# RECONFIGURING VALUE: AN ACTOR-NETWORK THEORY STUDY OF GOLD, CRYPTOCURRENCY, AND ISLAMIC FINANCIAL FUTURES

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***Abstract***

This study seeks to map the sociotechnical network using Actor Network Theory (ANT) analysis. By employing ANT, it is possible to map how gold and oil drive the Global Banking Regime along with the United States to shift the accumulation of activity toward the dollar and the financial system they have designed. The pattern adopted by global and American banking is actually the same, except that in the past, the world was tied together by gold, whereas now it is through the system along with oil as the stabilizer in its sociotechnical network. In addition, ANT also maps how crises always create opportunities for the emergence of innovation and new regimes within a global system. Blockchain and crypto serve as examples that, in order to seize such opportunities, a regime or actor must take various actions to capitalize on them. The task of Islamic banking in this regard is not to overhaul the existing system, but to prepare a new ecosystem for future crises. Gold-backed crypto does not need to immediately become a currency; Islamic banks can prepare this ecosystem as a platform for digital gold investment and become one of the central bodies for global gold-backed crypto.

***Keywords:*** Gold, Blockchain, Cryptocurrency, Actor–Network Theory, Islamic Financial System.

## INTRODUCTION

The development of cryptocurrency began attracting widespread attention after Satoshi Nakamoto introduced Bitcoin in 2009 through his white paper, "Bitcoin: A Peer-to-Peer Electronic Cash System." Bitcoin was initially designed as a digital payment mechanism that allows users to transact directly without relying on financial intermediaries. However, over time, Bitcoin has been increasingly viewed as an investment asset, whose value has risen significantly (Xie, 2019). The white paper also highlights the role of blockchain as a distributed ledger system that functions like a secure and transparent digital record, independent of any central authority (Nakamoto, 2009).

Nevertheless, the emergence of cryptocurrency has sparked debate across various countries and global institutions. Many view it as a disruption to conventional financial systems and consider its high volatility a risk to economic stability. China, for instance, began tightening regulations as early as 2013, ultimately banning all crypto related transactions in 2021 (Xie, 2019). The World Bank declined to support El Salvador's plan to adopt Bitcoin as legal tender due to concerns over transparency and the environmental impact of mining activities (Fauzan, 2025). In the context of Islamic economics, authorities such as Egypt and the Indonesian Council of Ulama (MUI) have likewise prohibited the use of cryptocurrency as a currency, arguing that it involves elements of gharar and dharar and conflicts with existing financial regulations (Salleh & Rani, 2024)

Various forms of rejection indicate that the emergence of cryptocurrency, specifically Bitcoin, has triggered diverse actions and dynamics. Yet, Bitcoin represents only a small part of the broader development of cryptocurrencies. Previous research underpinning this study examined the evolution of crypto innovations using the Multi-Level Perspective framework. That study analyzed the technological transition of blockchain through the dynamics of landscape, regime, and niche to understand how crypto innovations challenge established financial structures. The findings showed that developments at the landscape level, such as crises, ideological shifts, the COVID-19 pandemic, regulatory changes, and innovation processes by various crypto actors, created space for cryptocurrencies to gain certain legitimacy within financial regimes (Fauzan, 2025).

Nevertheless, MLP has its limitations. The study found, for instance, that ideologies like capitalism

influence multiple regimes, and that the emergence of gold as the underlying asset of certain cryptocurrencies presents opportunities for the development of Islamic banking. These phenomena are not fully explained by MLP, which focuses primarily on technological transitions across structural levels and does not adequately address the ideological dimension or the agency of gold and crypto within sociotechnical networks. Therefore, the present study extends this research by employing the Actor Network Theory (ANT) framework, shifting the analysis from structural levels to the network processes formed among blockchain technology, gold, financial institutions, regulators, market narratives, and Islamic financial norms.

## METHODOLOGY

This research uses a qualitative approach with a case study method to analyze sociotechnical networks using the Actor Network Theory (ANT) framework. ANT is an approach in sociotechnical studies developed by Bruno Latour to understand how social phenomena are formed through networks of relationships between humans and non-humans (Latour, 2007). In ANT, all entities, including technology, institutions, material objects, regulations, and digital devices, have the capacity to act as actors to influence and shape network dynamics.

This approach is employed because ANT enables the researcher to trace the formation and reconfiguration of networks shaped by the emergence of cryptocurrency. Through this perspective, blockchain is examined as a technological inscription that may reposition gold within future financial architectures, while the interactions among actors linked to gold and cryptocurrency are understood as contributing to shifts in the broader sociotechnical landscape. This includes the dynamics of the technology regime, the banking regime, governmental regulatory structures, and the institutional arrangements of Islamic finance.

## RESULT AND DISCUSSION

### Can Cryptocurrency Be Seen as Blockchain Technology?

So far, crypto and blockchain have often been discussed separately, with several misconceptions suggesting that crypto is only about Bitcoin, digital coins, or digital investments without appreciating the sophistication of blockchain technology. Crypto could not exist without blockchain technology, and blockchain might not have become prominent without Bitcoin as the first and most popular cryptocurrency to date. There is also little discussion regarding the advent of Bitcoin as a form of disappointment with the global banking system.

Crypto was born as a protest against central banks, which frequently used public funds to bail out large financial institutions, including private companies. For example, in 2009, the UK government allocated £137 billion to rescue RBS and Lloyds, which subsequently became semi private banks (Mor, 2018). This move drew criticism for favoring private entities, eroding public trust, and fueling anti central bank sentiment one example being from technology actors like Satoshi Nakamoto.

The emergence of Bitcoin represents a realworld implementation of blockchain technology (Nakamoto, 2009). Blockchain itself is a decentralized digital ledger system distributed across many computers, organized into data blocks that are chronologically linked (Suprayitno et al., 2024). In this way, each transaction is copied to thousands of computers on a global network managed cryptographically (Fauzan, 2025). This system enables finance to become more transparent, secure, and free from third party intervention, while Bitcoin's peer to peer transactions are publicly accessible.

In 2015, Buterin launched the Ethereum Blockchain with the concept of smart contracts and the Ethereum Virtual Machine, expanding blockchain's functionality beyond monetary transactions to the decentralization of global applications (dApps) without intermediaries (Buterin, 2015). Ethereum enables the creation of applications, games, business agreements, and automated voting. In 2016, the ambitious project The DAO attempted to implement a bossless company using smart contracts, where token holders had voting

rights and could automatically transfer Ethereum to approved projects (Siegel, 2023). This project failed due to a hack, causing a community split, but it became the forerunner of digital contracts.

By 2020, decentralized finance (DeFi) systems started to materialize within the Ethereum ecosystem, enabling intermediary free transactions via smart contracts including lending, saving, trading, and investing using crypto wallets (Fauzan, 2025). The surge in activity, or the DeFi Boom, was supported by popular projects such as Uniswap, Compound, Aave, Curve, and Maker DAO, which provided high returns for token miners and attracted great enthusiasm (Fauzan, 2025; Gogol et al., 2024).

Beyond finance, Ethereum has fostered a blockchain gaming ecosystem with The Sandbox and Decentraland, and has supported digital art through NFTs traded on platforms like OpenSea, opening up new economic opportunities (Fauzan, 2025; Olive, 2020; Silva et al., 2024).

**The Evolution of Gold in Global Economics**

History shows that as far back as five thousand years ago, around 2500 BC, gold was already used as a medium of exchange in the civilizations of Egypt and Mesopotamia. At that time, gold was still traded by weight, not yet in the form of coins (Wilk & Weatherford, 1998). Gold officially became currency in the form of electrum coins around 600 BC in the Kingdom of Lydia. This practice was adopted by various civilizations such as the Persians, Greeks, and Romans, remained stable in medieval Europe, and then became the modern monetary standard after Britain enacted the Gold Standard in 1816 (Spahr, 1945). Eventually, the gold standard based on gold coins ended with the outbreak of World War I in 1914 (Hokianto et al., 2023). Nevertheless, after World War I, gold continued to serve as the basis for currency issuance until it ceased in 1971. At that time, US President Richard Nixon ended the dollar's convertibility into gold and initiated the use of fiat money under a floating exchange rate system (Helleiner, 2016).

Fiat money did not emerge purely by design but was the result of global conditions that forced the United States to stop printing gold-backed currency. The Bretton Woods system required every country to use the dollar as a reserve currency, pegging their exchange rates to the dollar, and exchanging dollars for gold, which led to a dependency on the dollar (Helleiner, 2016). However, this dependency was not entirely beneficial for the US, as it resulted in high inflation, depletion of gold reserves, and a very high demand for gold that led to a situation where the amount of dollars far exceeded the gold reserves (Hokianto et al., 2023). This situation created the Triffin Dilemma: on one hand, the US had to print large amounts of dollars to supply the world, which diminished global confidence in the dollar, and on the other hand, America's gold reserves were drastically depleted due to rising demand (Bini Smaghi, 2011). This was the basis for President Nixon's decision to implement a floating exchange rate system to save the US from bankruptcy.

In Islamic history, gold was used in the form of the dinar as the official currency during the Prophet Muhammad's era, around the 6th–7th centuries AD (570–632 AD), by the Rightly Guided Caliphs, and throughout Islamic dynasties until the fall of the Ottoman Empire in 1923 (Hasan, 2017). In Islamic economics, gold and silver hold a fundamental position both were used by the Prophet Muhammad SAW as monetary units in Mecca and Medina, served as the basis for zakat calculation, and became references for several legal rulings. The Qur'an also prohibits the hoarding of gold (At-Taubah: 34). Additionally, gold is described as serving the functions of storing and measuring value (Ali 'Imran: 75; Yusuf: 20) (Hasan, 2017). There are even prophetic traditions foreseeing that the financial system will return to using gold in the future. One such hadith is narrated by al-Tabrani: "When the end of time arrives, the measure of people's religion will be the dirham and the dinar" (Nawir, 2022).

**Analisis Actory Network Theory**

From the ANT perspective, nothing is absolute; there is no such thing as the total only the totalizer. Society is seen as a network of actors on a flat plane, where each will perform various actions to influence one another within a sociotechnical network (Latour, 2007). This may seem quite general, doesn't it? However, what most distinguishes ANT is that objects, regulations, and things usually considered mere tools or inanimate are regarded as equal to humans in ANT, referred to as non-human actors.

**There's no goup only group formation**

The dominance of the dollar and America, which has persisted for half a century to this day, has occurred due to the accumulation of activity within that network. Oil demonstrates its agency by triggering actions from various global actors, such as industry players; in this context, "global" refers to countries and their societies that remain dependent on oil. The global banking regime realized this and began to act by establishing the Petrodollar Agreement with OPEC, aiming to divert the accumulation of activity from oil to the dollar. The global banking regime did not stop there; it also launched SWIFT as the sole global financial traffic system, further intensifying the accumulation of activity from various actors around the world within its sociotechnical network. This represents a form of reorganization, or what in Actor-Network Theory (ANT) is called group formation, following the Nixon Shock, when America lost some control after previously doing something similar through the Bretton Woods system. That was a system that made the dollar the only currency for gold exchange, so like it or not, the dollar became the foreign exchange reserve for many countries around the world (Helleiner, 2016).

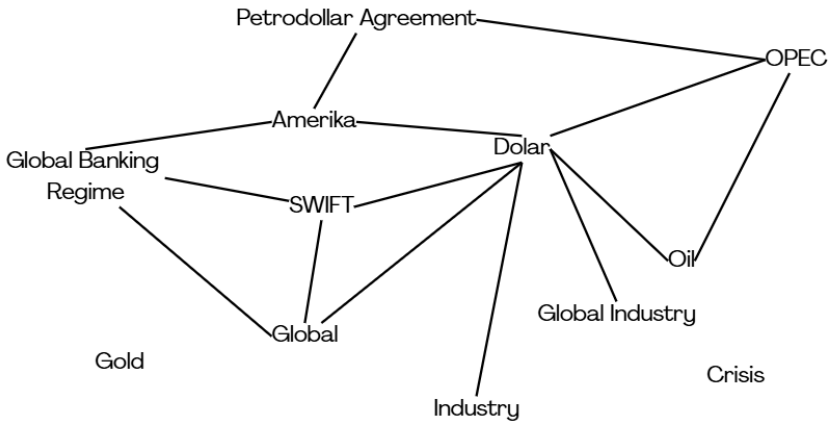


Figure 1. The Sociotechnical Network of Global Finance Post-Nixon Shock

**The Crisis as a Key Acror in Sociotechnical Shifts**

Crises have always been key actors in the shift of sociotechnical networks. The Covid-19 pandemic became a turning point, shifting the accumulation of activities that were previously focused on physical activities to the virtual world. Lockdowns forced the world to use technological channels in order to remain connected. In this context, the Technology Regime emerged as an anti-group formation to the banking regime. Was it chosen, or did it make itself worthy? In previous research, the author showed that before the pandemic, the technology regime had already enhanced various technologies by creating a new digital economic system, making possible digital agreements, digital investments, digital transactions, digital entertainment such as games, and even elections all of which became decentralized into one (Buterin, 2015; Fauzan, 2025; Gogol et al., 2024). Thus, it can be concluded that crises provide opportunities, and the technology regime is the actor

most prepared to take advantage of them. This has resulted in the thinning accumulation of activities within the global banking network.

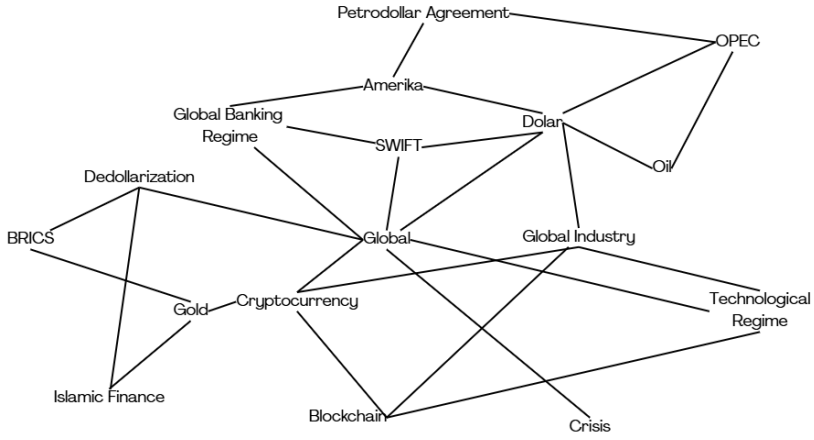


Figure 2. The crisis impacting sociotechnical networks

**The Silent Actor: Islamic Bloc Responses to Dedollarization and Technological Regimes**

The emergence of the technology regime in the global financial system has become a new anti-group after BRICS and several Muslim countries previously voiced the idea of de-dollarization. In this context, gold has motivated both BRICS and the technology regime to redirect their activities toward gold-based financial networks, reminiscent of those that existed five thousand years ago. On the other hand, somewhat ironically, the Islamic financial regime which has long been vocal in advocating for reducing the use of fiat currency due to its various shortcomings seems passive in seizing this opportunity. To date, there has not been any official Islamic institution, either domestic or international, that has specifically utilized blockchain as a strategic infrastructure for the future of Islamic finance.

Yet, Islamic legal foundations such as the Qur'an and Hadith regarding gold have already influenced various Islamic actor networks, including academics, start-up institutions, and Muslim figures. Historical traces and the hope for the return of gold as currency at the end of times could actually serve as a stabilizer to restore this network. In this regard, it can be observed that the Islamic Financial System lacks sufficient connecting sites or actions to restore this network or perhaps is even more connected to the existing financial system. Of course, this requires further study.

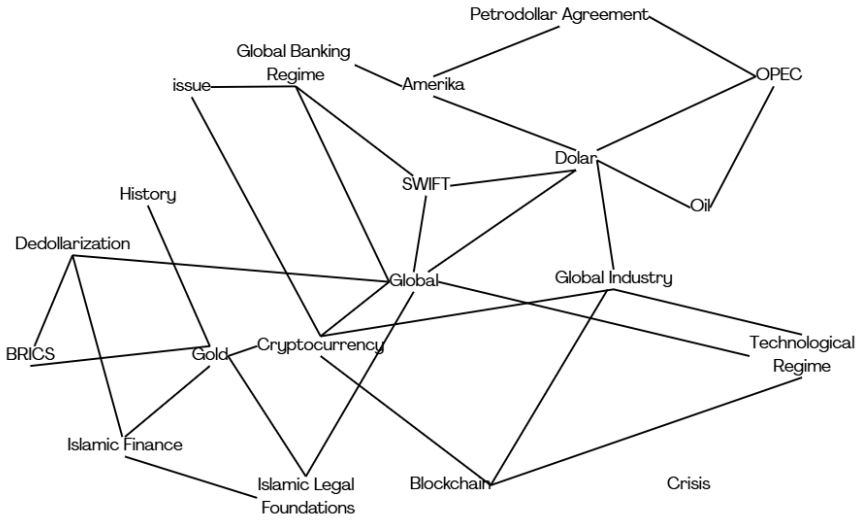


Figure 3. The Sociotechnical Network Shift of the Financial System

**Localized Sociotechnical Emergence in Indonesia's Islamic Finance Ecosystem**

Recently, UIN Sunan Gunung Djati Bandung, in collaboration with ITB, has developed a blockchain based e-Halal certification system (Putra, 2025). This initiative demonstrates how local institutional actors are beginning to enter the global sociotechnical blockchain network and have the potential to become pioneering nodes in the digital halal ecosystem. As this development is still very new, these findings are noted as preliminary empirical evidence and are discussed only briefly, an in-depth ANT analysis is left for future research.

**CONCLUSION**

This study finds that crises always select those who are prepared to become the new regime in a global context. Allowing crypto to exist without being backed by gold is essentially the same as allowing the birth of a new form of fiat currency. The task of Islamic banking in this regard is not to overhaul the existing system, but to prepare a new ecosystem for future crises. Gold-backed crypto does not need to immediately become a currency; Islamic banks can prepare this ecosystem as a platform for digital gold investment and become one of the central bodies for global gold-backed crypto. The pattern adopted by global and American banking is actually the same, except that in the past, the world was tied together by gold, whereas now it is through the system along with oil as the stabilizer in its sociotechnical network. As for whether America will return to using gold, the potential is quite significant, considering that they themselves hold the largest gold reserves in the world.

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