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Evolutions in the European Central Bank's Regulatory Stance Toward Cryptocurrencies: From Neutralization to Cooptation

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ABSTRACT

The article argues that the European Central Bank's (ECB) regulatory stance toward cryptocurrencies was underpinned by efforts to preserve legitimacy and monetary sovereignty. Triangulating a content analysis on the ECB's policy statements on cryptocurrencies, examination of European macroeconomic data, and price dynamic analysis of Bitcoin from 2014 to 2025, this article traces an evolution in the ECB's regulatory stance toward cryptocurrencies through two phases that inadvertently abetted cryptocurrency adoption: neutralization (2018–2019) and cooptation (2020–present). From 2018 to 2019, the ECB assumed a hostile stance toward cryptocurrencies, attempting to neutralize its influence. However, its market-oriented approach to regulation created a lack of controls over cryptocurrencies and a deregulation of payment processing that enabled their expansion. By 2020, the ECB shifted toward tolerance and even cooptation when unsuccessful policy attempts to contain economic precarity amid the pandemic subsequently incentivized household adoption of cryptocurrencies which, still unregulated, gained notoriety as a prospective alternative source of income. During this period, the shift to digital payments, global isomorphic pressures from the SEC's history with cryptocurrencies, and global currency competition against the Euro energized the ECB's aspirations for a digital Euro, for which it sought to coopt cryptocurrency stablecoin designs and popularity to secure public legitimacy.

JEL Classification: E58, O33

1 | Introduction

Over the past 10 years, cryptocurrencies have become one of the fastest-growing financial instruments. The market capitalization of Bitcoin, the seminal cryptocurrency, has skyrocketed to over US\$1.7 trillion as of October 2024, making the enterprise worth as much as the largest global technology firms in the world.

Yet, cryptocurrencies have not been without their problems. However, in November 2022, the second largest cryptocurrency exchange in the world by trading activity went bankrupt: FTX. During this time, FTX experienced a liquidity run that produced

an estimated shortfall of US\$8 billion for the exchange (Berwick and Wilson 2022). Lack of regulatory oversight had permitted FTX to (mis)appropriate client funds for an aggressive string of bailouts and acquisitions of other cryptocurrency firms that overburdened its balance sheet with losses.

Later that month, a stunning string of fire-sales and collapses reverberated from FTX's collapse, including its backer Alameda Research and 130 affiliated companies that filed for bankruptcy. The high-profile collapse of FTX and its losses for investors that included pension funds stimulated vivid calls against the dangers of cryptocurrencies as speculative investments.

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Described as a “Lehman moment” by US Treasury Secretary Janet Yellen (Lawder 2022), the event signaled the dangers of cryptocurrencies as “highly speculative” (Myers 2021) and an unregulated tool for “illicit finance” without a central banking authority to trace them (ibid). The European Parliament (2022) similarly warned of severe financial instability from financial losses related to cryptocurrencies.

However, little is known about the evolution of regulatory stance espoused by central banks themselves. How does the central bank’s regulatory stance toward cryptocurrencies transform over time? This article conducts a fine-grained content analysis of the European Central Bank’s (ECB) regulatory stance toward cryptocurrencies from the Financial Crisis to the COVID-19 pandemic, in addition to an examination of macroeconomic data and a price dynamic analysis of Bitcoin. This article first identifies linkages between cryptocurrency adoption and perceptions of central bank failures, namely, to control financial crises, inflation, and economic precarity. It then theorizes two regulatory states that characterize central bank attitudes toward cryptocurrencies: neutralization and cooptation. I illustrate how the ECB moved from neutralization to cooptation to preserve its legitimacy and its emergent digital central bank currency, and in the process, inadvertently abetted the proliferation of cryptocurrencies.

In its initial neutralization state (2018–2019), the ECB adopted a hostile stance toward cryptocurrencies. Yet, it withheld oversight of cryptocurrency creation and cryptocurrency firm operations, an early form of regulatory permission that persists even in recent renewed attempts at regulation, such as the Markets in Crypto-Assets Regulation (MiCA). Moreover, the ECB’s contemporaneous policy initiatives (the 2019 SEPA relaunch) to digitalize transactions saw about the deregulation of payment processors. In its wake, newly emerging trading platforms and traditional financial institutions seized on the opening to expand cryptocurrency product offerings and broaden household access to cryptocurrencies.

The ECB moved toward cooptation (2020–2022) during a unique period of rising inflation and unemployment. Policy attempts by the ECB to contain and even forecast inflation were unsuccessful, resulting in economic precarity that increased the appeal of cryptocurrencies to households as an alternative source of income. Amid growing precarity, however, the ECB proposed a digital Euro that simultaneously forced its stance on cryptocurrencies to undergo an important pivot. Departing from its sweeping criticisms of cryptocurrencies earlier, the ECB began to observe them, and stablecoins in particular, as a prospective model for the design and dissemination of public legitimacy for the digital Euro.

2 | Literature Review and Theoretical Development

2.1 | Central Bank Failures as Drivers of Cryptocurrency Adoption

Economists and sociologists have been fascinated by the disintermediation philosophy that underpins modern cryptocurrencies, which removes centralized state authority from the function of

money regulation. Nobel laureate Friedrich Hayek’s (1976) proposal to denationalize money served as the impetus for this debate. Because unilateral changes in supply had an irregular impact on prices in the economy, Hayek argued that the government’s monopoly on the money supply was a destabilizing influence. This would ultimately “create misinformation by disturbing the structure of relative prices, and hence resulting in a misallocation of resources,” according to Hayek (Howard 1977, p.1).

Evidence suggests that cryptocurrency purchases and adoption, representing interest in this libertarian vision of money to replace fiat currencies with cryptocurrencies or cybermoney, rises most with distrust in the central bank and its failures to regulate the economy. To illustrate, central bank distrust ignited in the wake of the 2008 Financial Crisis (Dodd 2018), when US national banks were revealed to hold tranches of subprime mortgages whose values deteriorated amid widespread mortgage defaults (Fligstein 2021). Around this time, the primordial cryptocurrency Bitcoin was born, created by an individual or entity named Satoshi Nakamoto (2008). Bitcoin essentially consists of tradeable tokens that are “mined” through computational math problems. These problems are completed by members of a public ledger called the blockchain, where all transactions take place and are recorded. Transactions on the blockchain allow the blockchain itself to operate, while incentivizing decentralized members of the network to operate it.

The decentralized networks consisting Bitcoin’s mining and transactions supported analogies drawn between the cryptocurrency and a digital commons-based economy, an alternative to the market economy under which the state (and the central bank) was believed to hold influence over citizens (Arvidsson 2020, p.20; Deka 2018). By transitioning transactions from fiat currencies to cryptocurrencies, it was believed that individuals would reclaim their individual economic sovereignty, free from the purview of the state and a central bank incapable of protecting against financial crises and which coopted monetary regulation in favor of state interests.

In the ECB’s regulatory position, monetary sovereignty is a threat to its existence and legitimacy. If individuals alone could manage their own money without need for a common currency or banks, banks themselves would be obsolete, much less the ECB. The ECB would also effectively lose control over the economy. Its primary monetary policy instrument, interest rates, is used to control inflation by adjusting the interest paid on loans, deposits, and by extension, prices for goods and services in the economy. But the efficacy of such a monetary policy is entirely dependent on a traditional banking system in which banks hold deposits, through which interest rates are felt by households and businesses and influence their saving and spending behaviors.

Similarly, failures to contain inflation and unemployment are often attributed to the central bank, constituting another material reason behind the purchase of cryptocurrencies. Economic research using Eurobarometer surveys has identified that both (un)employment and inflation play the largest roles in reducing subjective wellbeing (Mousteri et al. 2018). Evidence shows that classes suffering economic precarity and reductions in subjective wellbeing are consistently more likely to purchase

risky investments. Mirroring the popularity of subprime mortgages in the leadup to the Financial Crisis (Fligstein 2021; Necker and Ziegelmeyer 2016), growing economic frustration push households toward cryptocurrency purchases as alternative sources of income, especially during COVID-19 (Yue et al. 2020).

This effect is amplified during high spells of unemployment by elevating job insecurity (Russell et al. 2020). Both inflation and unemployment lead to even higher overestimations of future inflation that eventually leads to speculative activity, especially in European countries (Rosenblatt-Wisch and Scheufele 2015; Vu et al. 2021). In Europe, households do not make investment decisions based on central bank policy changes, but based on inflation itself, using price movements to decide on asset allocations and purchases (Coibion et al. 2020).

2.2 | Theorizing Regulatory States Toward Cryptocurrencies: Neutralization and Cooptation

Neoinstitutional theories posit that one of the most important institutions of the contemporary state is the central bank (Wansleben 2018). The central bank plays a vital role in the economy by controlling the money supply through open market operations, enforcing reserve requirements, and influencing short-term interest rates. The monetary policy it decides is a powerful instrument to stabilize, limit, or enhance rates of unemployment, inflation, growth, and currency exchange.

In the 1970s, concern grew about the contractionary policies that politicians implemented after an election for political gain, such as to engineer a pre-electoral boom and a post-electoral contraction (Blinder 1999). The end of the fixed exchange rate system in 1973 dovetailed with mounting cross-border flows of capital, high inflation, and fiscal deficits. Subsequent central bank attempts to coordinate monetary policy and introduce financial stability birthed support for the modern concept of central bank independence worldwide. Barro and Gordon (1983) seminally argued that a central bank beholden to the state introduces an inflationary bias to the economy. By ridding itself of political contingencies, a central bank is believed to be able to pursue monetary stability and prevent discretionary deficit spending by self-interested politicians (Lepetit and Fuentes-Albero 2022).

However, there exists an implicit alignment of state and central bank interests, especially toward the instrument for monetary policy, namely, fiat currency. I focus my theoretical argument on how the singularity of fiat currency in a modern state is a functional consistency conjoining state and central bank interests, and an essential component of the legitimacy and financial intermediation that enable central bank monetary policy to exert influence on the economy. I assert that the central bank stance toward cryptocurrencies (or alternative monies altogether) is generally market-oriented and concerned with preserving its own legitimacy. As Braun (2016) recounts,

In practice... central banks depend on economic reasons—low public monetary trust can trigger bank runs or inflation scares, which generally undermine

monetary governability... [they also depend] on public monetary trust for political reasons. Trust in money is the precondition for the legitimacy of the central bank, which in turn is the foundation for central bank independence. (p.1072)

For central banks, legitimacy is more than public opinion. Neoinstitutionalists have argued that the normative isomorphism of central bank structures worldwide has added an undertone of moral authority to their regulatory practices (McNamara 2002). This moral authority builds on the Durkheimian insight that normative isomorphism sanctifies institutions or imbues them with symbols of focused attention that demarcate group boundaries (Collins 1994). For central banks, therefore, legitimacy also encapsulates their financial regulation of moral hazards that constitute potential risks or incentives to encourage reckless financial decisions.

In the ECB's treatment of government debt, for instance, the ECB exacerbated the 2010-2012 Eurozone crisis when it could have prevented it (van 't Klooster 2023). When the credit ratings on sovereign bonds of struggling economies like Greece fell, the ECB chose to adhere to the minimum credit rating requirement and refused to purchase public debt and use it as collateral. The ECB's strategy ultimately left sovereign bond markets in panic and collapse. This decision was ultimately rooted in the ECB's desire to "address moral hazard and fiscal discipline" (Orphanides 2017, p.11), namely, by disciplining Greece for poor its high public spending, insufficient, fiscal adjustments, and excess debt.

For the ECB, legitimacy is the continued public view of its necessity. This means that individuals do not possess their own monetary sovereignty, but that their transactions are conformed to fiat currencies over which the ECB and other central banks have oversight as well as that their monies are stored in the form of bank deposits. Though the centralization or decentralization of payments systems among banks has gained scrutiny over time, the need for the ECB's existence is tied to current design of the banking system where monies are stored in deposits and the exclusive use of fiat currencies as means of exchange. As such, central banks like the ECB naturally begin from a place of hostility in their attitudes toward cryptocurrencies. Cryptocurrencies pose threats to the existence of central banks, because they give legitimacy to alternative currencies and encourage individuals to store their money and conduct transactions in currencies in forms other than bank deposits.

Using the case of the ECB, I theorize that the central bank stance on cryptocurrencies is characterized by two regulatory states, neutralization and cooptation, contingent on the progression of the central bank-state agenda for a digital currency.

2.2.1 | Neutralizing Cryptocurrencies

The initial phase of cryptocurrencies' emergence is met with institutional rejection from the central bank. Neutralization is broadly defined as the central bank's attempts to ban cryptocurrencies and/or label them illegal means of transactions. Traditionally, a singular fiat currency is essential to the proper

functioning of monetary policy. In a hypothetical fractionalized monetary system with multiple currencies, the central bank would be forced to contend with higher information costs. Banks across a nation could create different monies, with uneven effects on money supply and rates of inflation, growth, and unemployment. The loss of exclusivity for a single fiat currency as money and the monopoly of the central bank over its production would compromise its ability to regulate the economy and lose legitimacy. Only with a single accepted currency, for instance, is the ECB able to implement negative interest rates on banks' reserve holdings as it did in June 2014, to incentivize banks to reduce excess liquidity (capital bank reserves in excess of reserve requirements) and increase lending in the economy.

A weakened central bank would also cost legitimacy for governments, raising public distrust (Blinder 2010). In essence, cryptocurrencies constitute an interest seeking to remove monetary policy from the central bank's choice set and, by extension, an indirect attempt to remove autonomy over economic policy from the state's. In its earliest report on virtual currencies, the ECB concluded that they,

[do not] have a legal status at all. [I]t is unclear and the key actors are generally neither regulated nor supervised. Hence users do not benefit from legal protection such as redeemability or a deposit guaranty scheme.

(p.21)

On this basis, the ECB absolved itself of regulatory action on the basis that cryptocurrencies should simply,

[not] contain the word "money," since it has become clear that, even today, virtual currencies do not have the nature of a highly liquid asset and have not reached the level of acceptance commonly associated with money.

(European Central Bank ECB 2015, p.25)

2.2.2 | Coopting Cryptocurrencies

In this state, the central bank gradually recognizes that banning or strictly limiting cryptocurrencies could lead to unintended consequences, including the creation of shadow financial markets outside their reach. In response, the central bank moves to soften its regulatory stance toward cryptocurrencies and adopt a more nuanced regulatory approach that allows for greater market participation while still ensuring oversight. Cooptation refers to the central bank capitalizing on the popularity of cryptocurrencies by surrogating them with their own central bank digital currencies (CBDCs) and effectively coopting them into the design of these CBDCs. This mirrors the tendency of policy networks to coopt compliance and enforcement actions in areas that are consistent with their own political stance, such as liberal local water pollution institutions that conduct more inspections in conservative-leaning communities to influence their political culture (Scholz and Wang 2006).

In the case of the ECB, this was the digital Euro that was initially introduced in 2020 and which it had begun preparing in

2023. The digital Euro was proposed as a form of digital cash that would complement the use of physical cash, stored in an electronic wallet set up at a bank or public intermediary. The digital Euro was alleged to simplify and expedite cross-border transfers within the EU, reducing transaction costs and improving financial inclusion for underserved areas bereft of traditional banking infrastructure. However, implicit benefits of the digital Euro were to enable the ECB to maintain monetary sovereignty and counter the influence of cryptocurrencies like Bitcoin.

Popular interest in cryptocurrencies portend an important decline in trust in the central bank. From the onset of Bitcoin onward, net trust in the ECB declined from 30% in 2008 to -20% in 2014, before rising to close to 0% as of 2024. Most recently, only 43% of citizens reported trust in the ECB, whereas 42% of citizens explicitly expressed *distrust* in the institution, and 15% did not know (Dreher 2024). Threats to legitimacy are de facto threats to central bank independence and even state authority. Despite claims that central banks are independent from states, sociologists Polillo and Guillén (2005) posit that central bank independence is predicated on an assumption that the state is a decentralized battlegrounds for social power, wherein factions compete for influence. Central bank independence is thus an attempt to "recenter... social power in the hands of economic technocrats and financial interests" (Polillo and Guillén (2005), p.1769). A separate and independent central bank is also functionally consistent with democratic political systems that require checks and balances on branches of government, to secure legitimacy before the electorate.

Accordingly, the central bank's shift toward tolerance of cryptocurrencies is not merely a reaction, but a proactive strategy aimed at preserving institutional legitimacy for both the state and the central bank (Dietsch 2020). Braun (2016) depicts legitimacy in central banks as contingent on how well they portray in their communications their alignment with the "folk theory of money," or rather, with the idea that money is exogenous and perpetually under watch by the central bank. The rise of cryptocurrencies represented an opportunity for the central bank to leverage the regulatory frameworks around cryptocurrencies to ensure that CBDCs gain traction and public acceptance. By framing their regulation of cryptocurrencies as part of a broader effort to modernize the financial system, central banks may gain public support for the adoption of CBDCs, positioning themselves as proactive agents of economic innovation, while preserving their legitimacy and monetary sovereignty.

Simultaneously, global forces played a role in softening the ECB's stance toward cryptocurrencies. Currencies and policy regimes are embedded in a global network of other sovereign nations. This embeddedness creates opportunities for policy regimes to observe one another, obtain new information, and decide their own policy decisions. As a result, embeddedness induces both isomorphism and competition. Radaelli (2000) classically describes institutional isomorphism as a source of legitimacy itself for the EU, which is conducive to policy transfers.

In the context of the ECB, American regulators such as the SEC are an illustrative referent for isomorphism. The legal

contentions that the SEC faced in its early attempts to prohibit cryptocurrencies were a useful barometer for the ECB's own reassessments of the political and legal risk associated with banning cryptocurrencies. Simultaneously, changes in the global price dynamics of cryptocurrencies like Bitcoin preceded legal setbacks for the SEC's clampdowns and coincided with shifts in regulatory sentiment. As a source of isomorphism and legitimacy for the ECB, a softening of cryptocurrency regulation in America set the tone for similar softening in Europe. This isomorphism also motivated the ECB's eventual decision to embrace cryptocurrencies as a way to facilitate the digitalization of its Euro and to reduce payments barriers in the region, in light of growing competition from CBDCs issued in the US and China.

3 | Data Sources

This article collected policy statements on cryptocurrencies issued by the European Central Bank. I searched for any document classified under the topics of crypto-assets or digital Euro from the ECB's documents, including news and publications, press releases, conferences, speeches, interviews, macroprudential bulletins, blog notes, letters to members of European Parliament (MEPs), monetary policy accounts, and research reports from 2014 to 2025. I then filtered statements based on their relevance, excluding overviews of public access requests that the ECB regularly receives, duplicates, and miscellaneous topics. This resulted in a sample of 146 documents. For each policy statement, metadata recorded included the location of the statement, event where it was presented, date of the statement, presenting agent, and policies issued.

Content analysis was conducted on the policy documents using a framework proposed by Ferree (2003). I qualitatively coded documents for specific themes pertaining to objectives and motivations within discourses pertaining to cryptocurrency regulation. Recurrent patterns in these codes were subsequently examined for higher-order patterns to identify underlying beliefs in policy discourses. Triangulating frame analysis with macroeconomic data thus enables a narrative illustration of the evolutions in the regulatory stance toward cryptocurrencies and theorize connections with the ongoing rise in cryptocurrency adoption.

Other cryptocurrency adoption, employment, inflation, and trading platform data were collected between 2019 and 2021 for 27 member nations of the EU¹ from Statista, European Commission, Eurostat, and the World Bank. The rate of cryptocurrency adoption was collected for each nation, which reflects the proportion of the general population that has purchased or owned cryptocurrencies in the past year. The data were drawn from Statista's latest 2022 Global Consumer Survey, the most comprehensive database on cryptocurrency ownership to date.

Weekly price data on Bitcoin between February 9, 2014 and February 9, 2025 were retrieved and analyzed for structural breaks. This included 576 weekly price observations ($n = 576$). I first conducted an adjusted Dickey-Fuller test to determine the stationarity of the data. The first step of the test estimates three estimations, including one equation that accounts for stationarity and zero mean and no trend (Weideman et al. 2017):

$$\Delta Y_t = aY_{t-1} + \varepsilon_t$$

The second equation accounts for a non-zero mean and no trend:

$$\Delta Y_t = \mu + aY_{t-1} + \varepsilon_t$$

The third accounts for a trend and a mean:

$$\Delta Y_t = \mu + \gamma_t + aY_{t-1} + \varepsilon_t$$

This initial stage established the non-stationarity of the data, given by a nonsignificant p -value ($p = 0.5912$) for a Dickey-Fuller value of -1.9695 and a lag order of 8.

Afterward, I tested for multiple structural breaks using Bai and Perron's (2003) methodology. This approach estimates multiple structural breaks endogenously, which is best-suited for price dynamic analysis by accounting for the fact that breaks are not known beforehand. Bai and Perron's method does not require the time series to be stationary, making it suitable for analyzing Bitcoin prices, which are known for their volatility and potential regime shifts. Let us consider the general case for a time series $t = 1, 2, 3, \dots, T$ with m structural breaks and $m + 1$ segments. This is given by,

$$y_t = a + \beta_j t + \varepsilon_t, t = T_{j-1} + 1, \dots, T_j, j = 1, \dots, m + 1$$

where y_t is the price of Bitcoin at time t , a is the intercept, Y_t is the time trend, β_j is the coefficient of the time trend in the price of Bitcoin across each segment, and ε_t is the error term. The Bai-Perron test identifies whether changes in a or β exist, and if so, whether they comprise significant structural breaks. Break points T_1, T_2, \dots, T_m are estimated by minimizing the sum of squared residuals across all segments:

$$\min_{T_1, \dots, T_m} \sum_{j=1}^{m+1} \sum_{t=T_{j-1}+1}^{T_j} (y_t - \beta_j t)^2$$

To determine the optimal number of structural breaks, I additionally computed the Bayesian information criterion (BIC), given by the standard estimation of:

$$BIC = -2\ln(L) + k \ln(n)$$

where L is the likelihood function for the model, n is the number of observations, and k is the number of parameters for each segment. I separately specified a maximum of five breakpoints, which allowed the test to identify up to six different regimes within the time series. Each potential number of breakpoints was assessed using RSS and BIC values with the optimal model determined by the lowest BIC value. Using this approach, I conducted a systematic search for possible break dates and statistically tested for the presence of multiple structural changes. The timing of these breaks supplemented my policy analysis by identifying the critical junctures where price dynamics, public sentiment, and regulatory attitudes shifted.

4 | The Neutralization of Cryptocurrencies (2018–2019): Central Bank Skepticism and Deregulation

In February 2018, the ECB released its first statement on cryptocurrencies since its 2015 report. In a statement by Yves Mersch (2018), a Member of the Executive Board at the Official Monetary and Financial Institutions Forum, the ECB adopted a harsh tone against the prospect of cryptocurrency adoption:

...because of the cost and time involved in processing the payments... Bitcoin is far inferior to existing payment options... if you bought a bunch of tulips with Bitcoin they may well have wilted by the time the transaction was confirmed.

Drawing parallels with the Dutch Tulip mania in 1637 that saw tulips traded for extraordinary prices, the ECB was implicitly telegraphing its vision for the worth and trajectory of cryptocurrencies: that cryptocurrency prices were in a bubble, that they would fundamentally “wilt” without value, and that those who purchased cryptocurrencies thinking otherwise were foolish.

But for all its criticism, the ECB still refused to regulate cryptocurrencies. Hundreds of imitation cryptocurrencies have proliferated in Europe since Bitcoin (Dodd 2016, 2018). Although the names of such tokens, parameters for their mining, or the consensus mechanisms used for record-keeping may differ, all cryptocurrencies are undergirded by same type of blockchain that renders them alternative assets beyond the regulatory oversight and protection of the ECB (Au 2023).

Their proliferation partly stemmed also from the ECB's focus on liberalizing consumer investment. In response to widening economic precarity and weaknesses in the regional economy, the ECB refocused its attention on,

...ensuring favorable financing conditions for all sectors of the economy and providing visibility on those conditions into the future. Backed by a steady flow of credit on affordable terms, households and firms can consume and invest more.

[italics added]

Believing that ordinary household investments in financial products would help protect income and thus sustain consumption, the ECB moved to deregulate payments processing and investigate “innovations that can facilitate safer, faster and cheaper financial transactions... [including] the application of new technologies, particularly distributed ledger technologies, to market infrastructures.” The ECB implicitly acknowledged that its proposed remedy for economic precarity did not just stimulate payment service providers (PSPs), but also cryptocurrencies whose volatile prices were attractive to households.

While the ECB was struggling to reconcile the risks of cryptocurrencies with their own efforts at financial innovation, it still leaned toward a hostile position against cryptocurrencies at this point. As it remarked in Mersch's (2018) February 2018 address:

[Cryptocurrencies] have neither intrinsic value, such as the commodity content of gold coins, nor extrinsic value, such as the value assigned to traditional fiat currencies by the trusted public issuing authority. [Cryptocurrencies] do not even provide the dividend or coupon payments that tie down the prices of equities and bonds.

Assessing cryptocurrencies by what it called “intrinsic” and “extrinsic” value, the ECB appeared unequivocal in stating that cryptocurrencies lacked any value from a cash flow perspective and debunking the parallels that cryptocurrency proponents drew between gold and cryptocurrencies. The ECB was not merely illustrating the folly of purchasing cryptocurrencies, but construing it as an asset of no apparent value and charged with the potential for massive losses.

But for all the ECB's skepticism, they inadvertently laid the groundwork for cryptocurrencies and digital platforms on which they are traded to flourish. In a November 2019 address by Benoît Cœuré (2019), a Member of the ECB Executive Board, at the Joint Conference of the ECB and the National Bank of Belgium, the ECB tabled strong views and a new agenda on payment integration:

20 years after the introduction of the single currency, we still do not have a European card scheme... European countries currently have national card schemes that do not accept cards from other EU countries. This has led to a notable rise in the use of non-European cards for noncash payments.

The ECB was not merely raising objections to the clout of foreign PSPs like Mastercard and Visa, but outlining an agenda for re-designing (and effectively deregulating) the financial infrastructure that would facilitate retail payments within the EU. With a focus on removing the geographical and time constraints on retail payments (making payments borderless and instantaneous), the ECB's address culminated in a relaunch of the Single Euro Payments Area (SEPA) instant credit transfer scheme.

Though the SEPA scheme was launched in 2008 to facilitate credit and debit transfers, it lacked the means to tap into point-of-interaction retail payments. The ECB's 2019 relaunch corrected this shortcoming by aggressively including more PSPs, third-party intermediary firms channeling payments from payers to recipients. The proportion of credit transfer volumes conducted under the SEPA scheme subsequently increased from 0.08% in 2018% to 5.92% in 2020 (European Payments Council 2023).

The 2019 relaunch was an apparent success. But in relaxing regulatory permissions for PSPs, the ECB inadvertently encouraged the proliferation of trading platforms, many of which qualified as PSPs.

To illustrate, Figure 1 traces the number of monthly active users on the top 10 trading platforms, many of which are capable of trading cryptocurrencies, from January 2017 to July 2021. In January 2017, although all 10 trading platforms already existed, their cumulative monthly active users amounted to 1,155,840.

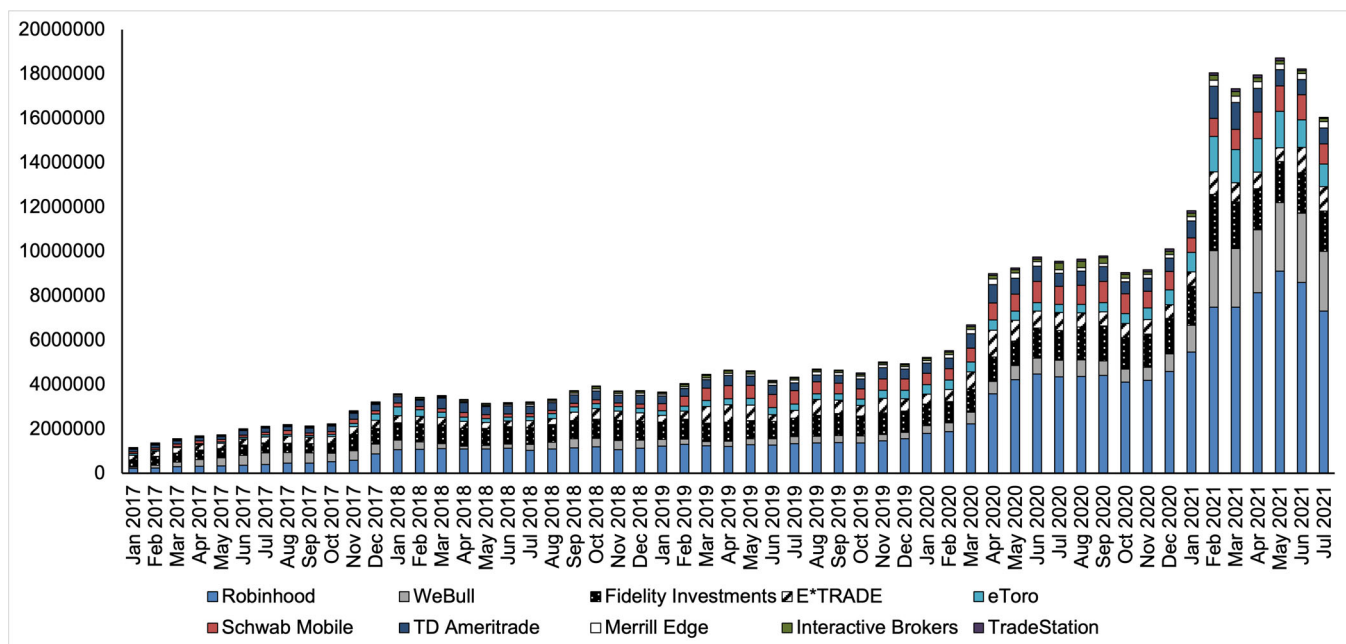


FIGURE 1 | The number of monthly active users in the top 10 trading platforms (January 2017 to July 2021). The 10 platforms are: Robinhood, WeBull, Fidelity Investments, E*TRADE, eToro, Schwab Mobile, TD Ameritrade, Merrill Edge, Interactive Brokers, and TradeStation. Source: Author's calculations using data from Statista.

The number of users would subsequently jump fourfold to close to four million during the ECB 2019 SEPA relaunch. By increasing access to digital platforms, the ECB 2019 SEPA relaunch broadened retail access to and non-fungible tokens (NFTs), particularly as platforms increasingly offer the ability to both create and trade cryptocurrencies (Au 2023; Dodd 2016, 2018). Among the payments processing offered within the digital payments landscape, digital tokens such as cryptocurrencies were included in the Payment Services Directive (PSD2), a harmonized legal framework that permissible acceptable payment services within the region (Putrevu and Mertzanis 2024). Thus, many cryptocurrency trading platforms allowed users to purchase cryptocurrencies using SEPA, including crypto.com and Binance.

Risky financial products disseminate fastest in a loose regulatory environment. As Fligstein (2021) recounts in *The Banks Did It* (and Stiglitz in a provocative 2010 feature titled *Capitalist Fools*), the repeal of Glass Steagall Act in 1999 led to traditional and alternative financial institutions securitizing subprime mortgages and reselling to unsuspecting investors. In similar fashion, hundreds of financial institutions and alternative brokerages alike sought to capitalize on the ECB deregulation to diversify their income sources into cryptocurrency markets (Son 2021). Existing PSPs capitalized on rising interest in cryptocurrencies and lack of regulation by central banks and securities watchdogs to create new cryptocurrency product offerings. Brokerages gained new footing in Europe and embarked on a dual strategy of offering retail payment solutions (such as debit or credit cards) and cryptocurrency financial products.

In 2021, JPMorgan offered clients access to new cryptocurrency funds, such as the Grayscale Bitcoin Trust, Grayscale Bitcoin Cash Trust, Grayscale Ethereum Trust, and Grayscale Ethereum Classic Trust. Charles Schwab offered users its own brand

of contactless debit cards and access to Bitcoin futures, which are volatile contracts to purchase or sell a specified quantity of Bitcoin at specified prices on certain dates. Other brokerages followed suit, such as Robinhood, a brokerage with close to \$100 billion AUM. Robinhood launched a cash management debit card program in 2019 and registered its own licensed money transmitter LLC to facilitate retail payments. By offering debit cards, brokerages like Schwab and Robinhood could expand their operations from financial advisory services into the lucrative retail payments market as newly minted PSPs. Doing so also allowed them to cross-sell a broadening suite of cryptocurrency products to a larger pool of consumers. To illustrate, Robinhood's transaction revenue from cryptocurrency trading rose from \$27 million in 2020 to \$420 million in 2021, a substantial increase from accounting for a mere 3% of the brokerage's transaction-based revenues to 23% (Robinhood 2022).

As a corollary, the mean aggregate-level of cryptocurrency adoption in Europe rose almost universally after the ECB 2019 SEPA relaunch (Figure 2).

Though some nations show virtually no purchases of cryptocurrencies, fitted trendlines in Figure 2 reveal a mean rising tide of investment into cryptocurrencies in most EU nations from the SEPA relaunch onward. The mean level of cryptocurrency adoption was 5.11% in EU nations in 2019, which subsequently decreased to 4.11% in 2020, but quickly rose to 7.3% in 2021. A minority of nations, like Bulgaria, Croatia, and Cyprus, never reported any cryptocurrency adoption to begin with because of stringent policies (typically in anti-money laundering ordinances) outlawing their purchase. However, the largest economies in the EU, like the general trend, all reported rising adoption, albeit with different pathways. Germany exhibited a 5% adoption rate in 2019, before a burst to 10% in 2021. France grew steadily from 5% in 2019 to 7% in 2021. In the Czech Republic,

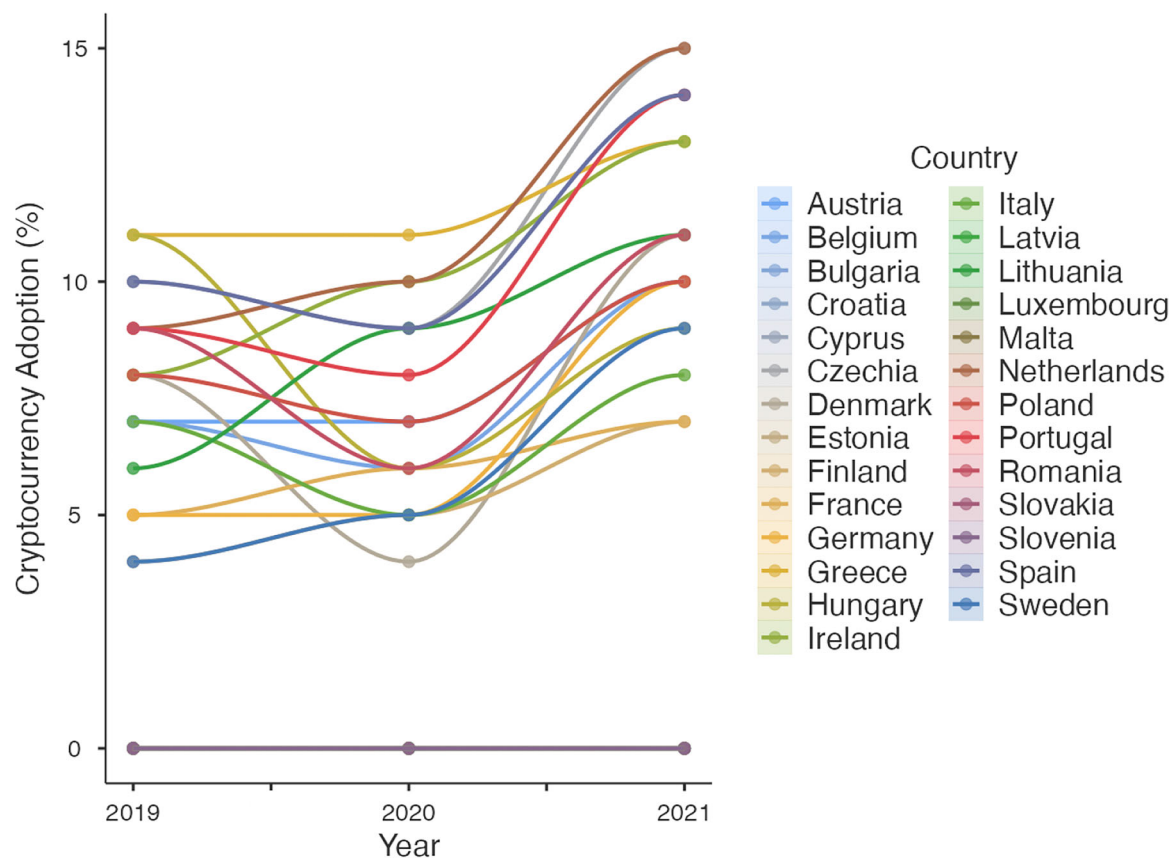


FIGURE 2 | Cryptocurrency adoption as a proportion of the general population in Europe.

as much as 10% of the population had owned or purchased cryptocurrencies in 2019, a figure that rose to 15% in 2021.

5 | The Cooptation of Cryptocurrencies (2020 onward): Economic Precarity and the Aspiration of a Digital Euro

From 2020 to 2022, the greatest gains in cryptocurrency adoption and monthly active users transpired during the COVID-19 pandemic, which unleashed an unprecedented duality of high unemployment rates and high inflation. According to the International Monetary Fund (IMF), China's lockdowns caused in a supply shock (a drop in imports from China) among European firms that transmitted to the rest of the supply chain through a 5.5% decline in domestic sales, 5% decline in exports, and price inflation (Arce and Holton 2023; Lafrogne-Joussier et al. 2023). Rapid decline in firm revenues and economic uncertainty had portentous consequences on the labor market and, by extension, economic precarity among households.

In response to historically high inflation, the ECB exercised a contractionary monetary policy in 2021 by raising interest rates. However, this decision inadvertently exacerbated economic precarity among households, worsening inequality (Angino and Secola 2022). Figure 3 traces and contextualizes the contemporary rise in unemployment rates in the EU on a quarterly basis from the Financial Crisis to 2021. The regional unemployment rate rose to around 7.5% in 2021, before it would march on past

8.5% for the remainder of the year, the first record of an increase since the fallout of the 2008 Financial Crisis.

The ECB's contractionary monetary policy was a gamble that, at the cost of disruptions to income and employment rates, inflation would be tamed. But this, too, was unsuccessful. In 2022, the European Systemic Risk Board (ESRB 2022) issued its first warning about the region's financial stability since its inception in 2010. Higher interest rates did little to contain the disequilibrating effects of the pandemic on inflation, which has been fast on the climb. Figure 4 illustrates the trajectory of inflation in the region from 2008 to 2022. Coinciding with the rise in unemployment, inflation in the EU and Euro area troughed at 0.7% and 2.9% in 2020, before quickly rising to 9.2% and 7.84% in 2022, respectively.

To make matters worse, the ECB's own forecasts had consistently underestimated inflation by around 2% every month between 2020 and 2022 (Lenza et al. 2023). As a result, inflation produced a net negative effect on household welfare, but with pronounced distributional effects where "poorer households suffered greater losses due to inflation than richer households" (Amores et al. 2023, p.22). Inflation reduced household disposable income in Europe by close to 4% among the poorest three income deciles, compared to a decline of 1% for all other deciles.

Greater unemployment and higher inflation are synergistic forces that exacerbate economic precarity, which eventually flows through to cryptocurrency adoption (Rosenblatt-Wisch and

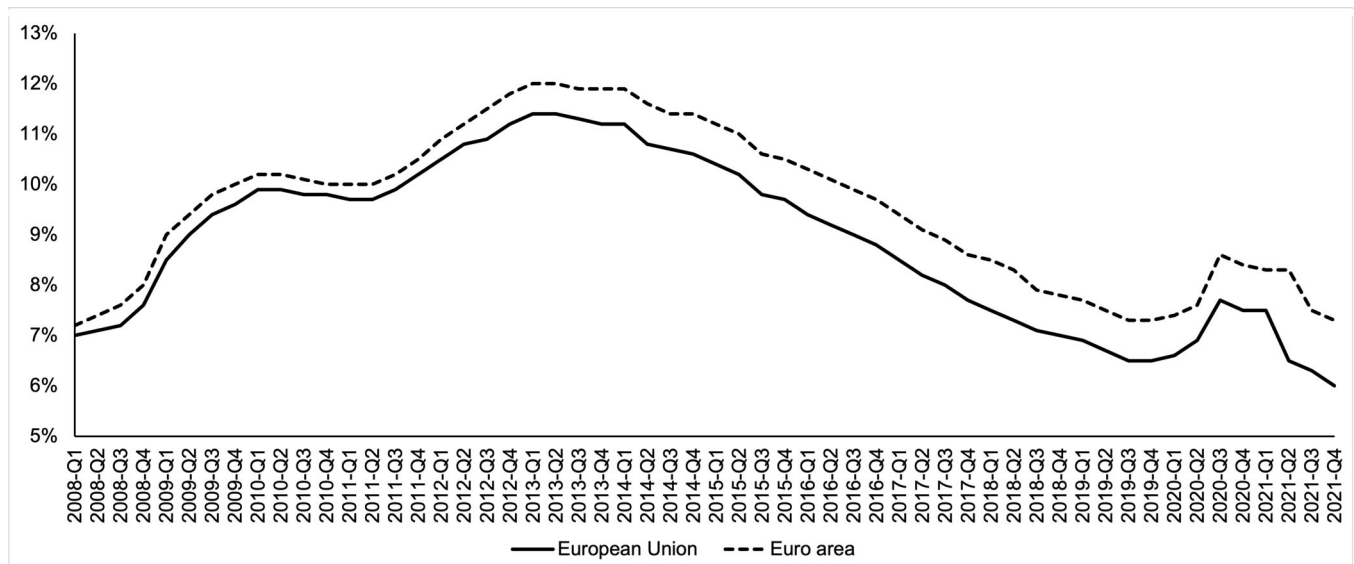


FIGURE 3 | Quarterly unemployment rates in Europe. Source: Author's calculations using data from Eurostat.

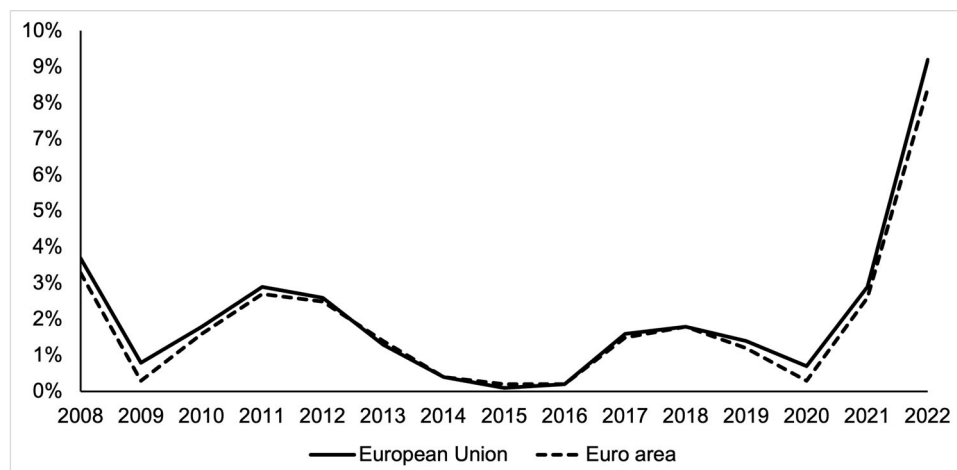


FIGURE 4 | Annualized inflation rate (%) in Europe from 2008 to 2021. Source: Author's calculations using data from Eurostat.

Scheufele 2015; Vu et al. 2021). One year from the initial pandemic outbreak in March 2020 to February 2021, for instance, the number of monthly active users leapt from about 5.5 million to around 18 million users. The share of total credit transfers conducted under the relaunched SEPA instant credit transfer scheme also jumped from about 1% in 2019 (already an improvement compared to 0.08% the year prior) to 5.92% in 2020, then 8.57% in 2021 and 11.48% in 2022 (European Payments Council 2023).

Figure 5 additionally breaks down cryptocurrency adoption by inflation rates using all nations across all years as data points. There are three ideal types of inflation based on their rates. The first type is zero and below, or deflation when prices contract. The second is considered the natural rate of a growing economy, widely known as the roughly 2% (realistically, between 0% and 2%) target set by the US Federal Reserve and commonly used by the ECB as a benchmark. This benchmark is considered by Central Banks and policymakers to be the gold standard in maintaining stable (un)employment rates and economic growth. The final type of inflation is high inflation, which may be considered above 2%.

In Figure 5, the fitted trendline for nations facing deflation roughly evens out, but the trendlines for nations with inflation within the Fed target 2% and beyond 2% show positive correlations with cryptocurrency adoption. These results suggest that when inflation is normal or high (low), the adoption of cryptocurrencies rises (falls). Though descriptive, Figure 5 offers preliminary evidence for linkages between historically high inflation rates from 2020 to 2022 (Figure 4) and high levels of cryptocurrency adoption in Europe (Figure 2).

The mass shift toward digital payments and cryptocurrency adoption was not lost on the ECB. During the pandemic years amid its policy failures to tame historically high inflation, the ECB underwent a pivot and softened its tone toward cryptocurrencies. What changed? In a Paris address by Christine Lagarde in November 2020, the ECB noted:

The coronavirus (COVID-19) pandemic has accelerated [the payments] trend towards digitalization, with a surge in online payments and a shift towards contactless

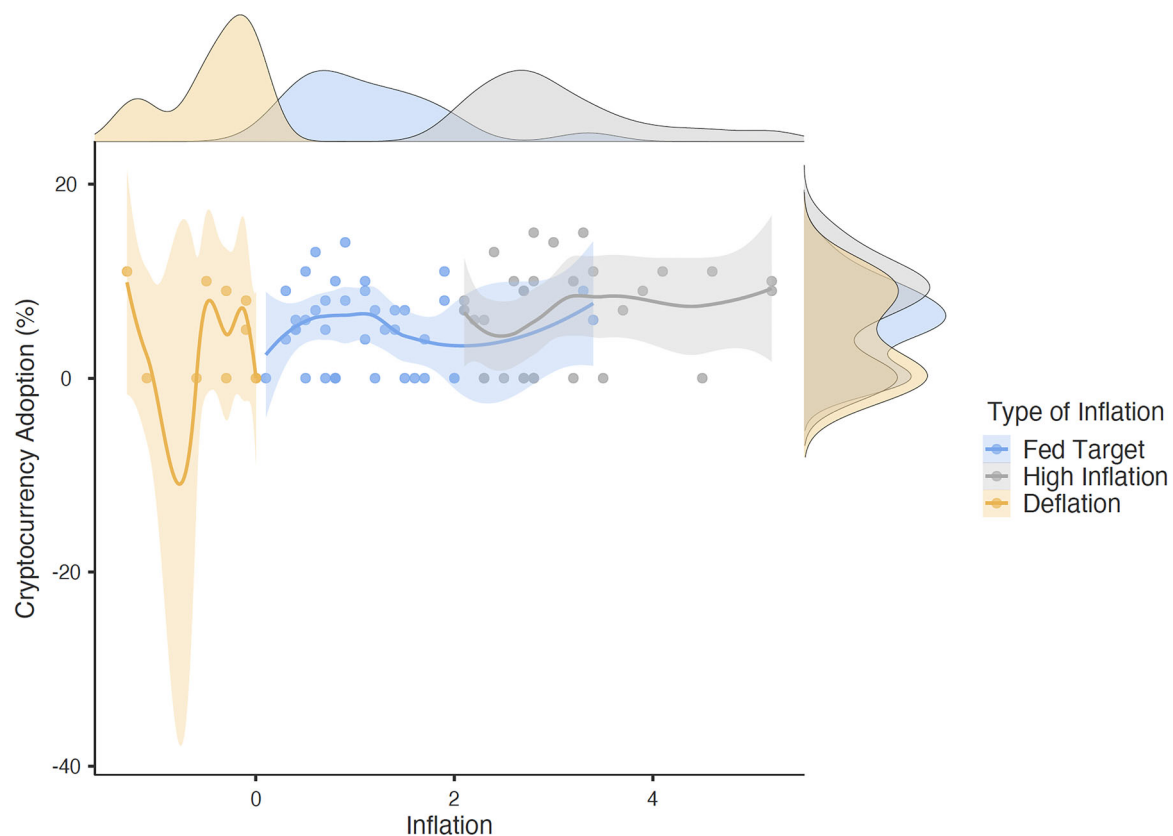


FIGURE 5 | Cryptocurrency adoption by type (pace) of inflation. Curves on the top and right of the graph visualize the rough distribution of data points.

payments in shops... To meet the demand for digital means of payment, new forms of private money (i.e. a liability of private entities) have emerged.

The ECB recognized that the pandemic had accelerated interest in and use of PSPs for facilitating transactions. Though part of this tone shift may be due to social distancing and lockdown measures that prohibited individuals from physical contact, a far more significant reason was the ECB's intentions toward its own currency. The ECB conceded an important deficiency that beleaguered it in an addendum: "...But central bank money in digital form is still not available for retail payments."

Concomitant with the ECB's apparent softening in its stance toward cryptocurrencies, several policy changes and initiatives were launched to encourage payments processing. In July 2020, a group of 16 European banks from Belgium, France, Germany, Netherlands, and Spain launched the European Payment Initiative (EPI) project to offer a pan-European payment solution by 2022.

The ECB responded positively, joined with political support from the European Commission. But in its response, the ECB targeted ten European countries that "still have national card schemes that do not accept cards from other EU Member States," and that there was "a growing number of innovative services, such as mobile wallets, that are only offered at the national level." The ECB's intentions for a pan-European, connected payments processing network were clear. But it could not accomplish this consolidation without establishing

common digital infrastructure, something that proved difficult with the unequal levels of internet connectivity and infrastructure in developing regions. The inclusion of digital tokens such as cryptocurrencies in the PSD2 was a step toward using cryptocurrency transactions to reduce barriers to payments processing (Putrevu and Mertzanis 2024).

Indeed, around the same time, on September 4, 2020, the European Commission (2020) released a comprehensive report on a Retail Payments Strategy in the EU. In it, the report stressed the importance of "improving cross-border payments with non-EU jurisdictions" (p.4). More importantly, it openly acknowledged that "with the emergence of crypto-assets (including so-called 'stablecoins') they may soon be offering disruptive payment solutions based on encryption and distributed ledger technology (DLT)" (p.2). It offered support for a "new EU framework for strengthening digital operational resilience and on crypto-assets" (p.4). Europe's approach to cryptocurrencies had clearly embraced a shift from neutralizing cryptocurrencies to embracing them by regulating them.

The Commission goes further to note:

... several initiatives have emerged involving crypto-asset service providers using distributed ledger technologies. These actors may provide payment services that compete with those offered by regulated players (e.g. payment service providers, payment systems and payment schemes). They must therefore be regulated on the same

basis to ensure a full level-playing field ('same business, same risks, same rules').

(p.19)

By promising to regulate crypto-assets according to the “same rules,” regulations had broadly shifted toward accepting cryptocurrencies rather than neutralizing them. This would lay the foundation for the later legitimization of cryptocurrencies when the ECB agreed for them to be regulated as financial assets, similar to the US’ regulation of cryptocurrencies as commodities.

This classification led to concessions that the ECB granted to cryptocurrencies in subsequent policies and policy evaluations. To illustrate, the ECB collaborated with the ESMA to publish MiCA in 2023. The MiCA was a set of regulations consisted of Level 2 and Level 3 measures (higher levels of regulation in the securities sector) that cryptocurrency firms and exchanges must conform with to continue their operations. But while the MiCA appeared to “close regulatory gaps” (Lagarde 2022), it still gave cryptocurrency firms liberty from close monitoring. To illustrate, the second consultation paper of the MiCA (European Securities and Markets Authority ESMA 2023) focuses on business continuity, which refers to asset protection amid and prevention systems against threats.

However, business continuity practices mandated by the MiCA are simply restricted to transparency practices. Under Section 4.3.1. (“Measures for permissionless distributed ledger technology”), the European Securities and Markets Authority ESMA (2023) demurred to cryptocurrency firms themselves on the subject of risk management, who it deemed “responsible for deciding how best to manage [business continuity] type of operational risk” (item 69, p.21). Additionally, the ESMA noted that the “[new policy] obligation for [cryptocurrency firms]... would require [them] to communicate with clients externally in the event of a service disruption involving a permissionless distributed ledger technology” (item 70, p.21). Put simply, cryptocurrency exchanges and firms facing the prospect of distress need only *report* to clients how they *intend* to manage their risks, with few to none of the strict guidelines on allowable assets held and enforce regular stress tests that banks face. Thus, the guardrails against excessive speculation and fire-sales (and investor and stakeholder interests) continue to overlook cryptocurrency exchanges.

The ECB’s loose handling of the MiCA was concomitant with the ECB’s push for reducing capital controls in regional payments, in part because the ECB believed cryptocurrencies could yet play a role in its vision for remodeling the payments and banking systems. Around the same time in 2023, the ECB also conducted an evaluation of the second iteration of the PSD2. The PSD2 was originally established in 2015 to set up a harmonized legal framework to,

... ensure a level playing field between incumbent and new providers of card, internet and mobile payments; increase the efficiency, transparency and choice of payment instruments for payment service users (consumers and merchants); facilitate the provision of card, internet and mobile payment services across borders within the EU...

Unsatisfied with the degree of payment integration, the ECB determined in 2023 that there remained too many capital controls in the financial system. To this end, the ECB recommended “allowing non-bank PSPs access to all EU payment systems, with appropriate safeguards, and giving them a right to have a bank account” (p.1). Apart from improving the availability of cash, this decision sought to “improve open banking.” This was a clear nod of approval toward cryptocurrency-related blockchain technologies and the strongest signal of the ECB’s intention to move the region’s payments processing in this direction.

Traditionally, European banks have used closed-banking by keeping their customer information private. But when cryptocurrencies began to gain popularity, they gave credence to a vision of open banking as a model of payments processing. Open banking consists of sharing customer financial data with third-party service providers for new services, analytics, and financial products. In part, this was because open banking systems rely on the same ledger technologies that created cryptocurrencies. To achieve this, however, requires encrypting data and sharing over networks that are decentralized, using application programming interfaces (API).

The prototypical model of open banking has inspired parallels with cryptocurrency blockchains, which are distributed digital ledgers that monitor transactions within the network, but have the added benefits of storing data cryptographically. Blockchain networks can additionally incorporate consensus mechanisms that safeguard APIs, making them more reliable and tamper-resistant transaction records within a decentralized system (Zhang et al. 2019). Within this scope, Liao et al. (2022) poignantly illustrate how the architecture of blockchain networks uniquely positions them to satisfy the ECB’s demands for open banking as well as comply with the region’s stringent General Data Protection Regulation (GDPR) Internet privacy data laws. Ultimately, these reforms facilitate “removing obstacles to open banking services and consumer control over their data access permissions” (European Central Bank 2023, p.1). Just as crypto-assets would be regulated as a new type of asset, so too would their payments processing be regulated within a changing banking system.

In many ways, remodeling the banking system to loosen capital controls was a broader boon to the household economy. In a speech at the 34th European Banking Congress, ECB President Lagarde (2024) bemoaned the high savings rates of Europeans (about 13%) compared to Americans (about 8%). She went on to describe important differences in the direction of capital flows between the two regions, noting that about 30% of European households’ total assets were in low-risk, liquidity savings products, compared to just 10% of Americans’. In explaining the risk-aversion that European households had, the ECB identified a culprit: banks’ preference to lend to less productive, non-technology sectors of the economy.

In a bank-based financial system like Europe, banks “lend more than €600 billion to real estate companies but less than €100 billion to technology companies—even though the contribution of each sector to real value added is around the same” (Lagarde 2024). Within this scope, Lagarde (2024) implied that liberalizing the regional payments systems and transitioning its

banking system into open banking could help rebalance these exposures to support technological innovation. To this end, drawing from the American regulatory playbook was a necessity, given the widely accepted successes of its technology sector. Lagarde admitted as much by stressing the need for a “European SEC” when regulating riskier areas of the economy, including cryptocurrencies and digitalization.

Capitalizing on the broad shift to e-commerce and online transactions, the ECB had begun in earnest to investigate possibilities for their own digital central bank currency in 2020: *a digital Euro*. A digital Euro is claimed by the ECB to improve “financial stability” (Lambert et al. 2023).

In practice, a digital Euro enables the ECB to maintain control over currency circulation, monetary sovereignty, and broaden access to central bank money to more eligible parties. The exodus of customer deposits (in fiat currency) from banks would directly strip away their predominant form of financing.

But a digital Euro was faced with the challenge of legitimacy and trust. The ECB directly hinted at such in a November 2020 statement by Lagarde (2020) when discussing the prospects of a digital Euro,

The value of money is based on citizens' trust in it being generally accepted for all forms of economic exchange and in the ability of central banks to maintain its purchasing power through monetary policy.

While a majority (76%) of Euro area residents expressed trust in the Euro, only 43% expressed trust in the ECB, in addition to 42% explicitly expressing *distrust* in the ECB (Dreher 2024). Recent-years of monetary policy were unsuccessful in containing inflation, and even exacerbating unemployment, added to the problem of mistrust in the ECB. By May 2022, the worsening of inequality due to inflation and unemployment had driven household trust in the ECB even lower (Angino and Secola 2022).

“Why,” as Lagarde (2022) herself recognized, “issue a digital euro, if other forms of (private) digital money are already available?” Since the concept of a digital Euro had meaningfully lagged the development of cryptocurrencies, the latter had not only become de facto competitors with the ECB, but a roadmap for implementing the digital Euro and a set of institutional practices from which the ECB would have to learn.

In May 2020, the same Mersch (2020) who had earlier denounced cryptocurrencies altogether in 2018 indicated the ECB was reversing course. At the Consensus 2020 virtual conference discussing the possibilities of Blockchain, the ECB stated that,

A retail [digital Euro] could be based on digital tokens, which would circulate in a decentralized manner—that is without a central ledger—and allow for anonymity towards the central bank, similar to cash.

This was perhaps the most understated and significant pivot that the ECB telegraphed. The conventional central bank model

of currency circulation limits access to transaction information to virtually all parties except the central bank. Bitcoin challenged this model by eschewing a central authority to oversee transactions and proposing to anonymize and publicize all transactions. But in its outline for the digital Euro, the ECB was now proposing to organize its circulation on a decentralized ledger and anonymize transactions. These proposals were a salient shift away from repressing Bitcoin to regarding it as a design inspiration for the digital Euro.

In particular, the ECB identified one genre of cryptocurrencies that it was willing to favor: stablecoins. Stablecoins are essentially cryptocurrency tokens that issuers peg to the value of a conventional asset at a fixed exchange rate. Mirroring currency pegs, a roster of stablecoins purportedly pegged their value to US dollar at a fixed rate. In a May 2022 address in Dublin by Fabio Panetta (2022a), a Member of the ECB Executive Board, the ECB remarked on the potential of stablecoins from a vast universe of cryptocurrencies,

...Anyone investing in cryptos must be prepared to lose all their investment... [but] to mitigate these risks... stablecoins have emerged and have the potential to become globally systemic.

Stablecoins appeared to be recognized for their value as an efficient ledger system with which to facilitate transactions. By 2022, the rate of cryptocurrency adoption in much of the EU had approached 10%, no longer an insignificant subpopulation that the ECB could ignore. As such, the ECB sought to capitalize on popular awareness of stablecoins by recasting them as a framework for the digital Euro. According to an ECB report in May 2020:

Without prejudice to issues and risks that may arise in other parts of a stablecoin ecosystem... the two most prominent issues for the asset management function [of money are] the risk of a liquidity run impairing the functioning of the stablecoin arrangement; and the risk of contagion spreading to the wider financial system as a result of an impaired stablecoin arrangement.

For all the risks the ECB highlighted, stablecoins were not a lost cause. Indeed, the point of raising the deficiencies of stablecoins was not to disparage them, but to advertise the role that the ECB could play in remedying these deficiencies, capitalizing on their popular interest to lionize the role of the ECB in financial regulation. It maintained, for instance, that stablecoins,

...could help to address unmet consumer demand for payment services... stablecoins' asset management function could be covered by existing regulations governing e-money, banks or investment funds... [but] promoters of stablecoins should design their arrangement in such a way that they comply with existing regulations [such as the electronic money directive that binds the ECB].

There are two significant developments in the ECB's position that coopted the stablecoin design and their popular interest. First, the ECB was marketing the digital Euro as a stablecoin. Its report

evoked the dangers to financial stability if all households transferred bank deposits into what it called a “global stablecoin,” which would replace stable retail deposits with more fluid institutional deposits stemming from the stablecoins. Second, the ECB was coopting the design of the stablecoin in its own digital Euro by anonymizing transactions and tokenizing the Euro, even if it had a central financial authority overseeing transactions.

This was made clear in the ECB's final response to the collapse of a prominent stablecoin in 2022, TerraUSD. The algorithm-backed stablecoin crashed from a 1:1 peg to the U.S. Dollar to near-zero, when large quantities of the cryptocurrency were sold off and their backing fund was insufficient to support sales. In a statement by Panetta (2022b) in December 2022, the ECB again capitalized on the stablecoin collapse and its prototypical design deficiencies to lionize the necessity of a central bank-operated digital Euro. It maintained that the cryptocurrency crash highlighted the need of “sound regulation, [without which] stablecoins are stable in name only. [They need] public backing.” While the risks of stablecoins could “be eliminated by allowing full-reserve stablecoins to hold their reserve assets entirely in... risk-free deposits at the central bank... this would be tantamount to outsourcing the provision of central bank money.” In essence, the ECB was signposting that it could make stablecoins safe, but would never forego monetary sovereignty as the cost of doing so. “Only,” the ECB stressed, “central bank money can provide an anchor of stability.”

6 | Global Forces and Regulatory Softening

6.1 | Global Counterpart Regulatory Agencies and Cryptocurrency Price Dynamics

Global forces played a role in driving the ECB toward cooptation and a softer regulatory stance. Lagarde (2024) comments about the stranglehold placed on European innovation by its very own banking system and developing a “European SEC” as the antidote were admissions of the SEC as a model for ECB regulatory attitudes. To begin with, the ECB experienced pressure from counterpart regulatory agencies in the U.S., which were first to show signs of regulatory softening in their stance toward cryptocurrencies. More importantly, the ECB watched U.S. regulators suffer setbacks in their own regulatory clampdowns on cryptocurrencies and subsequently be forced to pivot to permit cryptocurrency adoption.

From 2013 to 2019, the SEC made close to 45 charges against corporations. Between 2020 and 2024, the SEC made close to 113 charges against cryptocurrency firms for failing to register their trading platforms and their initial coin and digital asset security offerings. Among them, the SEC's most prominent charges were against Coinbase (June 6, 2023), Binance (June 5, 2023), and Bittrex (April 17, 2023), three of the most prominent exchanges worldwide for trading cryptocurrencies. To augment its regulatory powers, on February 6, 2024, the SEC also moved to adopt new Rules 3a5-4 and 3a44-2 (collectively, the “New Rules”), which expanded the definition of a “dealer” and “government securities dealer” under the Securities Exchange Act of 1934, enabling it to target a wider array of cryptocurrency firms.

But the legitimacy of the SEC's intense regulatory clampdowns had begun to unravel between 2023 and 2024. On July 20, 2023, the House Financial Services and Agriculture committees revealed the Financial Innovation and Technology (FIT) for the 21st Century Act (HR4763). In it, the Act brought regulatory clarity to cryptocurrency platforms like Coinbase and others, while diminishing enforcement risk. Its chief contribution was to outline which agency (SEC or CFTC) has jurisdiction, the circumstances on when a token would be considered a security or a commodity, and how cryptocurrency firms should register, like as an Alternative Trading System (ATS) or as a Digital Commodity Exchange, Broker or Dealer. The FIT Act was a significant victory for cryptocurrency firms against government initiatives to curb cryptocurrencies. By enabling cryptocurrencies to be registered under the commodity status, firms could transact in this asset class with less onerous regulation.

More importantly, the FIT Act signaled a further reversion in the state's approach to cryptocurrencies, moving from neutralization to outright acceptance. The FIT Act gave cryptocurrency defendants a powerful legal basis to pause their lawsuits or even countersue the SEC for its clampdown. The vulnerabilities of the SEC were made apparent when SEC Chair Gary Gensler (2024) protested the FIT Act:

The Financial Innovation and Technology for the 21st Century Act (“FIT 21”) would create new regulatory gaps and undermine decades of precedent regarding the oversight of investment contracts, putting investors and capital markets at immeasurable risk... the bill would remove investment contracts that are recorded on a blockchain from the statutory definition of securities and the time-tested protections of much of the federal securities laws.

In spite of his protests, the FIT Act proceeded, portending a series of victories for cryptocurrencies. Indeed, by 2024, court rulings had begun to emerge in growing favor of cryptocurrency proponents. On May 17, 2024, the Blockchain Association and the Crypto Freedom Alliance of Texas filed a lawsuit against the SEC for its expansion of the securities dealer rule. On November 14, 2024, the US District Court for the Northern District of Texas ordered the SEC to repeal its dealer rule, noting that it had “exceeded its statutory authority by enacting such a broad definition of dealer untethered from the text, history, and structure of the Exchange Act” (Crypto Freedom Alliance of Texas, et al. v. Securities and Exchange Commission, et al. 2024, p.4). Other cryptocurrency platforms that were charged by the SEC also filed motions to halt their legal proceedings, including Coinbase and Binance with the US District Court for the District of Columbia to halt its legal proceedings.

Price dynamics offer a useful barometer of the secular trend of interest in cryptocurrencies in America and Europe alike and offer a partial explanation for the vicissitudes in regional regulatory attitudes. Table 1 presents the Bai-Perron test results that reveal multiple upward structural breaks in the price dynamics of Bitcoin. The $m = 3$ model produces the lowest BIC value (see Appendix A1), suggesting that three breaks hold the greatest explanatory power when explaining multiple structural

breaks in Bitcoin's price dynamics over time. Figure 6 visualizes the three breaks over time.

The first of these upward breaks occurred in October 2017, when Bitcoin broke above \$6,000 for the first time and proceeded to rise to \$16,000 by January 2018. Even though it experienced precipitous declines to about \$6,000 by June 2018 and about

TABLE 1 | Bai-Perron test results across multiple m specifications and their corresponding breakpoints.

m	Breakpoint(s)
1	2020 – Week 48
2	2020 – Week 47 2023 – Week 23
3	2017 – Week 37 2020 – Week 47 2023 – Week 23
4	2017 – Week 28 2019 – Week 13 2020 – Week 47 2023 – Week 23
5	2015 – Week 46 2017 – Week 28 2019 – Week 13 2020 – Week 47 2023 – Week 23

\$3,000 in December 2018, it bears noting that these subsequent declines were not sufficient to incur downward structural breaks. After a brief trough in December 2018, Bitcoin rose again to about \$10,000 through most of 2019, before experiencing its second structural break upward, above \$19,000 by December 2020. Its price would continue to rise in quick succession to around \$38,048 in January 2021, then \$48,865 in February 2021, and \$57,000 from March through May 2021. Once more, a price decline ensued from April 2022 to July 2023 to a low of about \$26,000, but remained insufficient to cause a downward structural break in its price dynamic. By contrast, Bitcoin rose yet again to incur a third structural break upward when it rose to \$43,000 around December 2023, followed by \$51,000 in February 2024, \$68,000 between March to July 2024, and finally \$90,000 in November 2024 and \$100,000 in December 2024.

These price dynamics and structural breaks help chart the regulatory fortunes and attitudes of the ECB and the SEC. The ECB's initial neutralization stance took place from 2018 to 2020, between the first and second structural breaks. Similarly, the SEC's crackdowns proceeded in earnest in 2022, between the second and third structural breaks. It is no surprise that regulatory bodies feel empowered to pursue cryptocurrencies when price dynamics exhibit decline, as Bitcoin did between major structural breaks. For the same reasons, then, we can observe why regulatory efforts languish afterward, in 2020 for the ECB and in 2023 for the SEC. These are periods when cryptocurrency price dynamics exhibit strong structural breaks that push their prices upward, even past previous peaks.

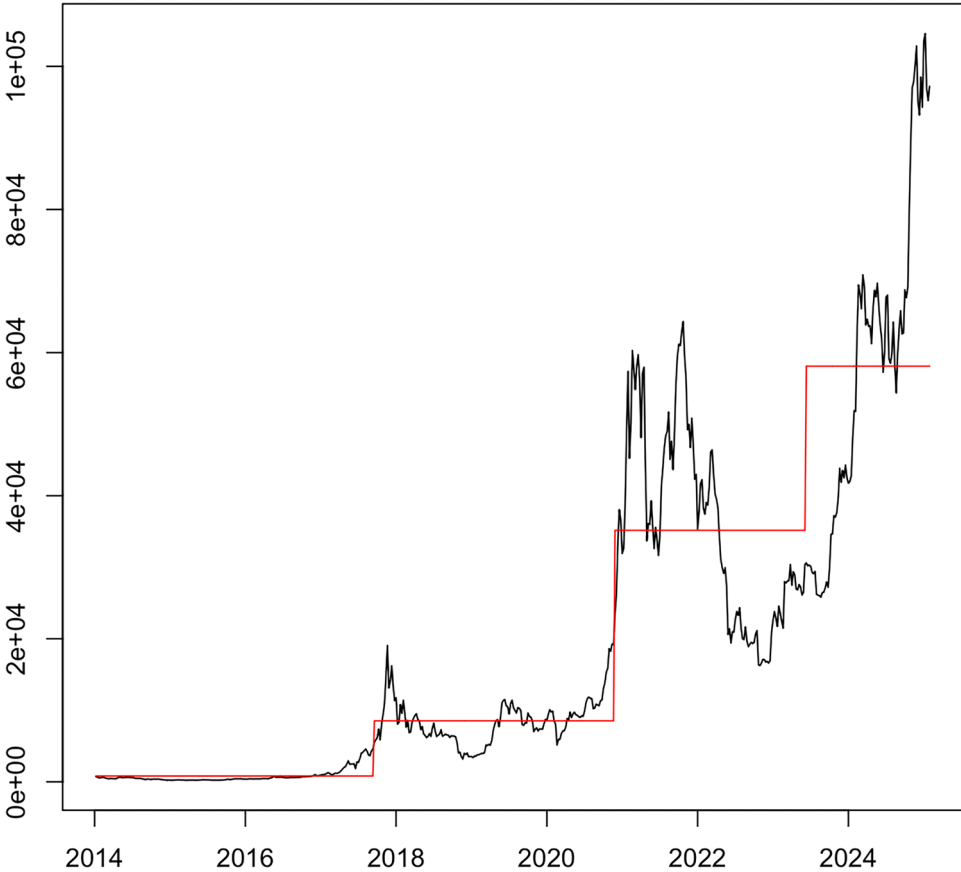


FIGURE 6 | Price of Bitcoin charted over time. Red lines trace structural breaks in price dynamics.

These three structural breaks capture important powerful inflection points in public attitudes toward cryptocurrencies. That all three are significantly upward, with no downward breaks, suggest that public interest and positive sentiment toward cryptocurrencies is a secular trend. More importantly, these structural breaks also offer a sense of vested interests in their success among major stakeholders, which includes political actors. According to research non-profit firm OpenSecrets (2023) that studies campaign finance, crypto industry contributions to US political action committees (PACs) headed by political candidates running for elected office erupted from \$1,000 in 2010 to \$126,402 in 2016, to \$1,509,794 in 2020, and finally over \$27 million in 2022. This does not include broader donations to political parties, which reached over \$98 million in 2022, most of which was from now-defunct FTX.

Even setting aside the exceptional lobbying and donations by cryptocurrency firms in America, the failed attempts of the US SEC to rein in cryptocurrency firms was something the ECB took as a warning for its own regulatory initiatives. It realized that outright banning cryptocurrencies was rapidly becoming a politically unpopular solution, observed in the series of cryptocurrency lawsuits that pitted the SEC in a losing battle against cryptocurrency stakeholders. Gensler rightfully recognized that the FIT Act could offer a legal framework for even more lenient legislation in the future still, laying the foundations for the House committees on financial services and agriculture to eventually pass an outright cryptocurrency bill. As Gensler (2024) summed it up, the FIT Act could “functionally eliminate the current... restrictions for crypto securities by creating a new exempt offering framework.”

This also inspired the ECB to regulate cryptocurrencies under a different registration than currencies: financial assets. Though the SEC opted to regulate cryptocurrencies as commodities, the ECB's choice to regulate them as financial assets was similar in nature. It allowed the ECB to permit cryptocurrencies and their blockchain network technology within existing open banking systems of payment transfers. Most importantly, as long as firms and transactors could profit from their purchase or sale of cryptocurrencies, regulators felt relieved from more serious scenarios involving actual political or juridical risk, such as if cryptocurrencies were treated as actual currencies. As positive sentiment toward cryptocurrencies became apparent as a secular trend (captured in the three structural breaks), regulators experienced pressure to step out of the way of its adoption; the political risk of barring the public from purchasing financial assets that are appreciating in value, after all, appeared untenable.

6.2 | Global Currency Competitors

What is the appeal of a digital Euro resembling a stablecoin? For the ECB, the digital Euro played an important nationalist role in strengthening the currency. CBDCs like the Digital Euro increase the convenience yield of their underlying currencies, which constitute improvements upon traditional fiat currencies and their payment rails. As Cong and Mayer (2022, p.16) surmise, digital currencies have advantages over fiat in “improving cross-border payments, lowering the cost of providing physical money, promoting financial inclusion, enabling smart contracting and

programmable money, reducing depository counterparty risk, and help monetary policy implementation such as the dissemination of government relief payments.” These advantages give competitive advantages to any given currency.

Currencies themselves compete with one another as stores of value when traders and investors arbitrage differences in stability, risk, and interest rates, creating large transactions and swings of value for currencies as a result. Within this scope, digitalizing a sovereign currency is a direct response to protecting it against three kinds of competition: cryptocurrencies, other (digitalized) currencies, and an increasing roster of large technology firms participating in the payments space. Cryptocurrencies pose risks as substitutes, albeit imperfect, for fiat currencies as stores of value or exchange media.

But just as important, large technology companies or “Big Tech” also created their own payment networks. This posed a new threat to the Euro. The payments system itself grew increasingly disintermediated. Big Tech firms also benefited from significant network economies, which positioned them to offer disruptive payment systems and tokens similar to cryptocurrencies as well as their decentralized ledger technology.

Facebook's initial attempt at the Libra offers an illustrative example. Started in December 2019, the Libra quickly earned repudiation by regulators, including the ECB, which noted that “despite its audacious global currency aspirations, Libra lacks a global lender of last resort” (Mersch 2019). Implicit in its comments, however, was a keen awareness about the growing competition that the Euro faced and its declining competitive advantage.

Figure 7 shows the breakdown of major currencies used in international payments in SWIFT. In February 2019, the Euro made up 35.68% of payments, the US Dollar 43.4%, the Japanese Yen 4.35%, and the Chinese Yuan 1.15%. This proportion held steady until June 2023. But in July 2023, the equilibrium broke. For the first time, payments in Euros declined to 13.61%, the US Dollar rose to account for 59.21% of payments, the Yen grew to 5%, and the Yuan rose to 2.23%. The Euro grew even weaker by September 2024, when it only made up 12.96% of payments, compared to 57.91% for the US Dollar, 6.02% for the Yen, and 2.57% for the Yuan.

These patterns partially owed to geopolitical instability in Europe from the escalating Russia-Ukraine war. The war posed disruptions to the supply chain and trade links between continental Europe and Ukraine and Russia. Given Europe's dependence on food and energy from Ukraine and Russia, the war stimulated negative expectations about the region's GDP growth and run-on effects for elevated inflation (Liadze et al. 2023). At the same time as the decline in the Euro as a proportion of SWIFT payments, the ECB watched carefully as competing currencies were digitalized.

Unlike the Euro, the US and China had experimented with pilot rollouts of their CBDCs from as early as 2021. By increasing the convenience yield of its currency and reducing frictions in existing payment rails, a monetary regime creates competitive advantages for its currency, defending it not only from nascent

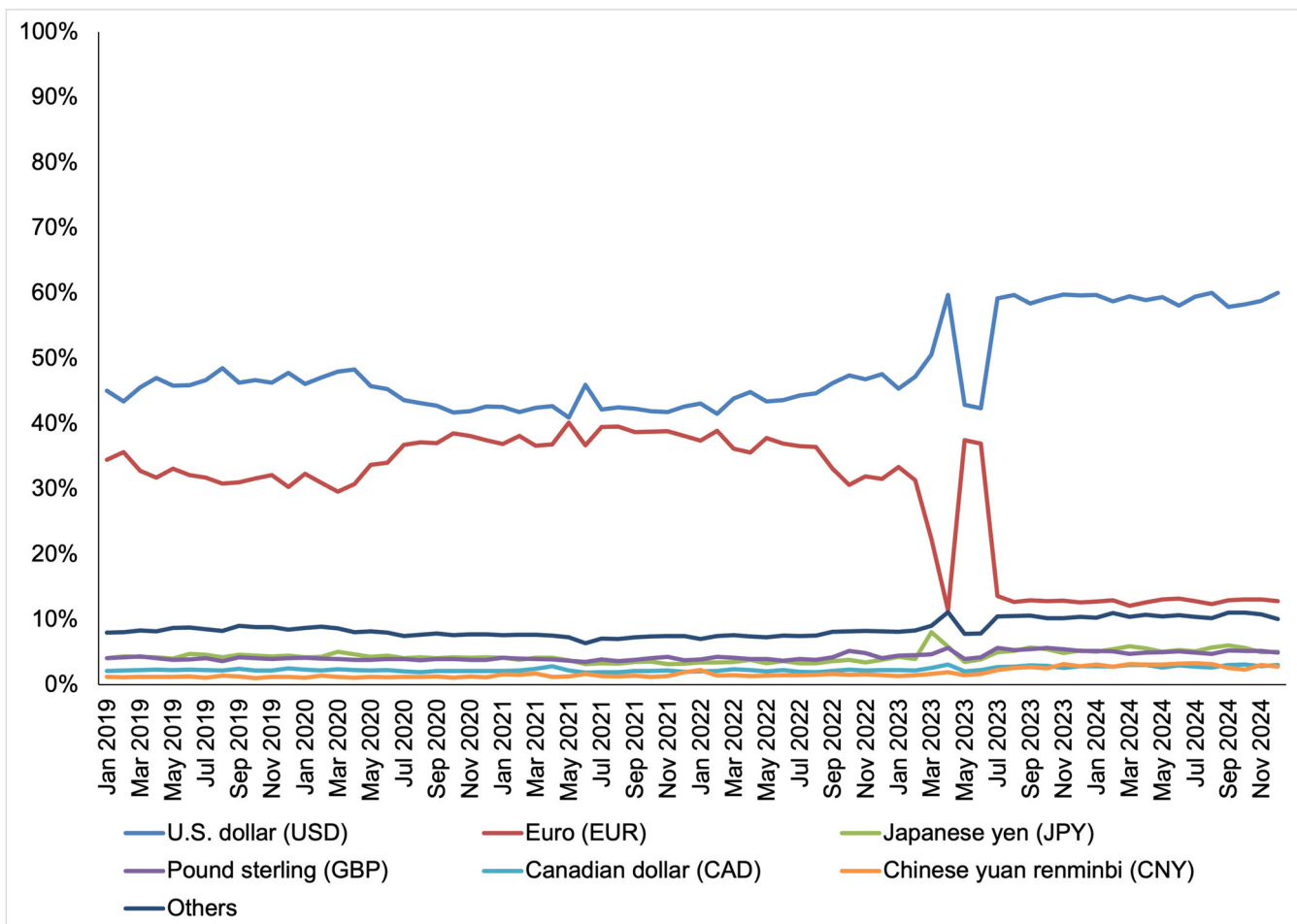


FIGURE 7 | Major currencies as a proportion of SWIFT payments (2019–2024). *Source:* Author's calculations using data from Statista.

cryptocurrencies, but also competing currencies worldwide. Countries with strong and dominant currencies were able to launch their own CBDCs, which gave them a technological first-mover advantage (Cong and Mayer 2022). The US' CBDC was perhaps the most significant, given the Dollar's status as the global reserve currency and unit of account in trade invoicing and debt contracts. By contrast, the ECB did not initiate a digital Euro in pace with the digital Dollar.

While the Euro was not weak enough to warrant the outright use of a stablecoin to peg the Euro to the U.S. Dollar, the ECB took warning from the decline of the Euro in transactions and the Euro's lag behind the US' CBDC. If this delta persists, the Euro would face real risks of becoming strategically substitutable, and any incentives or gains from developing a digital Euro altogether would evaporate. These concerns were observed in the ECB's rapid pivot in its regulatory stance from rejecting cryptocurrencies to building, even learning, from their infrastructure to develop its own digital Euro.

7 | Conclusion

Popular interest and investment in cryptocurrencies have risen without equal over the past decade, whose collective market value now rivals some of the largest market sectors in the world. How have central banks, namely, the ECB responded? This

article has traced the position of the ECB across its discourses, policies, and policy evaluations over time. In so doing, it illustrates two prominent policy states that characterized the ECB's stance toward cryptocurrencies, from neutralization to cooptation, and how this evolution in its regulatory stance was shaped by macroeconomic and global political economic changes.

The ECB began with the recognition that cryptocurrencies threatened the legitimacy of central banks by competing against the use of fiat currencies. However, despite its hostile position against cryptocurrencies, the ECB's lack of regulatory guardrails toward cryptocurrencies and deregulation of PSPs partially permitted their proliferation. Even after the FTX collapse and almost immediately after the MiCA's business continuity guidelines were published in October 2023, for instance, Robinhood launched cryptocurrency trading services in the EU in December.

Amid rising inflation and unemployment in 2020–2022, the ECB made a significant pivot in its stance toward cryptocurrencies. Animated by its push for a new digital Euro, the ECB turned to the cryptocurrencies it once disparaged as a source of design inspiration and public legitimacy, especially stablecoins.

The ECB's emphasis on the need for a “European SEC” in orchestrating a shift to an “open banking system” was a clear shift in regulatory sentiment toward cryptocurrencies. Though cryptocurrencies competed against the Euro as a store of value

and medium of exchange, it was at least a stateless enterprise, and one that commanded public interest and whose transactions could help lower barriers to payments processing in the region. Concomitant with policies that shielded cryptocurrency firms from close monitoring, the ECB grew incentivized to move toward cooptation from a series of global changes.

For one, shifting global price dynamics in cryptocurrencies like Bitcoin energized enthusiasm and broad support for cryptocurrencies, a secular trend that paralyzed regulatory regimes seeking to neutralize or outright ban cryptocurrencies. Price dynamics exhibited three structural breaks that were all positive, and which coincided with major campaigns to loosen regulations surrounding cryptocurrencies, most notably from 2020 onward. These structural breaks hampered the SEC's ability to rein in cryptocurrencies and introduced Congressional motives to embrace them, leading to a series of legal losses for the SEC and political challenges to its legitimacy. This eventually percolated into the classification of cryptocurrencies as commodities, and became a source of isomorphic pressure for Europe, which similarly moved to classify them as financial assets in short order.

Second, the decline of the Euro as a means of payment was a call to action for the ECB to digitalize the Euro. The digital Euro offered the ECB a way to defend against a decline in its use for global payments *and* to catch up with competing sovereign CBDCs, such as the digital Dollar and eRMB, and even nascent currencies by Big Tech firms from the U.S. This confluence of competitive pressures from other currencies and the decline of its own accelerated the ECB's initiatives to digitalize the Euro.

This article raises several policy implications. For one, this article illustrates how, despite the vicissitudes in regulatory crackdowns on cryptocurrencies, policy regimes are gradually softening their attitudes toward cryptocurrencies. The U.S.' movement toward accepting cryptocurrencies was a source of isomorphic pressure for Europe, which will, in turn, become a source of pressure for counterpart regimes worldwide. As they gain in price and in popularity, reining them in is not only a matter of technical or legal capacity, but a political challenge in itself. The SEC's stunning series of legal losses damaged the feasibility of neutralization as a policy state, which resulted in a softening regulatory stance toward cryptocurrencies altogether.

Second, this article illustrates how financial asset classifications are a niche instrument for policy regimes to preserve their legitimacy. This is a policy concession by the SEC and the ECB that preserves their legitimacy. By classifying cryptocurrencies as commodities or assets *rather than* currencies, regulators relieve themselves of political pressure by leaving intact private firms' and individuals' ability to profit from their trade, the main driver for their adoption. Simultaneously, this designation moves cryptocurrencies toward an asset within existing payment channels (such as the inclusion of digital tokens in payments processing, Putrevu and Mertzanis 2024), without becoming one themselves.

Third, this article casts new light on the binary between cryptocurrencies and sovereign currencies as competing stores of value, a relationship paramount to predicting policy decisions about both. Policy decisions about cryptocurrencies are not driven by

competition between sovereign currency *a* and Bitcoin alone, but by an intersection of competitions between sovereign currencies *a*, sovereign currencies *ex-a*, and Big Tech currencies. The fragmenting landscape of digital payments animates complex regulatory decisions, such as the ECB's gradual move to coopt cryptocurrencies rather than neutralize them, circumventing the legal and political challenges that the SEC experienced.

Indeed, this article shows the significance of the digital Euro against other digital currencies. It illustrates how a sovereign currency is a nation-building, and central bank-building, project that intertwines with the adoption of cryptocurrencies. Cong and Mayer (2022), for instance, have asserted that a stablecoin design may even better permit nations with weaker currencies to peg their currencies to the US Dollar. While such solutions are far too drastic for a Euro, its vulnerabilities were made visible by the CBDCs created by the US and China. In this landscape, the ECB assessed that the chief threat to the Euro was not cryptocurrencies, but payments barriers within the European payments systems itself and a digitalizing CBDCs overseas; cryptocurrencies thus became an unlikely resource in the ECB's response to both issues.

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Conflicts of Interest

The author declares no conflicts of interest.

Endnotes

¹The member nations are, in alphabetical order: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, and Sweden.

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Appendix A

See Table A1.

TABLE A1 | Goodness of Fit Tests Using Residual Sum of Squares (RSS) and Bayesian Information Criterion (BIC).

<i>m</i>	RSS	BIC
0	3.176e + 11	1.324e + 04
1	1.028e + 11	1.260e + 04
2	7.544e + 10	1.244e + 04
3	7.014e + 10	1.241e + 04
4	6.982e + 10	1.242e + 04
5	6.980e + 10	1.243e + 04