures.

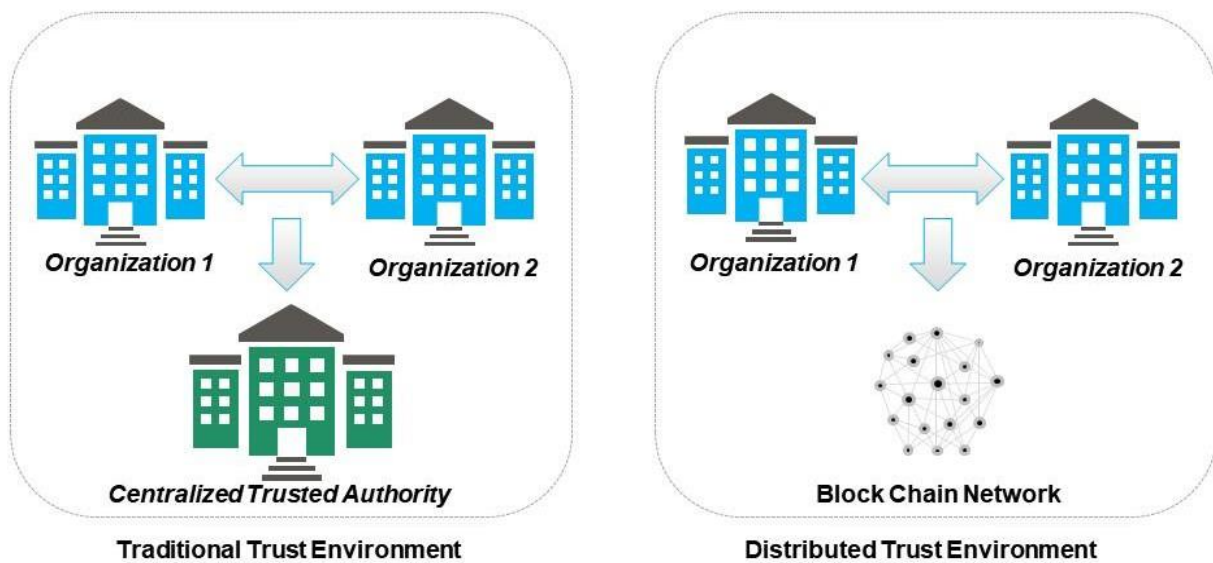


Figure 1: Evolution of the Financial Trust Model: From Banks to Blockchain

2. Disintermediation and the Transformation of Bank Liabilities

The most direct economic stress on the traditional banking systems is the displacement of the deposits. Retail deposits are stable and cheap, and commercial banks use them to sustain liquidity and finance credit supply (BPI, 2025).

Nonetheless, the emergence of payment stablecoins and interest-bearing electronic resources has provided an alternative that is realistic to retail and institutional savers (ECB, 2026). By transforming bank deposits into digital currency such as stablecoins, the banking system risks being drained of its basic funding which

eventually limits the capacity of the commercial banks to intermediate (Federal Reserve Board, 2025). Its effect on deposits will depend on the manner in which the issuers operate the reserves. With a stablecoin issuer keeping 100 percent of its support in the commercial bank deposits, the overall liquidity in the banking system is the same, but the distribution is no longer scattered retail deposits but concentrated wholesale deposits (Liao, 2022). On the other hand, when the issuers are depositing the reserves in non-bank instruments like U.S. Treasury bills, the net withdrawal of the liquidity in the banking sector

occurs (Gorton and Zhang, 2023). This change raises the cost of funding banks, as they will need to compete with the yield of digital assets and possibly have to resort to less favorable wholesale funding markets (ECB, 2026).

2.1. Comparative Stablecoin Reserve Strategy Analysis.

The different methods of reserve management of the key issuers of digital assets pose distinct degrees of liquidity stress on the conventional banks (Wang, 2025)

Table 1. Summary of Major Stablecoin Reserve Strategies and Impact on Bank Deposits

Stablecoin Issuer	Reserve Asset Composition	Impact on Bank Deposits	Primary Regulatory Framework
Circle (USDC)	Diversified (Cash, T-Bills, MMFs)	Moderate Recycling	U.S. State-level / MiCA
Tether (USDT)	Heavy T-Bill concentration	High Disintermediation	Non-U.S. / Evolving
Gemini (GUSD)	100% Bank Deposits	Neutral (Recycled)	NYDFS
Paxos (USDP)	Cash and T-Bills	Moderate Disintermediation	NYDFS / Federal

Studies have shown that migration of retail deposits to stablecoins will likely compel banks to increase interest rates in order to stop additional outflows, and a pass-through rate to lending rates is estimated to be between 0.66 and 0.87 (BIS, 2025).

3. Impact on Credit Provision and the Balance Sheet

This limitation of the supply of credit to the economy is caused by the decrease in stable funding. Under the conventional two-level banking system, banks generate money by lending, which is enabled by the central bank reserves (Sindhushree et al., 2025). The use of cryptocurrency destabilizes the liability part of the

account, compelling banks to either shrink their lending or move to more lucrative, riskier assets to remain profitable (Sakarneh & Kilani, 2024). The banks can not lend as much against such stablecoin issuers since they are considered to be more volatile. These liquidity limitations decrease the lending capacity of the bank by 5 to 15 percent of its retail deposits lost to a stablecoin issuer (Yao and Zeng, 2023). The adoption of cryptocurrency has impacts on each side of the commercial bank balance sheet, as it decreases the retail deposit funding and increases the dependence on the more volatile wholesale funding. The structural balance-sheet adjustments are illustrated in Figure 2.

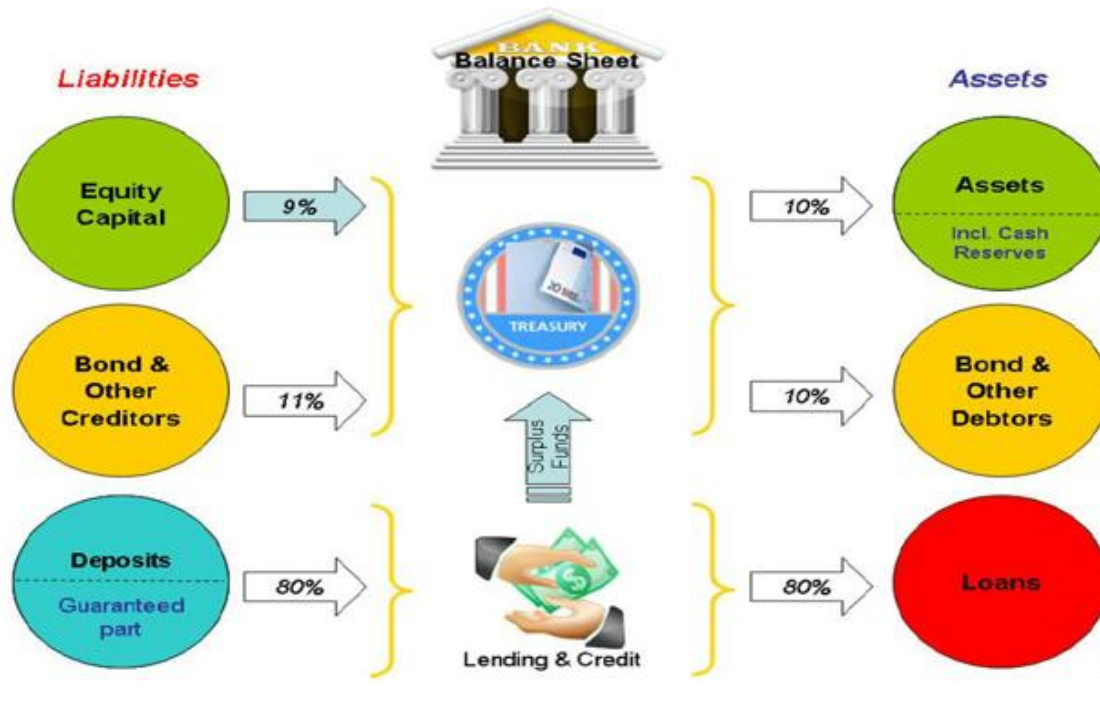


Figure 2: Impact of Cryptocurrency Adoption on Bank Balance Sheets

3.1 Quantitative Projections for Bank Loan Reductions

Based on empirical modeling of stablecoin adoption, the following scenarios illustrate the

potential contraction in aggregate bank credit provision (Houlihan Lokey, 2025).

Table 2. Projected Net Change in Bank Loans Based on Adoption Scenarios

Adoption Scenario	Change in Stablecoin Supply	Alpha (Reserve Ratio in Banks)	Foreign Demand Inflow	Net Change in Bank Loans
Conservative	200 Billion USD	50%	0 USD	-65 Billion to -141 Billion USD
Moderate	500 Billion USD	20%	100 Billion USD	-190 Billion to -408 Billion USD
Aggressive	1 Trillion USD	10%	200 Billion USD	-450 Billion to -850 Billion USD

4. Operational Efficiencies and Payment Modernization

Nevertheless, blockchain technology can give banks a chance to address operational inefficiencies despite the difficulties in financing models. The old system of correspondent banking receives almost 194.6 trillion USD of cross-border payments annually, yet is marred by

high charges and slowness in settlement (Pathak, 2025). Middlemen charge commissions resulting in an average cost of transactions of 3 percent to 7 percent (J.P. Morgan, 2025). Rails built on blockchain make it possible to achieve atomic settlement, in which value and information are transferred simultaneously, without the need to reconcile them manually. Large financial

institutions such as BNY Mellon and JPMorgan Chase use personal blockchains to simplify the work between banks (BNY, 2025).

4.1 Comparison of Transaction Metrics: Traditional vs. Blockchain

The efficiency gains of digital asset protocols significantly outperform legacy systems (Deloitte, 2025).

Table 3. Operational Performance Metrics: Traditional vs. Blockchain Rails

Metric	Traditional Wire (SWIFT)	Stablecoin / DLT Rails	Impact on Bank Operations
Settlement Speed	2 - 5 Business Days	Seconds to Minutes	Enhanced Liquidity
Average Transaction Cost	3.00%	0.5% - 1.0%	Reduced Overhead
Transparency	Limited / Sequential	Full On-chain Visibility	Improved Audit
Throughput	Approx. 2,000 TPS	Up to 1,000,000 TPS	High Scalability

5. Monetary Policy and Systemic Risk

The emergence of cryptocurrencies poses a problem to the transmission of monetary policy. To keep interest rates and money supply stable, central banks manipulate them. The transmission mechanism is disjointed since digital assets are not managed by anyone (Ndokaji, 2025). When inflation is high in a certain economy, there is cryptoization of people who fail to use local currency in place of USD-pegged stablecoins (Minarni, 2025). U.S. Treasury bills also form a significant part of the stablecoins holders. Stablecoin inflows in the form of five-day stablecoins of 3.5 billion USD lowers 3-month T-bill yields by 2 to 2.5 basis points, as of 2025. This forms feedback mechanisms whereby crypto volatility affects the risk-free rate of the traditional economy (BPI Research, 2025).

support. CBDCs at retail are intended to enhance inclusion, whereas wholesale CBDCs enhance the modernization of interbank settlement (Gross et al., 2025). Narrow banking is a highly debated issue. When a central bank provides the digital accounts to the whole population of citizens, it will compete with the commercial bank deposits. This may cause structural disintermediation, which lowers the available credit to drive economic growth (Kunaratskul et al., 2025).

6. Strategic Pivot: Central Bank Digital Currencies (CBDC)

In order to counter the risks of disintermediation, more than 90 percent of central banks are testing or considering Central Bank Digital Currencies (CBDCs). These integrate blockchain effectiveness and sovereign

7. Regional Case Study: South Asia and Pakistan

The impacts of cryptocurrency adoption are also very apparent in less developed markets such as Pakistan, where inflation and lack of access to banking services are driving grassroots adoption (Jailani et al., 2025). Pakistan has an estimated population of 15 to 20 million individuals in the informal crypto economy by 2025. The government is shifting to a two-track approach and institutionalizes the market through the Virtual Assets Ordinance 2025 and creates a state-owned CBDC (IJSSE, 2025).

Table 4. Digital Finance Projections in the Pakistan Landscape (2025-2026)

Economic Component	Formal Banking / CBDC	Informal Economy Crypto	Potential Impact
User Base	Approx. 50 Million	15 - 20 Million Users	Broadened Inclusion
Annual Volume	11.5 Billion USD (SBP)	18 Billion - 37 Billion USD	Assets Formalization
Remittance Costs	7.00%	1% - 3%	Billions in Fee Savings
Currency Stability	Managed by SBP	Linked to USD Stablecoins	PKR Stability

8. Conclusion

Acceptance of cryptocurrencies and decentralized finance is one of the most significant changes to conventional banking within a hundred years, questioning the fundamental economic roles of deposit-taking, middle of payment, credit creation, and transmission of money. Empirical and theoretical data continue to indicate that crypto assets, especially stablecoins, have a negative impact on bank deposits, thin interest spreads, and undermine revenue streams in retail and cross-border payments, and also present new risks, such as liquidity discrepancies, run risks, and a loss of central bank control over the money supply. However, the very technological wave that poses a risk of disintermediation opens opportunities to existing banks to recreate themselves in the form of crypto custody, tokenized assets, settlement through a blockchain, and hybrid DeFi collaborations which can offset losses and draw new value pools in a digitized financial ecosystem. The pace and character of regulatory reactions determine the net economic impact: excessively restrictive regulations can choke innovation and outsource activity, whereas active and risk-measured regulations (, stablecoin licensing, issuing CBDCs, macroprudential buffers) can co-exist and use blockchain efficiencies to wider financial inclusion and financial resilience. In the future the trend will be toward convergence, as opposed to a complete replacement of traditional banks into hybrid organizations merging traditional advantages with the ability to distribute ledgers. To policymakers and supervisors, the challenge lies in striking the right balance between innovation and stability such that moving to a

crypto-integrated financial system reinforces instead of weakens the safety, soundness, and inclusivity of banking services in a more digital global economy.

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