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Cryptoassets And the Deposit Guarantee Scheme: Regulatory Challenges and Implications for Financial Stability, With A Particular Focus on Stablecoins*

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Abstract

This article addresses the role of stablecoins in the financial system, with particular emphasis on their potential as substitutes for bank deposits and the regulatory implications of this function. The theoretical part presents a classification of crypto-assets, discusses the relationship between stablecoins and electronic money, and outlines the theoretical basis for deposit substitution. The regulatory analysis focuses on the European Union's framework solutions (MiCA, DORA, BRRD), the positions of international institutions (BIS, IMF, FSB), and a comparison of regulatory approaches in the EU and the US. In the empirical part, based on data from 2015–2024, the relationships between stablecoin capitalization and the dynamics of bank deposits in the US and the EU were examined using lagged regression models and event analysis. The results indicate a significant substitution effect, particularly in the United States, and greater resilience of the deposit system in the EU, which may be linked to a more comprehensive regulatory framework. The article argues that while stablecoins can enhance innovation and payment efficiency, covering them with deposit guarantees poses serious risks to financial stability and monetary policy transmission. The conclusions point to the need for a balanced regulatory approach that ensures the transparency and security of stablecoins without undermining the foundations of the traditional banking system.

Keywords: stablecoins, cryptoassets, electronic money, deposit guarantees, deposit substitution, financial regulation

JEL codes: E42, G21, G28, O16, E51

Introduction

Over the past decade, the digital asset market has experienced rapid growth. Among these assets, stablecoins have gained particular importance. Stablecoins are digital instruments linked to traditional currencies or other reserve assets, whose purpose is to limit the price volatility typical of Bitcoin, Ether, and other cryptocurrencies (Arner, Auer & Frost, 2020). The rapid expansion of stablecoins raises questions about their impact on the banking system, monetary policy transmission mechanisms, and the role of bank deposits. There are opinions in the literature that stablecoins may gradually serve as a partial substitute for deposits (Brunnermeier, James & Landau, 2019; Gorton & Zhang, 2021). It is also important to consider whether the doctrine of deposit guarantees, which is fundamental to banking stability, should be extended or evolved in the context of crypto-assets. Trust in digital infrastructures remains a core prerequisite for mainstream adoption of asset-referenced tokens and related innovations (Carr and Fortun, 2018). Critical opinions regarding potential threats to banks also appear in the literature (Sumner, 2021).

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The aim of this article is to provide a multidimensional analysis of the role of stablecoins in the financial system, with particular emphasis on guarantee mechanisms similar to deposit guarantees. The paper consists of a theoretical part (classification of cryptoassets, the relationship between stablecoins and e-money, theories of deposit substitution), a regulatory review (with particular emphasis on EU and US regulations, as well as the positions of international institutions), and an empirical analysis covering the period 2015–2024, including data from the EU and the US.

The article formulates and tests the following hypotheses:

H1: The development of stablecoins acts as a substitute for bank deposits, especially in times of increased uncertainty or reduced confidence in the banking sector.

H2: Guarantee models similar to deposit guarantees may enhance the attractiveness of stablecoins, but carry the risk of destabilizing the banking system and moral hazard.

H3: The regulatory frameworks adopted in the EU (MiCA, DORA, BRRD) offer a more comprehensive approach compared to the fragmented approach in the US, but both areas face the challenge of scalable and secure regulation of stablecoins.

The methodology used includes:

(1) analysis of theoretical and regulatory literature;
(2) classification and systematization of cryptoassets and comparison with e-money;
(3) construction of statistical models – lagged regressions – to examine the relationship between stablecoin capitalization and deposits;
(4) interpretation of empirical results in a regulatory context.
Quarterly data was obtained from the European Central Bank, the Federal Reserve, the CoinMarketCap database, BIS and FSB reports, IMF publications, and blockchain analytics companies (Glassnode, Chainalysis).

Classification of cryptoassets, stablecoins, e-money, and the theory of deposit substitution

Didenko and Buckley (2019) present a comprehensive classification of contemporary forms of money according to three dimensions: issuer (public/private), form (physical/digital), and settlement architecture (centralized/decentralized). Traditional instruments, such as cash and central bank reserves, constitute public money. Alternative forms, including stablecoins, e-money, and cryptocurrencies, operate outside the official system, although they often imitate it. Cryptoassets are a broad category of digital assets based on distributed ledger technology (DLT). Various classifications can be found in the literature, but one useful system classifies instruments according to their function and stabilization mechanism (Zohar, 2015; Tapscott & Tapscott, 2016). The proposed classification includes:

1. Native cryptocurrencies – without a stabilisation mechanism, whose value depends on supply/demand and a consensus algorithm (e.g. Bitcoin, Litecoin).

2. Utility tokens – providing access to services on a blockchain network or platform (e.g., DeFi platform tokens, application tokens).

3. Security tokens – representing shares in assets, bonds, or income rights (subject to securities regulations).

4. Stablecoins – have a mechanism for stabilizing their value against fiat currencies or other assets. The latter are divided into: a) Full-reserve fiat-backed stablecoins – e.g., USDT, USDC, BUSD; b) Crypto-collateralized stablecoins – e.g., DAI, where overcollateralization mechanisms and liquidation algorithms affect stability; c) Seigniorage-style stablecoins – stabilized through inflationary/deflationary mechanisms, issuance of auxiliary tokens (e.g., TerraUSD, UST).

Their common features are their digital form, use of blockchain technology, and function as a medium of exchange. However, unlike traditional cryptocurrencies (e.g., Bitcoin), the purpose of stablecoins is not speculation, but value stability and transactional efficiency (Zahid, 2021). In addition to the above, e-money tokens (EMT) can be distinguished in the context of MiCA regulations (European Parliament, 2023). EMTs are tokens that are to be treated similarly to e-money in the applicable payment directives. The concept of electronic

money (e-money) is well established in EU regulations (Directive 2009/110/EC) and refers to the recording of monetary value in electronic form, accepted in exchange for goods and services. EMT tokens under MiCA will be subject to regulations similar to those for e-money, including the requirement of redeemability (redemption in national currency), exchange rate stability, and consumer protection, which brings them closer to deposits (European Parliament, 2023). The literature notes that fiat-backed stablecoins (e.g., USDC) are functionally similar to e-money: they have reserves, one-to-one convertibility, and a redemption mechanism (Adrian & Mancini-Griffoli, 2019; ECB, 2023). However, the lack of formal status as an electronic money institution (EMI) or bank limits their regulatory safety. Classical banking models, such as Diamond & Dybvig (1983), show that deposits perform maturity, lending, and liquidity functions. With the emergence of alternative liquidity instruments, competitive substitutes may disrupt banking equilibrium mechanisms. Brunnermeier, James, and Landau (2019) point out that stablecoins may enter into competition with deposits by offering faster access, lower costs, and global reach. Gorton and Zhang (2021) argue that in systemic crises, investors may migrate to stablecoins as a safe haven, fragmenting the deposit base. From a portfolio theory perspective (Markowitz, 1952), a depositor chooses between the liquidity of deposits and an alternative instrument with similar characteristics (stablecoin) if it offers a more attractive risk/return efficiency. Arbitrage mechanisms (when a stablecoin is undervalued or overvalued relative to the base currency) promote exchange rate stability and can generate capital flows between deposits and stablecoins. As Claeys and Demertzis (2019) point out, for a digital currency to be considered a full-fledged means of payment, it must fulfill the functions of a unit of account, a medium of exchange, and a store of value. In this respect, early cryptocurrencies have failed, while stablecoins and CBDCs aspire to fulfill these functions. Stablecoins, while technically effective, pose a number of risks to financial stability due to the lack of government guarantees, the risk of de-pegging and runs on collateral assets, market concentration of issuers (e.g., Meta/Diem), and regulatory fragmentation. CBDCs, on the other hand, offer public solutions that can complement cash and deposit money systems. Their advantages include trust in the central bank as the issuer, no risk of insolvency, support for monetary policy transmission, and ease of integration with collateral systems (Fegatelli, 2019). The rationale for implementing CBDCs includes increasing the efficiency of the payment system, digital transformation, and maintaining the monetary anchor in the digital age.

Development of the cryptocurrency market

The crypto asset market is experiencing dynamic growth, both in terms of the number of users and total market capitalization (fig. 1). Data for 2016–2024 indicate an increase in the global number of cryptocurrency users – from approximately 45 million in 2016 to over 0.5 billion in 2023, with particularly high growth in 2020–2022 and some saturation and stabilization of the indicator after 2023. (Chainalysis, 2023).

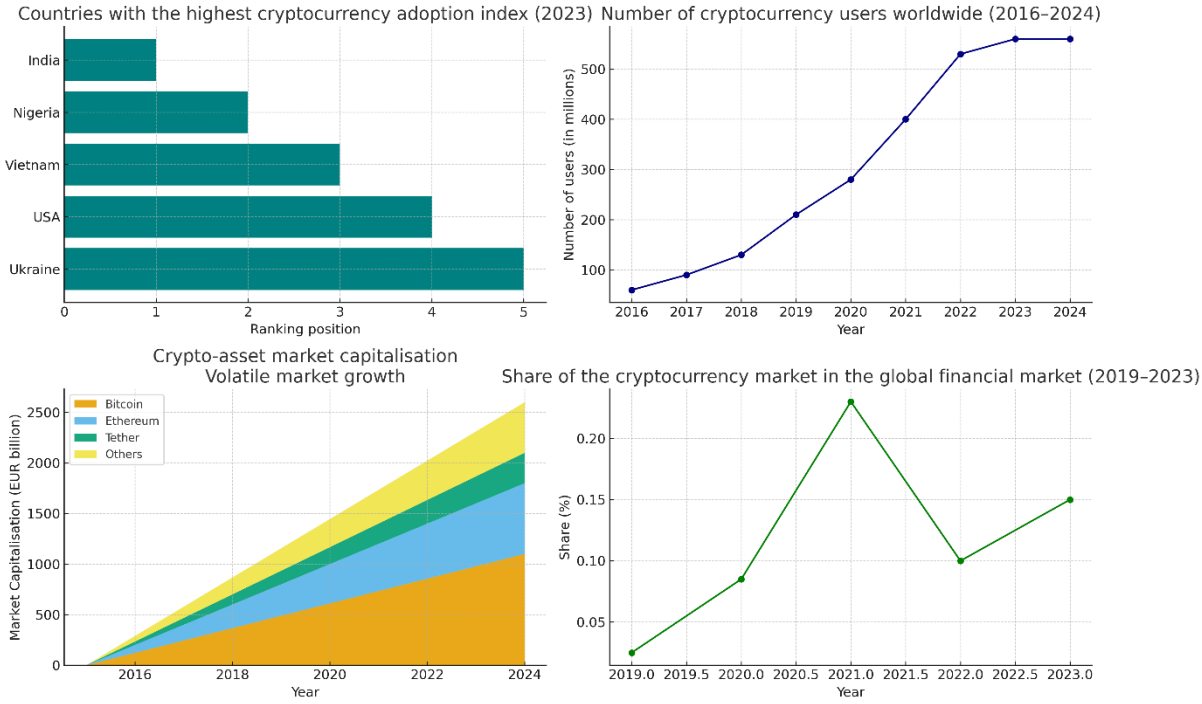

Fig. 1 Development and importance of cryptocurrencies in the financial system: global scale

Source: Own study

The acceptance of cryptocurrencies is not uniform across the globe. According to data from 2023, the highest levels were recorded in India, Nigeria, Vietnam, the United States, and Ukraine[i] . The countries leading the ranking are characterized by a relatively low level of development of traditional financial institutions and limited access to banking services, which indicates the potentially compensatory role of crypto assets in the context of financial inclusion. The high penetration of cryptocurrencies in developing countries may also be a consequence of the instability of local currencies, lack of trust in banking systems, and the growing popularity of cross-border value transfers (Greenacre, 2020).

According to the market capitalization criterion, the total value of the cryptoasset market exceeded €2.5 trillion in 2024, and its structure is dominated by three assets: Bitcoin, the leader in terms of market share, Ethereum, and the stablecoin Tether, a link between fiat currencies and the blockchain environment, whose presence proves the increased demand for assets with lower volatility, allowing for the reduction of exchange rate risk while maintaining the advantages of crypto assets, such as mobility and accessibility (BIS, 2023).
Despite their high growth dynamics, crypto assets still represent a relatively small segment of the global financial market. Between 2019 and 2023, the share of cryptocurrencies in the value of global financial assets did not exceed 0.25%, and its value fluctuated between 0.02% and 0.23%, reaching its highest level in 2021. The role of cryptoassets in the financial system is growing, but their systemic importance remains limited, and their impact on financial stability is still the subject of research and regulatory debate (IMF, 2023; ECB, 2023).

The stablecoin segment, a category of cryptoassets linked to traditional currencies (most often the USD), has been playing an increasingly important role in the digital finance infrastructure since 2021, especially as an intermediary instrument in transactions and a liquidity hedge in decentralized finance (DeFi) systems. Data for 2021–2025 indicate strong but uneven growth in the market capitalization of stablecoins, closely linked to market shocks and changes in the regulatory environment (Binance Research, 2024).

Until 2022, the stablecoin segment was characterized by high growth dynamics, reaching a capitalization of over USD 150 billion (fig 2). The crisis related to the collapse of the algorithmic stablecoin Terra (in May 2022) caused a sharp decline in confidence in this asset class and a collapse in capitalization, which was exacerbated by subsequent events: the collapse of the FTX exchange (November 2022) and the banking crisis related to Silicon Valley Bank (March 2023)ii. These events contributed to a gradual erosion of stablecoin capitalization, which reached a local minimum in early 2024, indicating the market's significant sensitivity to endogenous factors (stablecoin design flaws) and exogenous factors (crises in traditional financial institutions) (Tether Transparency, 2023; Chainalysis, 2023).

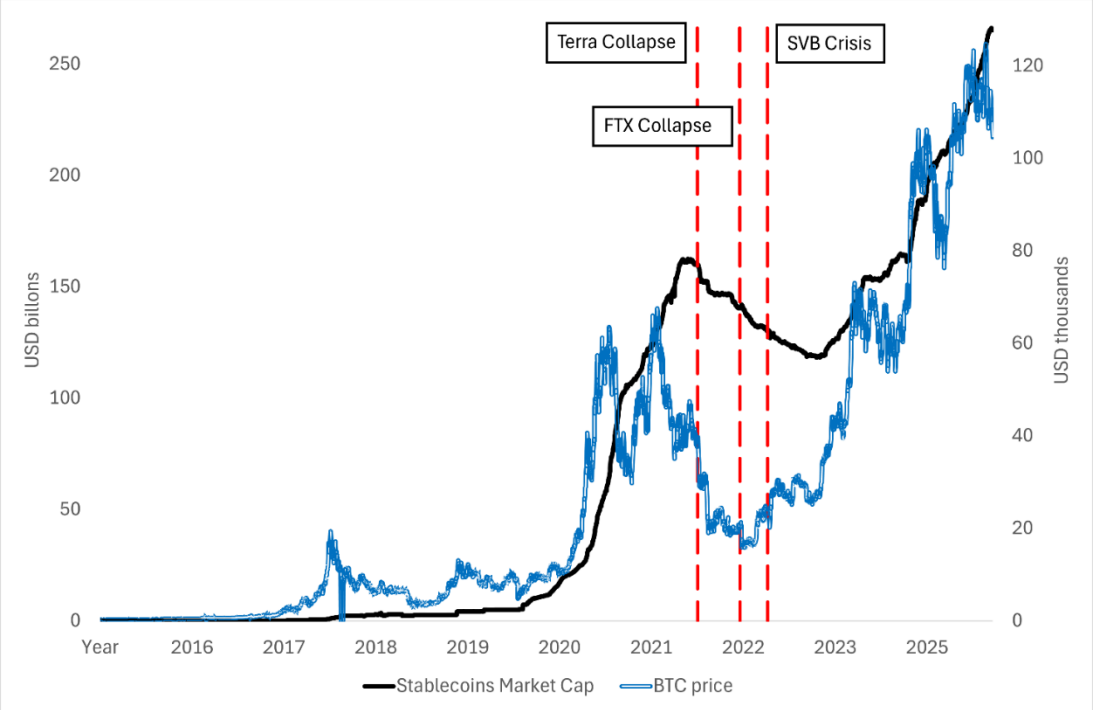

Fig. 2 Evolution of the Stablecoin Market Cap with Major Shocks and Bitcoin Price Comparison

Source: Own study based on data from coingecko.com

Table 1 Key Events Affecting Stablecoins

Event	Date	Event Description	Impact on Stablecoins
Collapse of Terra (UST)	May 2022	Collapse of the algorithmic stablecoin UST (non-collateralized mechanism tied to LUNA).	• UST depeg, loss of confidence • Rising uncertainty around reserves of other stablecoins
Collapse of FTX	Nov 2022	Failure of one of the largest crypto exchanges, linked to stablecoin trading and liquidity flows.	• Mass redemptions of USDT/USDC • Decline in market capitalization • Capital outflows from the market
SVB Crisis	Mar 2023	Bank holding part of USDC reserves became insolvent, creating temporary uncertainty about backing funds.	• USDC depeg • Concentration and reserve risk concerns • Increased regulatory pressure

Source: Own study

The revival of stablecoin capitalization growth can be linked to the SEC's approval of a Bitcoin-based ETF in 2024, which signaled a resurgence of institutional and retail investor confidence in the crypto asset ecosystem. This moment marks the beginning of a phase of market re-expansion, reaching a value of over $225 billion in mid-2025. Structurally, stablecoins serve as a key liquidity component, enabling value storage and transaction settlements within crypto asset exchanges without the need for conversion to fiat currencies, while at the same time becoming the subject of growing interest from regulators due to their potential implications for financial stability (FSB, 2022; IMF, 2023). In this context, the structural differences between stablecoins backed by fiat reserves (e.g., USDC, USDT), algorithmic stablecoins (such as TerraUSD), and crypto-asset-backed stablecoins are significant. The crises of recent years have highlighted the weaknesses of algorithmic models in particular, whose ability to maintain value parity in conditions of market panic has proved illusory (BIS, 2023). Fiat-backed stablecoins have shown relatively greater resilience, although their credibility remains dependent on the transparency of reserves and the adequacy of audits. The risk and growth profile suggests a growing role for stablecoins as quasi-deposit instruments in a parallel financial system, but they require further regulatory standardization and potential inclusion in the deposit guarantee scheme framework.

The development of crypto-assets is intense and global, but asymmetrical, strongly dependent on the institutional, economic, and social conditions of a given country. The stablecoin market is highly dynamic and growing in importance in the digital finance infrastructure, but at the same time strongly dependent on systemic events. From a regulatory perspective, it is therefore necessary to develop flexible, differentiated models of supervision and consumer protection that take into account the specificities of local markets and the innovativeness of instruments, while maintaining systemic stability and international consistency.

Regulatory challenges and directions for the development of a supervisory framework for stablecoins: the EU framework, market approaches, and a comparison between the EU and the US

The dynamic development of stablecoins as digital payment instruments poses fundamental challenges for the financial supervisory architecture. The Bank of England clearly states that if stablecoins become widely accepted as a means of payment, they must be subject to the same requirements as commercial bank deposits, including capital, liquidity, redemption guarantees, and consumer protection, including the equivalent of a deposit guarantee scheme (Milliken and Wilson, 2021). This approach assumes equal standards of safety and responsibility for all forms of money used in economic transactions. According to the BoE, the lack of such regulations may lead to threats to monetary stability and public confidence. Moreover, widespread adoption of stablecoins could disrupt bank funding structures and increase borrowing costs in the economy, although the projected macroeconomic impact is moderate—provided that a consistent regulatory framework is in place (Milliken and Wilson, 2021).
Calomiris (2021) discusses digital disruption in greater detail, pointing out that stablecoins and services unbundled from the traditional banking model are changing the way financial services are provided. In his vision, "stablecoin banks" are institutions without deposit status, operating algorithmically stabilized digital currencies backed by

secure assets such as treasury bills. Importantly, this model eliminates the classic risk of a bank run—users have privileged claims, and the lack of deposit insurance is compensated for by the stability of the capital structure and operational transparency. According to the author, this type of approach can improve efficiency, security, and financial inclusion, provided that it is embedded in an appropriate licensing and supervisory framework (Calomiris, 2021). However, as Vives (2020) notes, stablecoins – especially those issued by BigTech – blur the line between deposits and payment instruments. Thanks to network effects and their user base, technology companies can quickly achieve systemic scale, which, combined with a lack of regulation, can lead to risks similar to a classic bank run. Vives warns that the growth of stablecoins and BigTech financial services undermines the dominant position of banks in deposit-taking and settlement. While this may increase the efficiency and accessibility of services, it also necessitates the premature design of a prudential framework. From the perspective of monetary policy and system stability, it is crucial to distinguish between claim-based money and object-based money, with stablecoins belonging to the former category – offering value only as long as there is trust in the issuer and reserves (Vives, 2020).

In the United States, the legislative response to these challenges is the STABLE Act, which proposes to include stablecoins in the banking framework. Under the bill, stablecoin issuers would be required to obtain a federal banking license, provide FDIC protection, and be members of the Federal Reserve System. In addition, the bill extends regulatory obligations to companies providing stablecoin-related services, regardless of whether they are issuers (Hunton.com, 2020). Although the bill was not passed, it demonstrates Congress's growing interest in consumer protection, systemic stability, and the transparency of digital money. Importantly, the STABLE Act explicitly recognizes stablecoins as systemic instruments requiring full integration with existing financial supervision.

EU regulatory framework: MiCA, DORA, BRRD, and references to guarantees

The MiCA (Markets in Crypto-Assets Regulation), adopted in 2023, is the first comprehensive regulation of crypto-assets in the European Union. MiCA divides tokens into three main groups: EMT (e-money tokens), ART (asset-referenced tokens), and other crypto tokens (non-stable). EMT issuers will have to obtain authorization as EMT institutions, maintain reserves in functionally equivalent funds, ensure the redeemability of tokens, disclose information about reserves and risks, and be supervised by the European Banking Authority (EBA) (European Parliament, 2023). Although MiCA does not provide for stablecoins to be automatically covered by the deposit guarantee scheme, the new regulations significantly increase the transparency and accountability of issuers.

At the same time, DORA (Digital Operational Resilience Act) – scheduled to come into force in 2025 – strengthens the operational resilience of institutions operating in the financial sector, including entities operating stablecoins. DORA imposes obligations in the areas of cybersecurity, technological resilience testing, and operational risk management (European Commission, 2022). In the context of stablecoins, this regulation is crucial, as technical failures, hacker attacks, or errors in smart contracts can lead to loss of funds and a crisis of confidence. The third key regulation is the BRRD (Bank Recovery and Resolution Directive), which provides the basis for orderly bank restructuring mechanisms in the EU (European Commission, 2014). Although the BRRD does not directly cover stablecoin issuers, it is precisely the comparison of bank deposit protection (within the framework of guarantee and procedural mechanisms) with the lack of analogous mechanisms for crypto-assets that is becoming a central element of the debate on extending deposit guarantees.

The emergence of stablecoins is forcing regulators to redefine existing concepts and supervisory frameworks. Regardless of whether the issuer is a bank, a fintech company, or a global technology platform, the stable and secure adoption of stablecoins requires a regulatory balance between innovation and responsibility. In this context, there are both integrative (licensing of bank stablecoins) and alternative (special guarantee funds, reserve requirements) proposals, each of which requires thoughtful implementation that takes into account both local realities and the global nature of digital money. Classical literature has already emphasized the role of deregulation and technological innovation in the transformation of the monetary system (Tobin, 1985).

As mentioned, the Bank of England (BoE) analysis indicates that stablecoins used as means of payment should be subject to the same regulations as deposits in commercial banks (Milliken & Wilson, 2021). If these digital assets gain widespread acceptance, it will be necessary to subject them to capital, liquidity, and deposit guarantee requirements to ensure their 1:1 convertibility and avoid systemic risks. The BoE's key proposal is to prevent stablecoins from operating in a regulatory gap, which means ensuring adequate supervision and embedding these instruments in existing financial structures. This approach assumes equal standards of security and accountability for all forms of money used in economic transactions. According to the BoE, the lack of such regulations could lead to risks to monetary stability and public confidence. Moreover, widespread adoption of stablecoins could disrupt bank financing structures and increase borrowing costs in the economy, although the projected macroeconomic impact is moderate – provided that a coherent regulatory framework is in place (Milliken and Wilson, 2021). Similar conclusions are drawn by C. Calomiris (2021), who analyzes the possibilities of giving institutional form to the issuance of stablecoins through the creation of so-called "stablecoin banks" — financial

entities that do not hold traditional deposits but issue digital assets with a stable value. He points out that stablecoins and services unbundled from the traditional banking model are changing the way financial services are provided. Unlike traditional banks, such entities would not be covered by the deposit guarantee scheme, which reduces the risk of abuse while enabling greater operational efficiency, lower transaction costs, and greater transparency. Their operation would be based on algorithmic stabilization of the value of stablecoins and reserves in safe assets, such as treasury bonds. In the event of financial problems, losses would be covered from equity capital, while maintaining the superior position of stablecoin holders. This model eliminates the classic risk of a bank run – users have privileged claims, and the lack of deposit guarantees is compensated by the stability of the capital structure and operational transparency. This type of approach can improve efficiency, security, and financial inclusion, provided it is embedded in an appropriate licensing and supervisory framework (Calomiris, 2021).

In view of the growing role of stablecoins in the financial system, the United States and the European Union are intensifying legislative and supervisory work aimed at regulating this market segment. Despite different regulatory traditions and institutional structures, the common goal for both jurisdictions is to ensure financial stability, protect consumers, and prevent systemic risk resulting from the mass use of digital instruments.

Table 2 Selected legal acts concerning the inclusion of stablecoins in the financial safety net

Jurisdiction	Institution/Initiative	Scope of regulation	Warranty/protection elements
USA	GENIUS Act (2025)	Federal regulatory framework for stablecoin issuers: reserves, capital, licenses	Possibility of bank participation and banking supervision; paves the way for coverage by protection mechanisms
USA	STABLE Act (proposal)	Consumer protection and oversight of stablecoin issuance	Emphasis on the requirement for bank issuance, i.e., access to the deposit guarantee system
USA	Federal Deposit Insurance Company - FDIC (2025)	Guidelines for banks on crypto activities (including stablecoins)	Banks may handle stablecoins if they meet risk requirements – potential access to deposit guarantees
USA	Consumer Financial Protection Bureau - CFPB (2025)	Proposal to cover stablecoins under the Electronic Fund Transfer Act	Extension of consumer protection to stablecoin accounts (quasi-deposits)
EU	MiCA Regulation (2023/2024)	Comprehensive rules on asset-backed tokens and electronic money	1:1 reserve requirement, disclosure of information; no deposit guarantee scheme coverage (no formal deposit guarantee)
EU	EBA / ESMA (under MiCA)	Supervision of stablecoin issuers in the EU	Eligibility for licensing and requirements, but without full protection as in the case of bank deposits

Source: own elaboration

In the United States, recent legislative initiatives, such as the GENIUS (Guiding and Establishing National Innovation for U.S. Stablecoins) Act of 2025, aim to establish a federal framework for stablecoin issuers, including reserve and capital requirements and a licensing system. The bill, approved by the Senate Banking Committee, paves the way for banks to be included in the issuance of stablecoins and for such instruments to be covered by federal protection mechanisms, including potentially a deposit guarantee scheme. The STABLE (Stablecoin Transparency and Accountability for a Better Ledger Economy) Act , which is being processed in parallel, places particular emphasis on the supervision of stablecoin issuance and consumer protection, proposing to limit issuance to banking institutions as a condition for access to FDIC guarantees. The Blockchain Legal Resource report (2020) discussing the original draft of the STABLE Act pointed to the requirement to cover all stablecoin issuance under the banking regime. The bill requires a federal banking license, membership in the Federal Reserve System, and FDIC deposit insurance. The scope of the bill covers not only stablecoin issuers, but also all institutions providing

related services, such as wallets and payment processors. Although the regulation has not been adopted, it sends a clear legislative signal about the need to integrate digital assets into the banking regime.

These trends are confirmed by the new FDIC guidelines from 2025, according to which banks may participate in activities related to crypto assets, including stablecoins, as long as they manage the risks appropriately . On April 7, 2022, the FDIC issued FIL-16-2022 - Notice Regarding Engagement in Cryptocurrency Activities, which established a prior notification requirement for FDIC-supervised institutions that wish to engage in cryptocurrency activities. In 2025, the guidance was rescinded, indicating that FDIC-supervised institutions may engage in permissible cryptocurrency activities without prior FDIC approval. In addition, the CFPB (Consumer Financial Protection Bureau - a US government agency for consumer protection in the financial sector through the implementation and enforcement of federal consumer finance laws) has proposed extending the scope of the Electronic Fund Transfer Act (EFTA) to stablecoin accounts, which could lead to their classification as quasi-deposits covered by basic consumer protection.

In the European Union, the approach adopted in the MiCA[iii] Regulation provides for the definition of a separate category of electronic money tokens (*e-money tokens*) and *asset-referenced tokens*. However, the main protective mechanism for stablecoin users in the EU is not the coverage of stablecoins by the deposit guarantee scheme, but the obligation to maintain reserves in a 1:1 ratio to liabilities to token holders and transparency of information on reserves and redemption policy. Stablecoin issuers operating in the EU are subject to licensing requirements and are supervised by ESMA (European Securities and Markets Authority) and EBA (European Banking Authority), but do not enjoy full protection comparable to that provided by the bank deposit guarantee scheme. This approach highlights the hybrid nature of stablecoins, which on the one hand perform payment functions similar to bank money, but on the other hand are not formally recognized as bank deposits. As a result, in Europe, greater emphasis is placed on micro-prudential risk management and transparency mechanisms than on integrating stablecoins into the existing guarantee infrastructure. The regulatory models implemented in the US and the EU represent two different approaches to protecting stablecoin market participants. The United States is leaning towards the possible inclusion of stablecoins in the systemic protection framework through bank issuance and participation in the deposit guarantee scheme, while the European Union is adopting a more cautious model based on extended financial collateral from issuers and disclosure of information, without granting stablecoins the status of guaranteed deposits. However, both approaches are moving towards professionalizing the sector and harmonizing prudential standards, reflecting the growing importance of this market segment in the global financial system. The consequences of these changes affect many stakeholder groups. For fintechs and cryptocurrency companies, the STABLE Act means a significant increase in compliance costs and potential barriers to entry. For traditional banks, it is an opportunity to strengthen their competitive position through knowledge of regulatory requirements. For regulators and consumers, it is a step towards ensuring customer protection, system stability, and consistency with monetary policy.

The analysis presented in the documents included in this article shows that the future of stablecoins as a component of the modern financial system depends on balanced regulation. It requires reconciling innovation with security, flexibility with oversight, and efficiency with consumer protection. Proposed solutions, such as voluntary banking status (Calomiris, 2021), integration with CBDC (BoE, 2021), or a broad statutory definition (Blockchain Legal Resource, 2020), demonstrate the diversity of approaches that can coexist within a comprehensive regulatory framework.

Guarantee models analogous to deposit guarantees

The current legal framework, such as the EU Deposit Guarantee Scheme Directive (DGSD), excludes so-called financial institutions, which include EMIs and PIs, from the scope of protection. At the same time, there is no clear distinction between these institutions' own deposits and funds held on behalf of customers. This ambiguity has serious practical consequences: e-money users are not protected in the event of the failure of an institution or the bankruptcy of a custodian bank where their funds are held (Beja, 2021).

However, the international context shows greater diversity in approaches. India, Colombia, and Mexico have implemented solutions that allow e-money to be directly covered by deposit protection, but this requires such products to be recognized as deposits within the meaning of the law and their providers to be subject to appropriate prudential regulations (Izaguirre et al., 2016). Alternatively, some countries, such as the US, Kenya, and Nigeria, use an indirect (pass-through) model, where users benefit from protection because their funds are held in deposit accounts with a custodian bank and can be assigned to individual users.

Depending on the model adopted, the regulatory, legal, and operational implications also vary. CGAP (Izaguirre et al., 2016) identifies three main regulatory approaches:

1. Exclusion Approach – complete exclusion of digital products from the scope of guarantee protection. This approach is easy to implement and maintains regulatory clarity, but leaves users unprotected in the event of supplier bankruptcy, which can undermine public confidence. Examples include Peru and the Philippines.
2. Direct Approach – direct inclusion of digital products in the deposit guarantee scheme, provided that suppliers meet supervisory requirements. This solution guarantees full protection, but may increase regulatory costs and reduce innovation. Examples: India, Mexico, Colombia.
3. Pass-Through Approach – users are indirectly protected because their funds are held in banks covered by the guarantee scheme and the protection is "passed on" to them. However, this requires accurate user records and efficient administration, especially in crisis situations. Examples: USA, Kenya, Nigeria.

Table 3 : Approaches to deposit guarantees for electronic money and digital balances

Feature	Exclusionary approach	Direct approach	Indirect approach (pass-through)
Definition of deposit	Digital balances are not considered deposits	Digital balances are legally recognized as deposits	Balances are not deposits but are held in guaranteed trust accounts
Protection mechanism	No deposit guarantees	Direct protection by the deposit guarantee scheme	Indirect protection of customer funds by the custodian bank
Eligible institutions	Only banks and deposit institutions	Banks and supervised non-bank institutions (EMI/PI)	Non-banks excluded, but users covered by indirect protection
Supervisory requirements	None or minimal for EMIs	Full or proportional prudential regulation for EMIs	Supervision of EMI conduct, full supervision of custodian bank
Legal clarity	High (clear exemption)	Requires legal reform	Conditional – depends on beneficiary records and legal recognition
Consumer protection	Weak – risk of losing funds if EMI fails	Strong – users protected like bank customers	Average – protection only applies in the event of the custodian bank's collapse
Complexity of implementation	Low	High – requires legal and institutional reform	Medium – requires efficient record-keeping and payout mechanisms
Examples of countries	Peru, Philippines	India, Mexico, Colombia	Kenya, Nigeria, United States
Advantages	Ease of implementation, regulatory transparency	Equal protection as for banks, full security	Compromise between innovation and user protection, use of existing deposit guarantee schemes
Disadvantages	Lack of protection undermines public confidence	High regulatory costs may limit innovation	Operational difficulties during a crisis, only partial protection

Source: Own elaboration based on: Izaguirre et al., 2016

Both the direct and indirect approaches attempt to reconcile the need for innovation and financial inclusion with the need to ensure the security of users' funds. However, each of these approaches involves operational and legal challenges that must be carefully tailored to national realities, both in terms of the legal system (common vs. civil law) and the level of maturity of the market and supervisory institutions.

There are several structural approaches to investor or depositor protection on the market which, although different from traditional deposit guarantees, serve a similar function: they reduce the risk of capital loss. The most well-known are discussed below:

1. Reserves backing: Stablecoin issuers maintain reserves of fiat funds or liquid instruments covering all issued tokens on a 1:1 basis. In the event of a redemption request, each token can be redeemed for the equivalent of the base currency. This model is used by USDC (Circle) and Coinbase's (Bloom, 2022). It is the simplest concept, mechanically similar to a deposit guarantee.

2. Buffer funds and reinsurance mechanisms: A portion of the fees or margins generated by token activity goes into a reserve fund (insurance pool), which acts as a safety cushion in the event of insolvency or outflows. This mechanism is used in DeFi protocols, e.g., in some decentralized stablecoin projects. The similarity to deposit guarantees lies in the fact that users benefit from protection under a common fund.

3. Publicly or privately backed issuer guarantee: A model in which the institution issuing stablecoins commits (or is regulated to commit) to redeem tokens even in the event of bankruptcy, often with adequate capital reserves or insurance. Some stablecoin projects have proposed reinsurance by financial institutions (banks) or private guarantee funds.

4. Statutory or public guarantees extended to stablecoins: An innovative concept in which, under certain conditions, stablecoins may be covered by a deposit guarantee scheme, analogous to bank deposits. There are proposals in the literature that only tokens issued by institutions that meet strict requirements (e.g., 100% reserves, supervision, minimum capital) should be eligible for guarantee status (Adrian & Mancini-Griffoli, 2019; IMF, 2023). However, the implementation of this model carries the risk of transferring market risk to the public system and moral hazard.

Each of these models has its limitations: full reserves are costly and may limit profitability, buffer funds may be insufficient in the event of bank run-style redemptions, and public guarantees carry the risk of bailouts and fiscal criticism (Panetti, 2019).

Comparison of the EU and US regulatory approaches

The European Union, through MiCA and DORA, has adopted a systemic and preventive approach. MiCA requires EMT and ART issuers to meet stringent standards for reserves, redeemability, risk disclosure, and supervision by the EBA (European Parliament, 2023). DORA will strengthen the operational resilience of the financial sector (European Commission, 2022). Importantly, the EU does not plan to include stablecoins in the standard deposit guarantee scheme, as these guarantees are traditionally linked to banking institutions and guaranteed deposits (Directive 2014/59/EU). Nevertheless, analogous protection mechanisms, such as buffer funds or reserves, must be part of the MiCA regulation.

In the United States, the approach is more fragmented and reactive. The SEC (Securities and Exchange Commission) treats some stablecoins as securities, the CFTC (Commodity Futures Trading Commission) may classify them as commodities, and other agencies (OCC, FDIC) are considering banking frameworks (President's Working Group on Financial Markets, 2021). Legislative proposals, such as *the Stablecoin TRUST Act of 2023,* suggest that stablecoin issuers should be required to maintain dollar reserves, be subject to banking supervision, and be covered by a similar reserve guarantee (U.S. Congress, 2023). However, this bill has not yet become law and debate over its form continues.

Comparing the two approaches, it can be noted that the EU is focusing on regulatory consistency and integration with the existing e-money and banking frameworks, while the US is experimenting with the adaptation of sectoral supervision (SEC, CFTC, banking supervision). As a result, the US market is characterized by greater regulatory uncertainty, which may limit long-term investment in stablecoin infrastructure (Zetzsche, Buck & Arner, 2021). Nevertheless, both models recognize the need for investor protection, reserve transparency, operational risk management, and international coordination (FSB, 2022; BIS, 2022).

Empirical analysis: study description, data, results, and interpretation

Research Assumptions and Data

The empirical study was designed to test the hypotheses put forward in Part I. Four key assumptions were made: (i) that the development of stablecoins and deposits can be compared in terms of time scale; (ii) that the impact of stablecoins on deposits may be delayed; (iii) that the EU and US markets differ in terms of stablecoin penetration and deposit sensitivity; (iv) that crisis events may lead to dynamic shifts between stablecoins and deposits.

Monthly data for 2015–2025 included: total bank deposits in the US and Euro Area – data from the Federal Reserve (H.8) and the ECB database – and stablecoin capitalization – data from CoinMarketCap, Glassnode, Messari, and FSB/BIS reports. In addition, the Bitcoin price was recorded to control for the impact of the cryptocurrency market as a whole.

The empirical analysis examined the relationship between the total capitalization of stablecoins and the level and dynamics of bank deposits in two developed economic areas: the Eurozone and the United States. The basic research hypothesis concerned the possibility of a substitution effect of traditional deposits by stablecoins, which, although they do not have the formal status of bank money, increasingly perform liquidity functions in the digital financial ecosystem. This phenomenon was analyzed in the context of the growing importance of crypto-assets and the ongoing digitization of financial services, accelerated during the COVID-19 pandemic. In addition, the study was set against the broader backdrop of structural changes in the US deposit market, taking into account the observations contained in the FDIC report (2021) and the analysis by Kasper, Keith, Tholmer, and Waltrich (2022), which point to dynamic transformations in the structure of savings, the growing importance of digital banks, the closure of traditional branches, and an overall increase in the concentration of deposits in the largest financial institutions. These processes could, at least in theory, favor the partial substitution of deposits by digital instruments such as stablecoins, especially in the retail sector.

Descriptive statistics (Table 4) confirm the stark contrast between monetary aggregates and crypto assets. Bitcoin and stablecoin capitalization exhibit high volatility and extremely large coefficients of variation, while both US and Euro Area deposit series remain relatively stable.

Table 4 Summary statistics of variables used in the analysis

Variable	Units	# obs.	mean	median	sd	min	max	IQR	CV
Bitcoin price	Th. of USD	129	26.733	10.670	30.982	0.23	115.340	38.270	1.159
Deposits EA	Trn. of USD	129	14.924	14.910	1.853	11.70	18.970	2.770	0.124
Deposits USA	Trn. of USD	129	14.718	15.460	2.883	10.63	18.470	5.680	0.196
Stablecoins MC	Bln of USD	129	67.716	10.714	78.083	0.00	262.094	135.001	1.153

Source: Own elaboration

This highlights the need for dynamic models that separate long-term co-movement from short-run fluctuations. The correlation table (Table 5) shows high positive correlations between deposits in both regions and between Bitcoin and stablecoins. However, the correlation between deposits and crypto variables—also positive and sizable—should not be interpreted as evidence of substitution or causal interaction, given the common non-stationarity of the variables.

Table 5 Correlation coefficients of variables used in the analysis

Variable	Stablecoins MC	Bitcoin Price	Deposits EA	Deposits USA
Stablecoins MC	1.000			
Bitcoin Price	0.888	1.000		
Deposits EA	0.826	0.827	1.000	
Deposits USA	0.901	0.776	0.924	1.000

Source: Own elaboration

The graphical figures present the joint evolution of bank deposits and crypto-asset variables from 2015 to 2025. Each panel combines one deposit aggregate (Euro Area or United States) with one crypto variable (stablecoin market capitalization or Bitcoin price), plotted on dual axes with harmonized line colours across all charts. This structure allows direct visual comparison of trends across regions and crypto-asset types.

The north-west panel compares the stock of bank deposits in the Euro Area (green line, left axis) with global stablecoin market capitalization (navy line, right axis). Euro Area deposits show a gradual, policy-driven upward trend throughout the sample, with only mild cyclical fluctuations around 2018–2020 and a noticeable tightening

in 2023–2024. By contrast, stablecoin capitalization remains close to zero until 2020, followed by an extremely rapid expansion associated with the DeFi boom and broader crypto-market development. During periods of sharp stablecoin growth—particularly 2021 and late 2024—the trajectory of Euro Area deposits does not show any visible decline or deviation from its underlying trend. This visual evidence suggests that even large-scale expansions of stablecoins did not trigger reductions in the traditional deposit base. This is consistent with the VECM and Granger causality results, which show no short-run or long-run substitution effects.

The north-east panel presents the same comparison for the United States. US deposits (orange line) display a smoother but pronounced upward trajectory, with two notable episodes: a sharp acceleration in 2020–2021 linked to fiscal stimulus and pandemic-related precautionary savings, and a mild plateau during parts of 2022–2023. Stablecoin capitalization follows the same right-axis scale as in the north-west panel, and again exhibits rapid growth after 2020. Crucially, the strong deposit inflow in 2020 occurs before the stablecoin surge, and the later fluctuations in stablecoin capitalization are not mirrored in US deposits. If stablecoins were acting as a meaningful substitute for bank deposits, one would expect periods of stablecoin expansion to correspond with deposit decumulation—yet no such pattern is present. This visual finding supports the VAR results, which show no statistically significant effect of stablecoin growth on US deposits.

The south-west panel compares Euro Area deposits (green) with the price of Bitcoin (red). Bitcoin exhibits extreme volatility, with several pronounced boom-and-bust cycles—in 2017, 2021, and late 2024—while Euro Area deposits remain comparatively stable and trend slowly upward. Importantly, none of the major Bitcoin price collapses (e.g., early 2018 or mid-2022) coincide with decreases in Euro Area deposits. Nor do periods of extreme Bitcoin appreciation correspond to deposit outflows. Although Bitcoin volatility dominates the visual appearance of the panel, it does not translate into any visible response in deposit levels. This observation aligns with the econometric findings: Bitcoin shocks produce only minimal, short-lived positive movements in deposits (as seen in the IRFs), and neither the VECM nor the Granger tests provide evidence of substitution or destabilization.

The south-east panel displays the US deposit series against the Bitcoin price. As in the Euro Area, Bitcoin price cycles are large and abrupt, while US deposits evolve smoothly and without visible sensitivity to crypto-asset fluctuations. The unprecedented rise in deposits during the pandemic years stands in stark contrast to the concurrent turbulence in Bitcoin markets, reinforcing the view that US deposit dynamics are driven by macroeconomic and policy factors rather than crypto-asset markets. There is also no sign that Bitcoin booms (2017, 2021, late 2024) reduce US deposits; nor do busts trigger inflows. This visual neutrality is entirely consistent with the VAR results, which show that Bitcoin does not exert statistically significant short-run effects on US deposit changes.

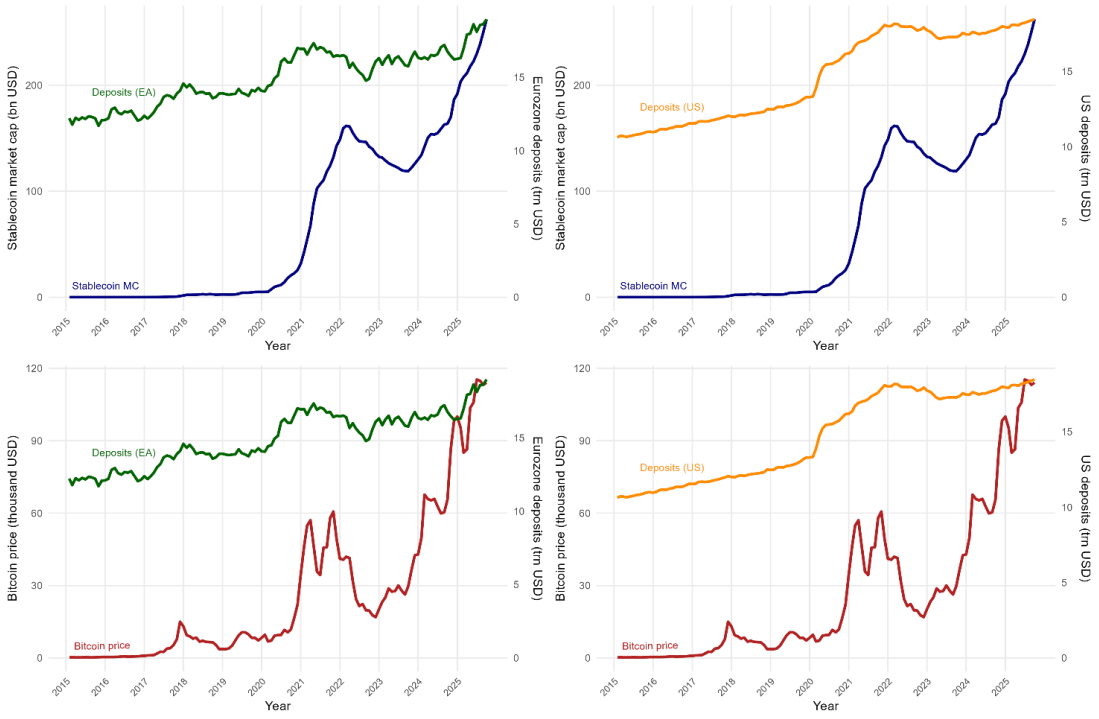

Fig. 3 Deposit Substitution in the Digital Era: Bank Deposits versus Stablecoin Market Expansion and Bitcoin Price

Source: Own elaboration

The regression analysis began by examining the statistical properties of each variable. All four series were transformed into natural logarithms and tested for stationarity using the Augmented Dickey–Fuller test with trend and intercept. In every case, the null hypothesis of a unit root could not be rejected. Bitcoin, stablecoin capitalization, and both deposit series thus appear to follow non-stationary stochastic trends. This characteristic required a transition away from the simple year-on-year regression approach toward models suitable for non-stationary time series. Year-on-year regressions were retained for comparability, but they are now complemented with more robust time-series models. As shown in Table 6, lagged crypto variables explain some of the variance in Euro Area deposit growth, with Bitcoin having a statistically significant ($p < 0.01$) positive coefficient in one specification. However, R^2 remains modest (0.283), and stablecoins affect EA deposits only marginally. In the US subsample, coefficients remain insignificant, and explanatory power is extremely low ($R^2 \leq 0.01$). These results illustrate that simple linear regressions are insufficient to capture the complex dynamics between deposits and crypto-assets, and motivate the use of more advanced models.

Table 5 Determinants of year-on-year changes in deposit volumes

Term	Deposits Euro Area		Deposits USA	
Constant	1.864**	2.806***	5.289***	5.752***
	(0.712)	(0.696)	(0.712)	(0.690)
YoY change in Bitcoin price (lag 1)	0.014***		0.002	
	(0.002)		(0.002)	
YoY change in stablecoin market cap (lag 1)		0.001***		-0.000
		(0.000)		(0.000)
Num.Obs.	116	116	116	116

Term	Deposits Euro Area		Deposits USA	
R^2	0.283	0.169	0.009	0.001
RMSE	6.05	6.52	6.35	6.38

*Stars indicate statistical significance: *** p < 0.01, ** p < 0.05, * p < 0.10.*

Source: Own elaboration

Johansen trace tests were estimated separately for the Euro Area and the United States, each including three variables: deposits, Bitcoin, and stablecoins. In the Euro Area, the trace statistic indicated evidence for one cointegrating vector, suggesting that despite their very different nature and volatility, deposits and crypto-asset markets share a long-run equilibrium relationship. In contrast, for the United States, the trace statistic was only marginally significant and did not robustly support a cointegrating relation. This fundamental difference dictated the model choice: a vector error-correction model (VECM) for the Euro Area and a vector autoregression (VAR) in first differences for the United States.

Table 7 Summary of dynamic relationships between crypto-assets and deposits

Region	Crypto variable	ECT loading in ΔDeposits	VAR coefficient on ΔCrypto (lag 1)	p-value (VAR)	p-value (Granger, causality)	Peak IRF of deposits to BTC shock
Euro area	Bitcoin price	-0.0333	0.0128	0.2593	0.0007***	0.0022
Euro area	Stablecoin market cap		0.0062	0.5685	0.7612	
United States	Bitcoin price	-0.0022	-0.0014	0.7166	0.0007***	0.0000
United States	Stablecoin market cap		0.0009	0.8193	0.8247	

*Stars indicate statistical significance: *** p < 0.01, ** p < 0.05, * p < 0.10.*

Source: Own elaboration

The Euro Area VECM results (Table 7) indicate that the adjustment to the long-run equilibrium takes place almost entirely through the crypto variables, not through deposits. The error-correction term (ECT) in the deposit equation is negative but very small and statistically insignificant, implying that deposit adjustments do not play a meaningful role in restoring long-run balance. The Bitcoin and stablecoin equations, by contrast, display significant error-correction coefficients, which means that crypto markets adjust in response to disequilibria between the three variables. The short-run coefficients in the VECM show no significant effect of Bitcoin or stablecoins on deposit changes, suggesting that short-run substitution from deposits into crypto assets does not occur in observable magnitudes.

The US system, estimated with a first-difference VAR, produces a different yet equally clear picture. Deposits display strong autoregressive persistence, consistent with the institutional and policy-driven nature of the US deposit base. Neither Bitcoin nor stablecoins exert a statistically detectable influence on deposit changes. These results confirm the finding from the Euro Area that deposits do not respond meaningfully to crypto-asset dynamics in the short run.

To deepen the analysis, Granger causality tests were applied. These show that Bitcoin Granger-causes the overall system in both regions, but this effect stems from predictability within the crypto variables rather than from any effect on deposits. Stablecoins do not Granger-cause the system in any specification. Thus, despite rapid market growth, stablecoins do not appear to contain predictive information about deposit developments.

Impulse response functions (IRF) provide another angle on the question of substitution. In the Euro Area, a one-standard-deviation Bitcoin shock leads to a very small and short-lived increase in deposit changes—roughly two-

tenths of a percent—before returning quickly to zero. In the United States, the deposit response is essentially zero across all forecast horizons. These results provide no evidence that Bitcoin shocks reduce deposits; if anything, mild positive co-movements appear in the Euro Area, but their economic relevance is negligible.

Given the possibility of nonlinear dynamics, a threshold VAR model was estimated for the Euro Area, separated into low- and high-Bitcoin regimes. The threshold was determined endogenously. The results show substantial differences in crypto-market dynamics across regimes, with higher persistence in high-bitcoin states, yet the deposit equation remains largely unaffected across regimes. Lagged Bitcoin or stablecoin changes do not exert significant effects on deposits in either regime. Thus, nonlinear modelling does not reveal hidden substitution patterns.
To complement these tests, the analysis included separate VAR estimations for Bitcoin-boom months (defined as months in the top quartile of BTC values) and all other months. Because the boom subsample is small, coefficient estimates are imprecise, and no stable patterns emerge. In the non-boom subsample, Bitcoin shows a marginally significant positive effect on Euro Area deposits, but again the magnitude is trivial. Stablecoins remain insignificant throughout. This robustness check therefore supports the main finding that crypto market dynamics do not materially influence deposit developments.

Taken together, the results are strongly aligned with recent academic and regulatory literature, which indicates that stablecoins do not currently displace bank deposits in advanced economies with strong financial systems. International studies by the IMF, BIS, and various central banks similarly find that stablecoins act primarily as intra-crypto liquidity instruments rather than competitors to bank deposits. The empirical evidence compiled here supports this view. Neither long-run mechanisms nor short-run dynamics point to substitution effects; nor do regime changes or extreme crypto-market episodes reveal any hidden relationships.

The expanded empirical analysis thus provides a coherent conclusion: despite rapid market growth and increasing regulatory attention, stablecoins and Bitcoin do not exert measurable downward pressure on bank deposits in either the Euro Area or the United States. Deposits remain shaped by macroeconomic conditions, monetary policy, and institutional features of the banking sector, while stablecoins continue to serve functions predominantly within the digital asset environment. Nonetheless, the accelerating integration of digital currencies into payment and investment infrastructures underscores the need for ongoing monitoring and further research, particularly as regulatory frameworks evolve.

This may indicate the existence of substitution effects, although the causal relationships themselves cannot be clearly confirmed on the basis of visual analysis alone. Nevertheless, the results highlight the growing importance of digital currencies in shaping the dynamics of traditional deposits.

The results presented highlight the interdependence between stablecoins and bank deposits. While deposits remain a key source of bank funding, the expansion of stablecoins is exerting increasing competitive pressure, which may affect liquidity creation, monetary transmission, and financial stability. The observed substitution patterns point to the need to develop an appropriate regulatory framework for digital assets that will limit the risk of deposit outflows and strengthen the resilience of the banking system in the context of advancing digitalization.
The results for the US should be interpreted in light of the structural changes identified by the FDIC and Kasper et al. Between 2020 and 2021, the total value of deposits in FDIC-insured banks increased by 10.7% to USD 17.2 trillion. Although this increase was lower than the record 21.7% in the previous year, it still significantly exceeded the pre-pandemic average. At the same time, there was intense digitization of the deposit market, with accelerated growth in online and mobile banking, an increase in the importance of online-only banks, and a reduction in the physical presence of bank branches. *Community banks* played a particularly important role, recording above-average deposit growth despite an overall reduction in branches. At the same time, the largest financial institutions consolidated more than half of all deposits, indicating further market concentration. These transformational processes create fertile ground for the introduction of new digital solutions, such as stablecoins, although their impact remains limited at this stage.

The results obtained correspond to earlier findings in the literature. Adrian and Mancini-Griffoli (2019, 2021) point out that stablecoins can perform a function similar to that of deposits, mainly in economies with weak banking systems and low levels of institutional trust. Arner, Barberis, and Buckley (2020) draw similar conclusions, emphasizing that a significant substitution effect can only occur with the mass acceptance of stablecoins as stores of value. Zhao and Zhang (2022), in a panel analysis covering 30 countries, showed a significant negative impact of stablecoins on deposit levels only in developing countries, with no such effect in developed economies.

From the perspective of international institutions such as the Bank for International Settlements (BIS) and the Financial Stability Board (FSB), the growing role of stablecoins has been identified as a potential source of risk for monetary policy transmission and financial system stability, especially if their activities are not subject to a transparent regulatory and supervisory framework (BIS, 2019; FSB, 2023).

The analysis did not unequivocally confirm the existence of a substitution effect of stablecoins on the deposit sector in the economies studied, but its results indicate the need for further monitoring of the phenomenon. Extended research should take into account a longer time frame, differentiation between types of stablecoins (e.g., algorithmic, currency-backed, crypto-backed), and the structural context of the financial sector's transformation. In the context of further financial digitalization and increased activity of technology companies, stablecoins may gain greater importance not only as payment instruments but also as an alternative form of value storage, which creates a need for early response from regulators.

Discussion, conclusions, and recommendations

The results of the analysis indicate that stablecoins, although still a peripheral instrument compared to traditional deposits, are increasingly serving as an alternative vehicle for liquidity. Empirical research has confirmed that there are periods when their capitalization growth is associated with a slowdown in bank deposit growth, especially in the United States. This phenomenon should be interpreted in the light of the theory of deposit substitution and competition between different forms of value storage.

The benefit from the users' point of view is access to a more flexible and global instrument that allows for fast transfers, avoidance of fees, and maintenance of liquidity outside the traditional banking sector. At the same time, stablecoins can serve as an innovative payment channel, supporting the development of the digital economy. Including them in a regulatory framework such as MiCA strengthens their development potential and reduces the risks associated with opaque issuance practices.

On the other hand, covering stablecoins with deposit guarantees poses serious risks. First, it could lead to further substitution of bank deposits, reducing the banking sector's funding base and weakening its ability to create credit. Second, introducing guarantee protection for assets issued outside the traditional banking system could create moral hazard and transfer market risk costs to the public sector. Third, there is a real risk of fragmentation of the payment system and loss of central banks' control over monetary policy transmission mechanisms.

Regulatory analysis indicates that the European Union has chosen to integrate stablecoins into the existing framework for e-money, but without granting them the status of guaranteed deposits. In the United States, the discussion is more focused on classification and supervisory issues, resulting in a fragmented and reactive approach. Regardless of the differences, the common denominator is the recognition of stablecoins as instruments of potential systemic importance, requiring a strong supervisory framework, but not necessarily deposit guarantees.
The conclusion drawn from the research is that there is a need for a balanced regulatory approach that, on the one hand, takes into account the innovative nature of stablecoins and their growing role in the global financial system and, on the other hand, safeguards the basic functions of the banking system and macro-financial stability. It seems reasonable to argue that stablecoins should be subject to regulations ensuring full transparency of reserves, adequate supervision, and operational resilience, but should not be automatically included in the deposit guarantee scheme, which is intended for institutions of fundamental importance to the real economy.

This study offers several key conclusions for theory and policy. First and foremost, stablecoins are already becoming a real competitive factor in relation to bank deposits at this stage of their development. They are not yet a complete substitute, but in times of uncertainty they can put pressure on banks' deposit base. A regulatory approach that increases transparency, requires redeemability and supervision, can limit the potential for destabilization (BIS, 2022; FSB, 2022). On the other hand, covering stablecoins with deposit guarantees—while it may increase user confidence—carries real risks. It may weaken the role of banks in creating credit and liquidity and lead to moral hazard or transfer market risk to the public sector.

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[i] https://www.chainalysis.com/blog/2023-global-crypto-adoption-index/ - The Global Crypto Adoption Index, compiled annually by Chainalysis, is a metric designed to capture the level of cryptocurrency adoption at the country level, with a particular focus on individual users. The index is constructed based on five main components that reflect different aspects of activity in the cryptocurrency ecosystem: the total on-chain value transferred on centralized cryptocurrency exchanges, the on-chain value of retail transactions (defined as transactions below $10,000), the volume of peer-to-peer (P2P) transactions, the

total value of on-chain transactions in decentralized finance (DeFi) protocols, and the value of retail transactions made within DeFi. Each component is normalized according to the specific economic conditions of a given country, in particular with regard to the purchasing power of its inhabitants, measured by the value of gross domestic product per capita in purchasing power parity (PPP). For P2P transactions, the number of internet users in a given country is also taken into account, which allows for a better reflection of the importance of this channel in economies with limited access to traditional financial infrastructure. The data used in the construction of the index comes from on-chain analyses conducted by Chainalysis, which include, among other things, transfers of funds to addresses associated with exchanges, DeFi platforms, and P2P services. To ensure the representativeness and reliability of the estimates, this data is supplemented with analyses of internet traffic on the websites of these services and consulted with local experts. As part of the index calculations, each country is given a separate rank in each of the five categories, and then the geometric mean of these ranks is calculated. The final result is scaled to a range from zero to one, where one corresponds to the country with the highest level of cryptocurrency acceptance in a given year.

[ii] In March 2023, USDC (USD Coin) experienced depegging, i.e., a loss of parity with the US dollar (to around $0.88). A significant portion of Circle's (the issuer of USDC) reserves were held in an account at the failed Silicon Valley Bank (SVB), and fears of a lack of access to funds triggered mass panic and capital flight from the stablecoin. This undermined confidence in USDC as a "safe" stablecoin, reducing its market capitalization by many billions of USD in a matter of days and causing aftershocks in the DeFi market, where USDC was used as collateral or a unit of account. A return to parity was made possible by the FDIC's intervention and the announcement that all deposits in SVB would be covered by guarantees. The USDC case proved that even fiat-backed stablecoins are vulnerable to counterparty risk and sparked a debate on the need to subject stablecoins to reserve and liquidity regulations, possibly include them in guarantee schemes, or create a dedicated user protection mechanism.

[iii] Markets in Crypto-Assets - Regulation (EU) 2023/1114 of the European Parliament and of the Council of May 31, 2023, on markets in crypto-assets, and amending Regulations (EU) No 1093/2010 and (EU) No 1095/2010 and Directives 2013/36/EU and (EU) 2019/1937