Arbulú, Italo. 2026. "Bitcoin as Private Fiat: The Regression Theorem and the Limits of Nonanchored Digital Assets." *Quarterly Journal of Austrian Economics* 29 (4): 35–53. https://doi.org/10.35297/001c.173795.

ARTICLES

Bitcoin as Private Fiat: The Regression Theorem and the Limits of Nonanchored Digital Assets

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JEL Classifications: B41 Economic Methodology, B53 Austrian, E40 General, E42 Monetary Systems - Standards - Regimes - Government and the Monetary System - Payment Systems

https://doi.org/10.35297/001c.173795

Quarterly Journal of Austrian Economics

Vol. 29, Issue 4, 2026

This article provides a praxeological and institutional analysis of bitcoin, examining whether it satisfies the conditions required to function as a stable monetary unit within a decentralized economy. Building on the Misesian regression theorem, the article interprets monetary emergence as a process dependent on the existence of nonmonetary demand capable of anchoring expectations of future purchasing power. From this perspective, bitcoin appears to lack such an anchoring mechanism because its valuation relies primarily on expectations of continued acceptance. The analysis considers alternative explanations based on network effects, salability, and supply constraints, including stock-to-flow models and the concept of synthetic commodity money, which emphasize coordination and rule-based monetary design. Although these approaches provide valuable insights into the dynamics of digital monetary systems, they do not fully resolve the problem of anchoring expectations. In the absence of such an anchor, the stability of the monetary unit may depend more heavily on self-reinforcing expectations, with implications for economic calculation and intertemporal coordination. Consequently, bitcoin can be interpreted as a form of private fiat, understood in terms of the limits of nonanchored digital assets. More broadly, the analysis highlights the importance of institutional mechanisms and foundational use value in sustaining monetary stability.

The emergence of bitcoin in 2009 has not only disrupted the global financial landscape but also generated an ongoing debate regarding its nature as a monetary institution. Within the Austrian tradition, this debate has frequently focused on whether bitcoin satisfies the theoretical conditions required for monetary emergence, particularly in relation to the Misesian regression theorem (Sameti et al. 2020; Hernandez Vivas 2025; Davidson and Block 2015; Luther 2016). The question of whether bitcoin can function as money, however, extends beyond its origin and must also be addressed in terms of its capacity to operate as a stable institutional framework for coordinating decentralized economic activity over time (Selgin 2015; Stroukal 2018).

From the perspective of constitutional political economy, monetary systems can be understood as rule-governed institutional arrangements that facilitate coordination under conditions of uncertainty. In this sense, money is not merely a medium of exchange but a foundational mechanism that stabilizes

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expectations, supports intertemporal planning, and enables economic calculation in complex environments (Mises 1949; Klein 2008). The effectiveness of such systems depends not only on their technical characteristics or patterns of adoption but also on their ability to generate and sustain credible expectations within a coherent rule-based order.

Much of the contemporary literature on bitcoin emphasizes network effects, technological innovation, and empirical adoption dynamics; however, these approaches may conflate short-term coordination with long-term institutional stability (Ammous 2018; Luther 2016; Pickering 2019). In contrast, this article adopts a praxeological methodology grounded in deductive reasoning. From this perspective, praxeology serves as a tool for identifying the structural conditions that underpin viable monetary systems, allowing for an evaluation of whether bitcoin satisfies the requirements for sustained coordination and economic calculation (Rothbard 1978; Salerno 2010).

Within this analytical framework, the regression theorem, developed by Mises (1953) in *The Theory of Money and Credit*, plays a central role. The theorem addresses the problem of circularity in monetary valuation by demonstrating that the purchasing power of money must ultimately be traced back to a stage in which the good was valued independently of its monetary function (Simpson and Kjar 2005; García-Monleón et al. 2021). From an institutional standpoint, this can be interpreted as the existence of an anchoring mechanism that connects current expectations of purchasing power to historically established patterns of valuation (Murphy 2023; Paniagua 2017).

Such an anchor performs a critical coordinating function. It provides agents with a stable basis for forming expectations about future prices, thereby supporting the informational role of the price system and enabling intertemporal economic calculation (Mises 1949; Rallo 2023). In the absence of this anchoring mechanism, monetary valuation may become increasingly dependent on expectations of continued acceptance, which can weaken the stability required for effective coordination (Paniagua 2023; Martin and Wenzel 2020). This perspective is consistent with recent contributions in constitutional political economy, which interpret blockchain-based systems as rule-based institutional orders in which coordination emerges through evolving governance mechanisms and shared expectations (Berg et al. 2020).

Against this background, this article examines bitcoin as a case study of a nonanchored monetary system operating within a decentralized and rule-based environment. Although bitcoin introduces a novel framework characterized by algorithmic supply rules and distributed validation, it may lack an independent source of demand capable of sustaining stable expectations of purchasing power. This issue has been partially acknowledged in the literature on synthetic commodity money, which emphasizes bitcoin's scarcity but recognizes its divergence from traditional commodity-based systems (Selgin 2015; Herman 2014). Rather than framing this as a purely doctrinal limitation, the analysis

focuses on the institutional implications of such a configuration, particularly its effects on expectation formation, price stability, and economic coordination.

More specifically, the article argues that, in the absence of a nonmonetary anchoring mechanism, bitcoin relies primarily on expectation-based coordination. Although such coordination may support its use as a medium of exchange in certain contexts (Luther 2016), it may also generate a more fragile structure for intertemporal planning and economic calculation (Stroukal 2018). In this sense, bitcoin can be interpreted as a form of private fiat, defined not by its issuer but by the absence of a commodity anchor and the resulting dependence on decentralized expectations (Hoppe 1994).

The contribution of the article is therefore twofold. First, it reinterprets the regression theorem as an institutional constraint on the stability of monetary systems rather than merely as a historical account of monetary emergence (Hoppe 1994; Zelmanovitz 2015). Second, it applies this perspective to the analysis of digital monetary frameworks, highlighting the conditions under which rule-based systems can—or cannot—support stable economic coordination. By situating the analysis within the broader framework of constitutional political economy, the article seeks to connect Austrian monetary theory with contemporary debates on digital institutions and the governance of monetary order.

The Regression Theorem and the Institutional Role of Premonetary Use Value

The regression theorem remains one of the most frequently misunderstood elements of Misesian monetary theory. In contemporary debates, it is often dismissed as an anachronistic constraint applicable only to physical commodities. Such interpretations, however, overlook its analytical purpose as a solution to the problem of circularity in monetary valuation (Hoppe 1994; Davidson and Block 2015; Stroukal 2018). The theorem establishes that, for an object to function as a medium of exchange, its value must be traceable to a point in time at which it was demanded independently of its monetary role. This condition provides the logical bridge between subjective valuations and observable market prices (Mises 1953).

Although some contemporary authors challenge the internal validity of this formulation, arguing that the theorem introduces an unnecessary or logically defective regression (Rallo 2023), the mainstream Austrian consensus maintains that, within the traditional framework, the demand for money is a derived demand because individuals value money not for direct consumption or production but for its anticipated exchangeability (Rothbard 1978; Salerno 2010; Mayer 2017). Such anticipations, however, cannot emerge without a prior anchor. In the historical case of gold, demand originated in its industrial,

ornamental, and aesthetic properties. This nonmonetary demand provided a value floor that stabilized expectations and ensured that monetary prices remained grounded in broader economic relationships (Hoppe 1994).

From an institutional perspective, this premonetary demand can be interpreted as a coordination anchor. By linking current valuations to a historically established pattern of use, it provides agents with a stable basis for forming expectations about future purchasing power (Paniagua 2017; Murphy 2023). In this sense, the regression theorem does not merely describe a historical sequence but identifies a necessary condition for the emergence of a stable unit of account capable of supporting economic coordination.

Recent contributions to the economic literature have proposed alternative interpretations of this mechanism in the context of cryptocurrencies (Davidson and Block 2015; Pickering 2019; Luther 2016). These approaches emphasize coordination processes, network effects, and subjective valuation as sufficient conditions for monetary emergence, even in the absence of a traditional commodity origin. Luther (2016), for example, argues that monetary emergence should be understood primarily as an outcome of market coordination rather than as strictly dependent on preexisting nonmonetary use. Although this perspective highlights important features of salability and network adoption, it implicitly treats the regression theorem as a contingent historical pattern rather than as a structural constraint on price formation.

From a praxeological standpoint, this reinterpretation raises a fundamental issue. The theorem requires an asset to have subjective nonmonetary utility—that is, a source of valuation that would persist even if the asset did not function as a medium of exchange (Rothbard 1978; Herman 2014). This requirement is not merely semantic; it ensures that monetary valuation is anchored in independent, subjective preferences rather than in purely circular expectations.

Here, a clarification regarding Misesian terminology is necessary. In English translations of Mises (1953), the term *industrial demand* is frequently employed to denote nonmonetary demand. This phrasing, however, should not be misinterpreted through the lens of objective value theories or mistaken for a requirement of utility in physical manufacturing. Within the subjective-value framework of the Austrian tradition, *industrial* simply refers to any direct, subjective valuation of the asset's properties—whether ornamental, aesthetic, or technological—independent of its anticipated use as a medium of exchange. To avoid the objective connotations historically associated with the classical dichotomy between use value and exchange value, this analysis treats the premonetary anchor strictly as a matter of subjective valuation in direct use rather than subjective valuation in indirect exchange.

Proponents of bitcoin often argue, following Davidson and Block (2015), that its technological features—particularly the blockchain infrastructure—constitute the relevant form of use value. This argument, however, conflates the utility of a transaction mechanism with the valuation of the asset itself. Unlike gold's nonmonetary uses, which exist independently of its price, bitcoin's functionality is contingent upon its purchasing power. If the token loses exchange value, the incentives sustaining the network collapse, and its utility disappears. Consequently, this form of utility is postmonetary rather than premonetary because it derives from and depends upon the very valuation it is meant to explain.

This distinction is critical from both praxeological and institutional perspectives. When valuation depends entirely on expectations of future acceptance, the system becomes self-referential. The asset is valued because it is expected to be accepted, and it is accepted because it is valued. In the absence of nonmonetary demand that can function as a value floor, such expectations lack a stable anchor, generating an inherently fragile coordination mechanism.

In this context, bitcoin can be understood as a case of purely monetary valuation. Its purchasing power is sustained exclusively by expectations, without any independent demand that could stabilize those expectations in periods of uncertainty. This does not preclude its use as a medium of exchange in specific contexts, but it does raise questions about its capacity to function as a stable unit of account for long-term economic calculation (Martin and Wenzel 2020).

This issue is further clarified by the classification of bitcoin as synthetic commodity money (Selgin 2015). Although this label highlights its scarcity and rule-based supply, it obscures the absence of nonmonetary use. From an institutional perspective, a more precise characterization is *private fiat*. Unlike traditional fiat money, which relies on state backing and legal enforcement, bitcoin operates without centralized authority. It shares a key feature with fiat systems, however: the absence of a commodity anchor. Its value depends entirely on expectations sustained within a decentralized framework rather than on independent sources of demand.

This creates what can be described as institutional fragility. Without mechanisms capable of providing a credible anchor for expectations, the system relies on a continuous process of expectation reinforcement. In such a context, price discovery becomes driven primarily by shifts in perceived future acceptance rather than by underlying patterns of subjective demand. As Mises (1949, 325–27) emphasized, this type of process is characteristic of speculative dynamics, in which market participants focus increasingly on anticipating the evaluations of other actors rather than anchoring their transactions in the underlying structure of real economic relationships.

Finally, although utility remains a subjective concept, the regression theorem imposes a structural constraint on how that utility must be organized over time. Subjectivism does not imply that any object can become money through narrative or convention alone. For monetary prices to be integrated into the system of economic calculation, they must be grounded in a form of demand that exists independently of the act of exchange. Substituting purely technological or network-based utility for this independent demand disregards the historical continuity of monetary valuation and risks reintroducing the very circularity that the theorem was designed to resolve.

Industrial Demand and the Problem of *Moment Zero* in Monetary Emergence

To further clarify the implications of the regression theorem, it is necessary to examine Mises's distinction between *industrial demand* and *monetary demand*. In *The Theory of Money and Credit*, Mises did not merely describe the historical emergence of money but sought to explain the logical derivation of purchasing power for any medium of exchange. According to this framework, the price of money must originate in a prior stage in which the good was valued for its direct utility, independently of its role in exchange (Herman 2014).

This analytical requirement can be conceptualized as the identification of a *moment zero*—a point in time at which the price of a good is determined exclusively by its nonmonetary utility. From a praxeological perspective, this moment provides the initial data required for the formation of monetary prices. From an institutional perspective, it can be interpreted as the origin of a coordination anchor that allows agents to form expectations about future purchasing power (Murphy 2023).

For a digital asset such as bitcoin to satisfy this condition, there must have been a period in which the asset was demanded for reasons unrelated to its anticipated exchangeability. Proponents of bitcoin, however, often conflate interest in the technological innovation with demand for the asset itself. As several authors note, valuing the idea of a decentralized monetary system is not equivalent to valuing a good for its direct utility (Ammous 2018; Pickering 2019). The distinction is critical because only the latter can provide an independent basis for price formation.

Within the Misesian framework, industrial demand is not a contingent or optional feature of monetary evolution but a necessary condition for the emergence of monetary valuation. It provides the initial structure upon which expectations about exchange value can be formed. Without such a foundation, agents lack both the logical and the psychological bases required to engage in economic calculation (Rallo 2023). In institutional terms, the absence of a nonmonetary anchor undermines the ability of the system to generate stable expectations.

This issue can be further clarified through the relationship between scarcity and value. Although scarcity is often presented as a defining characteristic of monetary assets, it is economically meaningful only when it applies to goods that are already valued for independent purposes. As emphasized in the Austrian tradition, scarcity alone cannot generate value in the absence of prior demand (Harper and Endres 2023). Attempts to construct monetary value purely on the basis of algorithmic scarcity fail to address this requirement.

From this perspective, bitcoin represents a departure from the evolutionary logic identified by Mises. As Selgin (2015) suggests, it may be classified as a synthetic monetary instrument, but this classification does not resolve the underlying issue: the absence of a nonmonetary phase in its valuation. Without a clearly identifiable moment zero, the process of price formation lacks the historical grounding necessary to establish a stable unit of account.

The absence of this foundation has implications beyond the origin of monetary prices. It also affects the capacity of the system to support economic calculation (Martin and Wenzel 2020). If expectations about purchasing power cannot be anchored in independent sources of demand, they remain dependent on ongoing processes of expectation reinforcement. This creates an inherently fragile structure in which valuation is sustained not by underlying economic relationships but by the anticipation of future acceptance.

Consequently, the problem of the moment zero is not merely a historical question but a structural one. It identifies a necessary condition for the stability of monetary systems: the existence of a nonmonetary demand capable of anchoring expectations over time. In the absence of such demand, the emergence of a stable and predictable unit of account becomes increasingly problematic, raising fundamental questions about the viability of purely digital monetary frameworks.

This analytical problem remains unresolved even in light of the earliest bitcoin transactions, most notably the celebrated purchase of two pizzas for ten thousand bitcoins on May 22, 2010. Proponents might argue that this transaction represents a documented moment zero, proving that bitcoin was subjectively valued before it achieved widespread acceptance as a medium of exchange. From a praxeological perspective, however, this exchange does not satisfy the structural requirement of the regression theorem. For the transaction to escape circularity, the economic agents' subjective valuation of the ten thousand bitcoins would have to derive from the tokens' direct utility in use (an independent, nonmonetary service). In reality, the valuation of the tokens in this early exchange was fundamentally speculative and anticipatory; the asset was demanded solely because of its digital design and its potential to act as a future medium of exchange. Because the token itself provided no direct, nonmonetary satisfaction to either the buyer or the seller, the subjective value attributed to it was postmonetary in nature, remaining entirely dependent on the expectation of future market coordination. Consequently, rather than

demonstrating a true premonetary anchor, the pizza transaction illustrates the very onset of the expectation-based, self-referential valuation process that characterizes private fiat.

Monetary Instability and the Limits of Economic Calculation

A central implication of the failure to satisfy the regression theorem is not merely theoretical but institutional because this failure directly affects the capacity of a monetary system to sustain rational economic calculation (Pickering 2019; Paniagua 2023). In the Misesian tradition, economic calculation constitutes the core coordinating mechanism of the market economy. It enables entrepreneurs to compare heterogeneous inputs and outputs through prices expressed in a common unit, thereby guiding resource allocation across time. As Mises (1949) emphasizes in *Human Action*, this process requires a unit of account that is sufficiently integrated into the historical structure of prices to allow meaningful comparison.

From an institutional perspective, economic calculation can be understood as a process of expectation coordination. Entrepreneurs must evaluate present costs against anticipated future revenues, forming judgments about profitability based on the relative stability of monetary prices. This is not a purely arithmetic operation but a forward-looking process of appraisal and anticipation. Consequently, the reliability of the monetary unit is not a peripheral attribute but a necessary condition for the coordination of decentralized plans in a complex economy (Paniagua 2023).

In this context, the stability of the unit of account becomes a central requirement. A monetary system must provide a sufficiently stable reference point to allow agents to distinguish between profit and loss in a meaningful way. This stability does not imply constancy of purchasing power but rather the existence of an anchor that limits volatility and grounds expectations in underlying economic relationships (Harper and Endres 2023). Historically, such stability has been associated with monetary goods possessing independent, nonmonetary sources of demand.

Bitcoin lacks this anchor. In the absence of a nonmonetary value floor, its purchasing power is determined primarily by expectations of future acceptance, making it particularly sensitive to shifts in sentiment, narratives, and speculative demand (Luther 2016). From a praxeological perspective, this implies a form of *subjective elasticity* in which the valuation of the asset is not constrained by underlying demand but fluctuates in response to changing expectations. From an institutional standpoint, this translates into a weak coordination mechanism because agents lack a stable basis for forming intertemporal expectations.

These limitations become especially evident in the intertemporal structure of production. The Austrian theory of capital emphasizes that production processes unfold over time and require the coordination of resources across

multiple stages (Mulligan 2006; Herbener and Rapp 2016; Rapp et al. 2018). Contracts, wages, investment decisions, and debt obligations depend on a shared unit of account that remains sufficiently stable throughout the production cycle. If this unit exhibits high volatility, the informational content of prices is degraded.

In such a scenario, the distinction between profit and loss becomes increasingly ambiguous. A production process that is technologically efficient may appear unprofitable if the unit of account appreciates drastically during the production period, whereas an inefficient process may appear profitable due to favorable monetary fluctuations. In institutional terms, this represents a breakdown in the signaling function of prices. Rather than reflecting relative scarcities, price movements become dominated by fluctuations in the monetary unit itself, thereby impairing the coordination of economic activity.

Proponents of bitcoin often argue that similar fluctuations have historically occurred under commodity standards such as the gold standard. This comparison, however, overlooks a key difference. In commodity systems, price movements are bounded by underlying factors such as production costs and alternative uses (Rothbard 1985; Howden 2008). Declines in price tend to stimulate nonmonetary demand, whereas increases incentivize additional production. These mechanisms create a degree of feedback that limits volatility.

Bitcoin lacks such mechanisms. Its supply is inelastic, governed by an algorithm rather than by market responses to price changes (Herman 2014). As a result, any shift in demand is reflected almost entirely in price movements. In the absence of a nonmonetary demand floor, there is no independent mechanism capable of stabilizing purchasing power. From an institutional perspective, this leads to a form of unbounded volatility that is incompatible with the requirements of a reliable unit of account.

For this reason, bitcoin may be understood as a "floating" monetary instrument (Stroukal 2018). It can facilitate exchanges as a payment mechanism, but it lacks the properties required to serve as the common denominator for economic calculation. Using such a unit of account is analogous to measuring economic activity with a constantly shifting standard. The resulting uncertainty reduces the informational content of prices and undermines the coordination of production decisions.

More broadly, this analysis highlights the relationship between monetary structure and institutional stability (Paniagua 2023). Economic calculation depends not only on the existence of prices but also on their integration into a coherent and predictable system (Martin and Wenzel 2020). When the unit of account itself becomes a primary source of volatility, the price system loses its capacity to coordinate decentralized knowledge. In such an environment, resource allocation becomes increasingly disconnected from underlying consumer preferences and production constraints.

Finally, this discussion clarifies the implications of the regression theorem for modern monetary arrangements. The requirement of a nonmonetary anchor is not merely a condition for the historical emergence of money but a structural condition for its continued functionality. Without such an anchor, valuation becomes self-referential, and the institutional foundations of economic calculation are weakened. In this sense, the limitations of bitcoin are not incidental but stem from the absence of the conditions necessary to sustain a stable and predictable monetary order.

Catallactic Perspectives: Historical Anchors and Expectation Formation

To further clarify the differences between commodity-based monetary systems and digital monetary frameworks, it is useful to consider how individual actors form expectations about value within specific institutional contexts. In the Misesian tradition, value is subjective, yet it is not arbitrary. It is shaped by the actor's perception of the underlying properties of goods and their historical position within the market process (Harper and Endres 2023). From an institutional perspective, this implies that monetary stability depends not only on individual preferences but also on the existence of shared expectations grounded in historically established patterns of valuation.

A comparison of two ideal-typical actors illustrates this distinction: a merchant operating under the Coinage Act of 1792 and a contemporary bitcoin user following the publication of the 2008 white paper introducing bitcoin. These cases represent different environments for expectation formation and reveal how monetary systems depend on the structure of underlying valuation processes.

For the merchant of 1792, the acceptance of a silver coin did not rely primarily on expectations about future acceptance but on the immediate recognition of its underlying value. The coin represented a claim to a multipurpose commodity whose worth was independently established through industrial, ornamental, and cross-market uses. Even in the absence of a formal monetary framework, the actor could rely on the residual utility of silver as a fallback source of value. In this sense, the monetary system was supported by a decentralized but robust network of expectations anchored in the material properties of the commodity.

From an institutional standpoint, this configuration provided a strong coordination mechanism. The purchasing power of money was embedded within a broader structure of demand, enabling agents to form expectations with a high degree of confidence. Monetary stability did not depend exclusively on the continued acceptance of the coin in exchange but also on the persistence of independent sources of demand that limited the extent of valuation fluctuations.

In contrast, the user of bitcoin operates within a different expectation framework. The acquisition of a digital token does not confer access to a multipurpose good but rather to a unit whose valuation depends almost entirely on its anticipated acceptance by others. The token itself does not embody independent use value; instead, its functionality is contingent upon the operation of a technological network and the continued participation of other users.

From a praxeological perspective, this implies that the actor is holding a claim whose value is conditional on future market coordination rather than on independently established demand. From an institutional perspective, it reflects a system in which expectations are formed primarily through recursive beliefs: Agents value the asset because they expect others to do so, and this expectation becomes the primary driver of demand.

This distinction has important implications for the stability of the monetary system. In commodity-based systems, demand is partially decoupled from monetary expectations, which provides a stabilizing effect. In contrast, in purely digital frameworks without a nonmonetary anchor, demand is fully coupled to expectations about future exchangeability. This configuration increases the sensitivity of the system to shifts in sentiment and reduces the robustness of the coordination mechanism.

The difference can also be understood in terms of historical price continuity. Commodity-based monetary systems emerge gradually, with prices evolving from preexisting exchange relationships. This process preserves informational continuity and allows agents to integrate new price relations into an already established structure. By contrast, the introduction of a new digital unit of account without a prior price history requires valuations to be formed in a context lacking such continuity.

As a result, price discovery becomes more dependent on speculative dynamics and less constrained by underlying economic relationships. Although this does not preclude the emergence of temporary equilibria, it complicates the formation of stable expectations over time. In the absence of a nonmonetary anchor, agents rely on narrative-based coordination, which is inherently more volatile than coordination based on independent demand structures.

Consequently, the contrast between the merchant of 1792 and the contemporary bitcoin user reflects a broader shift in the institutional basis of monetary systems. The former operates within a framework in which value is grounded in historically accumulated uses, whereas the latter operates within a system in which value depends predominantly on expectations about future acceptance. This shift does not necessarily eliminate the possibility of monetary coordination, but it alters the conditions under which such coordination can be sustained.

Ultimately, this analysis reinforces the central insight of the regression theorem. A nonmonetary foundation is not merely a historical artifact but a mechanism that supports the formation of stable expectations. When this mechanism is absent, the resulting monetary system relies more heavily on self-referential dynamics, which may suffice for transactional purposes but present challenges for long-term stability and economic calculation.

Digital Scarcity and the Limits of Supply-Based Monetary Explanations

In recent years, a growing body of literature has attempted to reconcile bitcoin with the Austrian tradition by emphasizing its supply characteristics (Hernandez Vivas 2025). One of the most prominent approaches, adapted into Austrian terminology by Ammous (2018), builds upon the concept of stock-to-flow and the notion of absolute scarcity. According to this view, bitcoin's fixed supply of twenty-one million units represents an ideal form of hard money, potentially superior to commodity monies such as gold, whose supply can respond to price incentives (Ammous 2018; Selgin 2015). From this perspective, which echoes quantitative scarcity frameworks popularized in digital monetary spheres, monetary stability is interpreted primarily as the outcome of predictable and inelastic supply rules.

Although these approaches provide important insights into the role of scarcity and monetary discipline, they rely on an implicit assumption that supply constraints alone are sufficient to generate stable monetary value. From praxeological and institutional perspectives, however, this assumption conflates necessary and sufficient conditions for monetary stability. As emphasized by Bagus (2015) and Harper and Endres (2023), scarcity acquires economic significance only when it constrains access to a good that is already valued for its capacity to satisfy human needs. In the absence of such prior demand, scarcity does not provide a stable basis for valuation but rather leaves price formation dependent on expectations that may fluctuate over time (Herman 2014).

A related line of argument emphasizes the role of network effects and market coordination in the emergence of money. In this view, bitcoin's value derives not primarily from a preexisting commodity use but from its increasing acceptability and salability across time and space (Luther 2016; Davidson and Block 2015; Pickering 2019). These approaches highlight that monetary emergence may be understood as a coordination process in which expectations regarding future acceptance become self-reinforcing. From this perspective, salability and network adoption play a central role in the development of monetary systems, particularly in digitally mediated environments.

Although network-based explanations capture relevant aspects of monetary coordination, they do not fully resolve the problem of initial valuation identified by the regression theorem (Mises 1953; Rothbard 1978).

Coordination mechanisms can reinforce expectations once a price structure is established, but they may be less effective in generating stable expectations in the absence of an independent demand anchor (Rallo 2023). In this sense, network effects can be understood as amplifying mechanisms rather than foundational ones because their effectiveness depends on the stability of the expectations they help to sustain.

Another influential approach, advanced by Selgin (2015), characterizes bitcoin as a form of "synthetic commodity money." This interpretation emphasizes bitcoin's rule-based supply and its independence from discretionary monetary authorities, drawing an analogy with commodity monies and acknowledging its digital nature (Stroukal 2018). From this perspective, bitcoin's scarcity and algorithmic issuance provide a substitute for the physical constraints present in traditional commodity systems.

This classification captures important features of bitcoin's design, particularly its resistance to discretionary manipulation. At the same time, it raises questions regarding the role of nonmonetary demand in stabilizing purchasing power. Unlike traditional commodities, whose value is supported by industrial or consumption uses, bitcoin remains largely dependent on expectations of future exchangeability for its valuation (Herman 2014; Rallo 2023). As a result, its stability may depend more heavily on the persistence of coordinated beliefs than on independently grounded demand structures (Luther 2016).

From an institutional standpoint, these different perspectives can be seen as highlighting complementary dimensions of monetary systems. Supply rules, network effects, and expectations all contribute to the functioning of money (Salerno 2010; Mayer 2017). Their relative importance, however, depends on the presence of mechanisms that connect present valuations to stable sources of demand. Without such mechanisms, coordination processes may remain more sensitive to shifts in sentiment and less capable of supporting long-term economic calculation (Mises 1949; Rapp et al. 2018).

In this context, the emphasis on digital scarcity as the defining feature of monetary stability appears incomplete. Although predictable supply rules can reduce certain sources of uncertainty, they do not necessarily provide an anchor for expectations of purchasing power (Hoppe 1994). As a result, the stability of such systems may depend more heavily on ongoing processes of expectation coordination, which can introduce additional volatility into the price system (Stroukal 2018).

Overall, supply-based explanations of bitcoin's value, including those grounded in stock-to-flow models, offer valuable insights into the role of scarcity and monetary rules; however, they do not fully address the institutional conditions required for stable monetary coordination. In particular, they leave open the question of how expectations can be anchored

in the absence of independent demand. This question remains central to the evaluation of bitcoin's capacity to function as a stable unit of account within a decentralized economic system (Martin and Wenzel 2020; Paniagua 2023).

Institutional Implications of Nonanchored Monetary Systems

From a praxeological perspective, the defining feature of fiat money is not its issuer but the absence of a nonmonetary anchor. As Hoppe (1994) argues, fiat money emerges when a medium of exchange becomes detached from independent sources of demand and relies instead on expectations of continued acceptance. In this sense, the distinction between public and private issuance is secondary to the underlying structure of valuation. Bitcoin, despite its decentralized and nonstate nature, shares this structural characteristic, which justifies its classification as a form of private fiat money.

The notion of private fiat is analytically useful because it shifts the focus from institutional origin to the conditions that sustain monetary value. Although bitcoin differs from traditional fiat systems in its rules of issuance, it similarly lacks a commodity foundation that could serve as an anchor for expectations. As a result, its valuation depends largely on shared beliefs regarding future acceptance rather than on independently established demand structures. From an institutional perspective, this configuration places greater weight on expectation coordination and less on underlying anchors of value.

The implications of this structure extend beyond monetary theory into the broader functioning of economic systems. In the Austrian tradition, money is regarded as a central institution that enables the coordination of decentralized decisions (Klein 2008). Its reliability as a unit of account is essential for the preservation of economic calculation and, by extension, for the efficient allocation of resources. When the unit of account lacks a stable anchor, the ability of agents to form consistent expectations becomes more limited.

One consequence of this configuration is an increased sensitivity of valuation to shifts in sentiment and narrative. When demand is not supported by nonmonetary uses, fluctuations in expectations play a larger role in determining prices. This does not imply that such systems cannot function in practice, but it does suggest that their stability may depend more heavily on the persistence of shared beliefs. In such environments, price dynamics may exhibit characteristics commonly associated with speculative processes, including rapid expansions and contractions in valuation (Mises 1949).

Another implication concerns the allocation of capital. When monetary valuation is highly dependent on expectation-driven dynamics, there is a greater risk that price signals will reflect short-term shifts in sentiment rather than underlying economic conditions. From an institutional standpoint, this can complicate the coordination of long-term investment decisions and reduce the informational content of prices as guides for resource allocation.

A further consideration is the dependence of digital monetary systems on technological infrastructure. Unlike commodity-based monetary regimes, which are grounded in physical goods with independent uses, systems such as bitcoin rely on the continuous operation of specific technological networks. Although these networks provide efficiency gains in certain respects, they also introduce new forms of dependence. The reliability of the monetary system becomes contingent upon factors such as network integrity, energy availability, and the persistence of the underlying protocol.

This shift from physical to digital anchoring alters the nature of monetary resilience. In commodity-based systems, the underlying asset retains value independently of the institutional framework. In digitally based systems without nonmonetary demand, the persistence of value is more closely tied to the continuity of coordinated expectations and technological functionality. From an institutional perspective, this represents a different configuration of risk rather than a simple increase or decrease in efficiency.

Finally, the analysis suggests that the evaluation of monetary innovations requires careful attention to the conditions that sustain value over time. Although digital monetary systems may offer advantages in terms of transaction efficiency and decentralization, their long-term viability depends on their capacity to generate stable expectations and to integrate into the broader structure of economic coordination. The absence of a nonmonetary anchor does not necessarily prevent adoption, but it raises important questions regarding the stability and resilience of the resulting monetary order.

In this sense, the contribution of the regression theorem extends beyond its historical interpretation. It provides a framework for understanding the institutional conditions under which monetary systems can support economic coordination. When these conditions are not satisfied, monetary arrangements may become increasingly dependent on self-referential dynamics, with important implications for their role as units of account and as foundations of economic calculation.

Conclusion

This article has examined the monetary characteristics of bitcoin from a praxeological perspective, situating the analysis within a broader institutional framework concerned with the coordination of economic activity. Rather than evaluating bitcoin solely as a technological innovation or as a medium of exchange, the article has focused on the structural conditions under which a monetary system can provide a stable unit of account capable of supporting decentralized decision-making over time.

The analysis has highlighted that the emergence and stability of monetary systems depend not only on supply rules or patterns of adoption but also on the existence of mechanisms that can anchor expectations of future purchasing power. In this context, the regression theorem has been interpreted as

identifying a coordination constraint: Monetary valuation requires a connection between present prices and independently grounded sources of demand. This anchoring mechanism plays a central role in stabilizing expectations and allowing agents to engage in meaningful economic calculation.

Within this framework, bitcoin can be understood as a monetary system in which this anchoring mechanism appears to be absent. Its valuation depends primarily on expectations of future acceptance, supported by network effects, algorithmic supply rules, and decentralized governance structures. As discussed in this article, these features contribute to the functioning of bitcoin as a medium of exchange and as a system of rule-governed interaction; however, they may not fully substitute for the stabilizing role played by nonmonetary demand in traditional monetary systems.

The consideration of alternative perspectives—particularly those emphasizing salability, network effects, and the concept of synthetic commodity money—suggests that monetary coordination can, to some extent, emerge from expectation-based mechanisms. These approaches provide valuable insights into the dynamics of digital monetary systems and highlight the role of institutional rules in shaping adoption and use. At the same time, they leave open the question of whether such mechanisms can sustain sufficiently stable expectations of purchasing power to support long-term economic calculation.

From an institutional perspective, this issue can be understood as a problem of expectation coordination within rule-based systems that lack an independent demand anchor. Although bitcoin's design introduces credible constraints on supply, it does not necessarily provide a mechanism that ties its valuation to broader patterns of economic demand. As a result, its stability may depend more heavily on the persistence of shared beliefs and coordinated expectations, which may be more sensitive to shifts in sentiment and less robust in the face of uncertainty.

These considerations have direct implications for economic calculation. As emphasized in the Austrian tradition, the role of money as a unit of account is essential for coordinating production processes across time. When the purchasing power of the monetary unit is primarily driven by expectation-based fluctuations, the informational content of prices may be weakened, making it more difficult for agents to distinguish between relative changes in scarcity and changes in the valuation of the monetary unit itself. In such a context, the coordination of intertemporal plans becomes more challenging.

Taken together, these findings suggest that bitcoin can be interpreted as a form of private fiat, understood not in terms of its issuer but in terms of the structural characteristics of its valuation process. This does not imply that bitcoin cannot play a role in specific transactional contexts or that expectation-

based monetary arrangements are inherently unstable. Rather, it highlights the institutional conditions under which such systems may face limitations in serving as stable units of account.

More broadly, the article contributes to ongoing discussions in constitutional political economy by emphasizing the relationship between monetary design, institutional rules, and expectation formation. It suggests that the long-term viability of digital monetary systems depends not only on their technological architecture but also on their capacity to generate stable and predictable environments for economic coordination. In this sense, the analysis points toward a broader research agenda focused on the institutional foundations of monetary stability in an increasingly digital and decentralized economic landscape.

Submitted: June 02, 2026 CST. Accepted: August 24, 2026 CST. Published: November 30, 2026 CST.

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