



THE INFLUENCE OF DIGITAL CURRENCY ON THE BANKING SECTOR IN EUROPE

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Abstract: Historically, financial and monetary innovations have triggered positive and negative changes in the everyday operations of the financial sector. Similarly, digital currencies can significantly reshape the future of banking and financial intermediaries. Whether the aspect of digital currencies is through the public sector such as in central banks, digital currencies, or private means such as in cryptocurrencies, the eventual rollout of such innovative instruments has a critical influence on the retail use of digital assets. At the same time, digital currencies may create new risks and vulnerabilities in the financial or banking sector whose implications should be thoroughly assessed. However, the magnitude of the risks depends on the designs and policies attached to the digital currencies in use. These features of digital currencies trigger the subject of discussion in this paper. By outlining the benefits and risks associated with digital currencies in the banking sector, the paper aims to highlight the overall impact of digital currencies in the banking sector and available remedies to control the risks. Therefore, the paper provides information that is critical to the banking sector policymakers interested in digital currencies.

Keywords: Digital Currencies, Banking Sector, Benefits, Risks, Design, Policies.

JEL classification: E5, E58, G23

1. Introduction

Throughout history, structured currency innovations have induced challenges and altered the financial system norms. The innovations have triggered unending debates about the risks and benefits they pose to the economy and the role of central banks in building confidence around monetary innovations. For instance, the development of banknotes in the 17th century was motivated by their straightforwardness in commerce and portability (Panetta, 2021). However, the structure faced numerous challenges, including their effects on stability and sovereign credibility. Similarly, in the 19th century, debates emerged on the rise of bank deposits motivated by technological advancement in the banking sector, such as improved information and communication technology (Panetta, 2021). The ideal nature of these discussions is to help outline the success paths of these innovations and enable banks to avoid challenges that may lead to significant losses in the long run.

In today's scholarly and practitioners' space, discussions about digitization and the relevance of digital currency have taken center stage. Innovative technologies characterized by the development of the electronic age and technical innovations such as e-commerce have triggered a significant influx of digital currencies worldwide (Setiawan et al., 2021). While there is immense fear against digital currencies in terms of non-governance, instability, and the complete phase-off of the fiat currencies, there is emergent support by digital currencies' convenience in the digital space, mainly e-commerce, and their rapid popularity among the tech-savvy (Setiawan et al., 2021). Based on these arguments, this paper explores the economic, financial, and societal implications of digital currencies in Europe and their general influence on the entire banking system. The exploration will include the effects of digital currency on banking intermediation, financial stability, and international financial systems to enable policymakers to form sound decisions around digital currencies in the European Market.

2. The Concept of Digital Currencies

Digital currencies are the latest direction in the development of modern financial systems. According to the Financial Action Task Force (FATF 2014), digital currencies, also known as virtual currencies, refer to digital or electronic representations of value that can be traded online and function as media of exchange, storage of value, and units of account. However, unlike real currencies, most digital currencies have no legal tender status and can only function through agreements between parties or users. The European Banking Authority (2014) also defined digital currencies as currencies with a digital representation that are neither issued by central banks nor by any public authority. In attribute, the currencies are different from real currency but are acceptable by legal persons as means of payment, trade, and transfer.

Digital currencies have evolved into distinct categories and characteristics identifiable to individuals and companies in the market. Ideally, the Financial Action Task Force (2014) mentioned that digital currencies today can be differentiated into convertible and non-convertible or centralized and non-centralized digital currencies. Convertible digital currencies have an equivalent value to real or fiat currencies and can be changed from one currency to another (Ally et al., 2016). Today, Bitcoin, Litecoin, Ethereum, Bitcoin Cash, Ethereum Classic, and other popular cryptocurrencies are examples of convertible digital currencies. On the other hand, non-convertible digital currencies, relate to digital currencies that are not exchangeable for the equivalent of the fiat currency. As such, the currencies are meant to be traded or e transferred in digital form only (Ally et al., 2016). Non-convertible digital currencies can be purchased directly using real currency at a specified exchange rate in specific circumstances. However, they cannot be exchanged back to real currency at a later date.

Centralized digital currencies relate to currencies that are attached to a single administrative authority (Kotane, 2018). The authority manages the currencies and ensures a smooth outline of participants and users. An example of centralized digital currencies in the market today is central banks' digital currencies. Decentralized digital currencies include currencies that are freely distributed and are not administered by any central authority (Kotane, 2018). Cryptocurrencies such as Bitcoin, Litecoin, and Ripple are examples of decentralized digital currencies because they originate from Blockchain technology that is not taken control of by any specific authority across the world. In that sense, participants in the cryptocurrency world are not affected by financial and monetary policies by the central banks. Increased or decreased blocks can only alter them in the Blockchain (Ally et al., 2016). The identifiable features of digital currencies in both categories raise further questions about whether they are ideal for financial systems and whether they have any significant implications for the banking sector.

3. Development of Digital Currencies in the Banking Sector

The emergency and acceptance of digital currencies in the market have triggered related discussions on the possibility of central banks issuing their digital currencies and the aftermath implication of the currencies on the entire financial and momentary systems (Ali et al., 2014; Dyson and Hodgson, 2016; Johnson, 2016). The idea of central banks rolling out their digital currencies is relevant to the market considering the rising technological advancement, technical innovations, and the emergence of cryptocurrencies that intensify competition in the financial space (Ali et al., 2014). For instance, in 2015, the Bank of England announced the start of a study to explore the advantages and disadvantages of digital currencies as part of its growth and competitive agenda (Bank of England,

2015). As such, more and more European central banks have had an interest in central bank digital currencies to accommodate the changing business environment.

The factors influencing the development of digital currencies within the banking sector are derived from the advantages of digital currencies over fiat currencies. Further, the benefits can also be associated with the convenience of digital currencies in today's markets and their relevance among people. Ideally, the factors driving the banking sector to digital currencies are.

3.1. The Significant Increase in Cashless Transactions

One of the most critical manifestations of currency digitization is the trend towards reducing the use of cash or cash equivalents in transactions. Although the trend is universal, it differs from country to country. According to Khianonarang and Humphrey (2019), the portion of cash in cash-like transactions as measured by cash withdrawals and cash transactions via other most liquid modes of payment such as e-money and card payments has significantly reduced in many countries across the world. Relatively, the portion of cash transactions in countries has declined from 49% in 2006 to 29% in 2016 (Khianonarang and Humphrey, 2019). The decline in the importance of cash or fiat currencies in transactions is partly driven by digital currencies' convenience and efficiency gains.

Other discussions centered on phasing out, eliminating, or limiting the use of real cash to tackle illegal and illicit financial activities and curbing the zero bound on policy interest rates (Baron et al., 2015). While this could be achieved by including central bank digital currencies in the banking sector, the move could also be achieved by reducing costs associated with digital payments and deposits in commercial banks. Practically, digital currencies reasonably fill the void of real currencies despite excluding essential provisions, such as the legal tender status (Fanning and Centers, 2016). Central and commercial banks would reap significant advantages from them more than the real currencies.

3.2. The Increasing Technological Advancement

The increasing internet use supported by the growth of computing power among financial consumers has affected the entire economy, especially financial systems. In the past decade, there has been a significant rise in the number of digital providers and innovative technologies in the financial and payments field (Castrén et al., 2020). Most recently, the Covid-19 pandemic accelerated the need for digitization of the economy in payments and e-commerce, which triggered more and more players in the field. The European Central and commercial banks see the opportunity and chance of increasing operations and earning income associated with currency digitization. Additionally, global tech companies are setting a new pace centered on providing financial services in numerous ways, such as through

social media, mobile technologies, and online marketplaces (Castrén et al., 2020). As such, the big techs seek to expand and improve the quality of financial intermediation through information asymmetry and phase of the importance of the banking sector. As such, the European central banks are motivated to sell this loophole by developing a central bank-aligned digital euro.

As the regulatory bodies of the banking sector, Central banks are also fascinated with the advantages derived from Blockchain technology and cryptocurrencies. The banking sector is cognizant of the decentralized ledgers and reduced risks aligned with most cryptocurrencies (Bacon et al., 2018). Based on these arguments, central banks are moving into the idea of developing central bank cryptocurrencies such as the Fedcoin and RScoin (Gupta and Ravishankar, 2017). Primarily, these cryptocurrencies are meant to work privately but will have increased accountability, sovereignty, and transparency since they are run and authorized by central banks (Johnson, 2016). Therefore, the model will be exceptional for private market users and create additional income for the banking sector.

3.3. Globalization

Traditional fiat currencies are generally defined along national boundaries and evaluated according to the theory of optimal currency areas and the ability to smoothen financial risks and economic shocks (Panetta, 2021). However, the situation may change significantly with the potential introduction of central bank digital currencies such as the digital euro. Unlike traditional currencies, digital currencies are based on a national or international digital network that aims to exploit linkages and exchanges within the network ecosystem and provide users with the ability to directly transfer money or transact with people across the world (Fung and Halaburda, 2014). In that sense, digital currencies open the space for online transactions, globalization, and economic welfare. Further, the introduction of private digital currencies such as the stablecoin that promises to deliver the functions of traditional money can diligently serve as insurance against irresponsible monetary policies that close up the opportunities for globalization.

3.4. Financial Inclusion and Surveillance

Identifiable banking features aligned to traditional currencies, such as filling out formal documents and being a country citizen, have denied many people access to financial services. With digital currencies, potential hurdles in financial payments and financial transactions will be phased out because people do not require actual commercial banks for transactions (Bank for International Settlements, 2015). Additionally, digital currency payments and transactions will always leave a transition trail for future reference. As such, the digitization of money would improve the banking sector's options for preventing and tracing illegal financial activities such as robbery, tax evasion, and money laundering.

3.5. Countering Competition and Devaluation of Currencies

Digital currencies such as central bank digital currencies could effectively counter competition from similar currencies in different jurisdictions. Notably, digital currencies differ from fiat currencies and have identifiable features that attract the growth of economies and social life (Bank for International Settlements, 2015). As such, if a significant foreign central bank introduces a universally accessible central bank digital currency, it could attract considerable interest among market players. European central banks will be motivated to launch similar digital currencies to avoid irrelevance in the banking sector (Panetta, 2021). Additionally, since digital currencies are free from manipulation and interference from monetary policies across countries, many central banks would adopt them to increase their country's currency stability and avoid the devaluation caused by macroeconomic events.

3.6. The Ability to be Used Concurrently with other Types of Currencies

While there is so much to reap from money digitization, the European central banks would aim to adopt and support digitization while giving people various choices for financial transactions and payment to remain competitive and secure. For instance, digital currency will be available to households, firms, financial intermediaries, and companies as options to increase consumer choice, reduce transaction costs, and allow for the digitization of the economy (Bank for International Settlements, 2015). However, drawbacks associated with digital money, such as their susceptibility to publicity and minimal privacy, are concealed using the traditional monetary option. In this way, consumers may increase their advantages while the banking sector will maintain its relevance in the economy and digitization.

The incentives pushing for central bank digital currencies in Europe and other parts of the world can only be relevant and practical when the norm of financial, fiscal, and monetary systems is not affected negatively. Players in the financial sector need to consider the advantages and disadvantages of central bank digital currencies to showcase the need for monetary digitization. As such, this study explores the digital money's potential benefits and challenges in Europe to ascertain the overall implication.

3.7. Potential Benefits of Digital Currencies on Banking

Based on the features of digital currencies, it is clear that they have the potential to transform the financial and monetary system, as signified by the banking sector. However knowing the specific value and advantages digital currencies accrue to the banking sector is essential. Fundamentally, exploration of the advantages of digital currencies on the banking sector will provide appropriate responses as to

why the banking sector has to shift towards digital currencies. Here are the notable benefits of digital currencies in the banking sector.

3.8. Improved Efficiency in Payment Systems

The potential disruptive innovations associated with digital currencies refer not only to the aspect of assets but more to the aspect of convenient and secure payment systems. Some digital currencies, such as Bitcoin and other major cryptocurrencies, are based on distributed ledgers that allow peer-to-peer transfers without needing a trusted third party (Baron et al., 2015). Consequently, some digital currencies aim to create isolated networks without marginal connections to payments schemes. It means that users of digital currencies can directly open accounts in a distributed ledger and send and receive payments in the digital denomination and through the network (Baron et al., 2015). The technology, in this case, creates numerous efficiency opportunities for users, including the banking sector. For instance, all bank transactions like digital currencies would be instant irrespective of the transaction's initiation time. Further, banks can significantly reduce transaction costs and increase the security of their payments by tracing the payment trail from one customer to the other.

3.9. Efficient Cross-border Reach

Like all other entities in the business arena, banks are concerned with expanding their customer portfolio in terms of reaching people across the world. Ideally, dealing in traditional currencies may limit this potential because of many formal requirements. Digital currencies can open up the banking sector's trading space by enabling efficient and effective cross-border transactions (Bank for International Settlements, 2015). Digital currencies based on distributed ledgers are open networks within a global scope. This means that the networks do not differentiate users in terms of location. As such, they allow value to be transferred across borders. Additionally, digital currencies improve the speed of transactions between users irrespective of location (Bank for International Settlements, 2015). Transactions from one location to another are done in real time, as enabled by the decentralized nature of digital currencies.

3.10. Data Privacy

Data privacy is one critical element that consumers consider in the European banking market. Today, disclosure of data can be risky, especially in online banking since fraudsters are in the move to collect information and use it for crime and money laundering-related activities. Digital currencies can potentially increase the data privacy of customers in the banking sector on many fronts (Bank for International Settlements, 2015). For instance, digital currencies based on

distributed ledgers can allow online transactions without disclosing personal details or sensitive payment credentials. However, in some circumstances, this feature of digital currencies may be harmful to the banking sector since they can circumvent critical laws and regulations.

4. Potential Risks of Digital Currencies on Banking

From a broader perspective, several concerns have been raised about the effects of digital currencies on financial systems and the banking sector in general. Paradoxically, digital currencies warrant critical financial strengths of the banking sector, including safety and liquidity but could also cause grave instabilities on financial intermediaries and international financial systems (Setiawan et al., 2021). The impact of digital currencies on the banking sector is outlined below.

4.1. Risks on Financial Intermediaries

Digital currencies open up financial activities and options to users in the market with advantages such as reduced operating costs and easy accessibility of services. While these are advantages to the consumers of financial services, they may, in the long run, affect financial intermediaries, primarily commercial banks. For instance, digital currencies may attract significant payment transactions away from commercial banks (Evans and Browning, 2021). As such, commercial banks and other financial intermediaries would lose payment-related income. Similarly, the currencies may potentially reduce commercial bank deposits, especially where individuals can store substantial digital currencies in other financial destinations (Evans and Browning, 2021). The consequences would be less stable, more costly funding from the banking sector and decreased profitability. Ultimately, the lower lending rate and constraints in financing would lead to real economic disadvantages.

The financial service disintermediation risk depends on the digital currencies' designated features. If digital currencies and platforms cannot interact with users because of the unlimited capacity to do so, financial intermediaries, mainly commercial banks, step in to provide front-end services and cash-related operations (Agur et al., 2019). Beyond such designated adaptations, the economic impact of digital currencies is not clear-cut. Another feature, especially of central bank digital currencies, is neutrality in allocating capital to the economy. A significant shift from bank deposits to central bank digital currencies would change the composition of commercial banks' funding sources with fewer private sector deposits and many central banks' funding (Agur et al., 2019). It eventually kills the relevance of commercial banks to the general public, who shift their concerns to central banks.

4.2. Risks of the International Monetary System

Notably, digital currencies increase globalization and online business opportunities by activating the efficiency and convenience of financial transactions and payments across countries. However, the ineffective design of digital currencies may trigger banking and economic challenges to a nation or jurisdiction. For instance, if a digital euro is used as an investment, its benefits could be reduced to risks that amplify economic shock (Evans and Browning, 2021). Because the digital currency would be very liquid, many foreign investors would use it disproportionately and away from its ability to respond to an economic shock. The economic shocks will significantly impact the prevailing foreign exchange rates and general foreign financial conditions. Conversely, the absence of digital currencies affiliated with the European region will cause vulnerability to Europe's international development (Panetta, 2021). The widespread adoption of digital currencies by other foreign central banks would make the European economy more sensitive to economic shocks.

4.3. Risks in Case of a Financial Crisis

The risk of digital currency on financial intermediaries and international financial systems is more pronounced in times of financial crisis (Evans and Browning, 2021). Unlike cash and without design-related constraints, digital currencies could potentially be held in large volumes and at no cost. Due to their liquidity, digital currencies would accelerate more digital runs from commercial banks in times of crisis (Evans and Browning, 2021). Meaning, savers will reduce their deposits in commercial banks and amplify holding cash in digital terms. The failure of central banks to control the influx and operations of digital currencies would accelerate the impact of financial crises on the economy and lead to severe damages beyond expected.

4.4. Legal Risks

In their role as operators and overseers of the banking sector, central banks are responsible for upholding relevant laws and regulations. Digital currencies regulatory frameworks in the European market may influence the uptake of digital currencies by the banking sector (Kumhof and Noone, 2018). Despite the growing popularity of digital currencies, especially cryptocurrencies, several countries have demonstrated a negative attitude. For instance, in China, Vietnam, and Indonesia, cryptocurrencies have been ruled out as alternative payment or transfer methods for fiat currencies (Kotane, 2018). Although the European Union has not banned cryptocurrencies as a payment method, it advocated for defined regulatory policies that govern entry and exit from the market. The deficient laws and regulations on digital currencies have limited the possibility of fully adopting digital currencies in

the banking sector. The introduction of digital currencies such as cryptocurrencies in banks will need central banks' control, unlike the norm of privately run cryptocurrencies.

5. Design and Policy Options for Banks

The success of digital currencies in the European market depends on the comparative outlook of benefits accrued by digital currencies vis-à-vis the risks associated with the currencies. To obtain the maximum benefits of digital currencies, the banking sector policymakers should be more concerned about the design of digital currencies at hand than the benefits derived from them. It is a standard agreement that digital currencies can foster positive changes in the European banking sector. Even so digital currencies may cause severe challenges in the sector, if not monitored adequately. One of the leading designs to be looked at by policymakers is ideal laws and regulations on digital currencies (Panetta, 2021). Presently, digital currencies operate with minimal laws and regulations that enable them to be freely transferable from peer to peer and cost less in terms of transaction costs. However, inadequate laws may lead to critical security issues in the banking sector.

Another design and policy issues are the centralizing of digital currencies. While the decentralization of digital currencies enables speedy and effective digital transactions, it excessively exposes transactions to fraudulent and illegal networks that cannot be supported by the banking sector (Ketterer, 2016). In this case, most central banks in the European region are adopting monetary digitization through the central bank's digital currencies framework. The framework enables control of all the affairs of digital currencies from one front, that is, the central banks, to enable smooth, governed, and organized digital transactions (Ketterer, 2016). Consequently, the central bank's digital currencies would allow the effective and efficient application of financial laws and regulations and monetary policies to shield the economy from adversities that come with digital currencies.

A digital currency in the European banking setup should be an efficient means of payments and transactions domestically and internationally. However, to preserve the stability of currencies, they should be designed to prevent them from being used as investment options (Panetta, 2021). Ideally, the banking sector-policy makers have the opportunity to limit the number of digital currencies that an individual can hold at a time. This option potentially prevents significant outflow of money from deposits to central banks in the form of digital currencies. Another option is to set a penalized remuneration on individual digital currency holders at a given threshold (Birch, 2020). This option means that the users of digital currencies would strike a balance between reaping the advantages of digital currencies and maintaining the intermediation of financial systems, especially the banking sector.

6. Conclusion

Digital currencies represent a natural evolution that is a response to transformation not only in inefficiency and innovations but also in the preservation of the role of central banks and commercial banks to provide safe and secure means of transacting and payments. As such, digital currencies would significantly impact many areas of the banking sector. These impacts could include disrupting the existing business, financial and monetary systems and the emergence of new economic and social interactions or linkages. Throughout history, the safety of financial innovations has proved to be the one crucial element to maintaining public confidence in money and, ultimately, in the State. Therefore, the key goal of digital currencies is to strike a balance between sovereignty and to ensure the financial systems remain stable and efficient.

In today's market, the concept of digital currencies centers on solid development pillars that could impact the banking sector. The discussions shows a significant trend of the economy going cashless triggered by more effective and efficient means of payment and transactions like the internet. Further, the aspect of globalization and financial inclusion is pushing the relevance of digital currencies in the European market and in other markets across the world. Therefore, the adoption of digital currencies implies some benefits to the banking sector, such as providing alternative and efficient payment and transactions, enabling cross-border transactions, and enabling data privacy.

This report also describes various issues or risks of digital currencies to the banking sector. Notably, digital currencies can impact and disrupt the intermediation of financial systems by imposing alternative and cheaper ways of storing value for money. Consequently, digital currencies could also negatively impact the international monetary system by providing investment options that hinder the continued thriving of real, local currencies in global markets. Ultimately, the characteristics of most digital currencies showcase legal risks for central and commercial banks in case the banks resolve to deal directly with digital currencies. The only remedy is the design and policies on digital currencies. Digital currencies in the context of the banking sector should be differently designed to accommodate consumer preferences and protect them against any adversities.

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UTICAJ DIGITALNE VALUTE NA BANKARSKI SEKTOR U EVROPI

Apstrakt: Istorijski gledano, pokazalo se da finansijske i monetarne inovacije izazivaju pozitivne i negativne promene u normalnom poslovanju finansijskog sektora. Slično tome, digitalne valute potencijalno mogu značajno da preoblikuju budućnost bankarskih i finansijskih posrednika. Bilo da se radi o aspektu digitalnih valuta kroz javni sektor kao što su centralne banke, digitalne valute ili privatna sredstva kao što su kriptovalute, eventualno uvođenje takvih inovativnih instrumenata ima kritičan uticaj na maloprodajnu upotrebu digitalne imovine. Istovremeno, digitalne valute mogu stvoriti nove rizike i ranjivosti u finansijskom ili bankarskom sektoru čije implikacije treba temeljno proceniti. Međutim, veličina rizika zavisi od dizajna i politika vezanih za digitalne valute koje se koriste. Ove karakteristike digitalnih valuta pokreću predmet rasprave u ovom radu. Navodeći koristi i rizike povezane sa digitalnim valutama u bankarskom sektoru, ovaj rad ima za cilj da istakne ukupan uticaj digitalnih valuta u bankarskom sektoru i dostupna sredstva za kontrolu rizika. Stoga, ovaj rad pruža informacije koje su ključne za kreatora politike bankarskog sektora koji su zainteresovani za digitalne valute.

Ključne reči: digitalne valute, bankarski sektor, beneficije, rizici, dizajn, politike.

Authors' biographies

Milena Jakšić is employed at the Faculty of Economics, University of Kragujevac conceived by March 1995. The title of associate professor in 2013 for two specific scientific areas: General Economy and Economic Development - the subject Fundamentals of Economics and Finance, Financial Institutions and Insurance - the subject financial markets and financial instruments. Within the series of scientific research 2011-2015. years, funded by the Government of the Republic of Serbia, is engaged in the project PIBAS, ev.br. III 41010, as a member of the sub-project entitled "Management and marketing research to support the implementation of interdisciplinary projects." She is author and co-author of a number of scientific papers. She has participated in international and domestic conferences and scientific and professional training locally and abroad. Scientific research areas of interest include funding sources economic growth, financial markets, and risk management of financial institutions.

Violeta Todorović was employed at the Faculty of Economics, University of Kragujevac conceived in November 1997. She became assistant professor was elected in 2011 to the scientific field of finance, financial institutions and insurance - the subject Banking. Within the series of scientific research 2011-2015. years, funded by the Government of the Republic of Serbia, is engaged in the project of the Ministry of Science III 47004th is the author and co-author of a number of scientific papers. She has participated in international and national conferences. Scientific research areas of interest include: the banking crisis, banking regulation and business performance management banks.

Jelena Matić finished M.Sc. at the Faculty of Economics, University of Kragujevac, department Economics in March 2020 as well as she got one year scholarship at the Philipps University of Marburg, German, department Business Administration (2019/2020). She had been working as an external Consultant at Deutsche Boerse AG with expertise for Capital Markets. Following that, she pursues her career as a Capital Markets Consultant for a large consulting company with focus on the financial institutions.