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The Impact of Digital Currency Policies on International Trade and Investment

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ABSTRACT: This paper examines the multifaceted impact of digital currencies on regulatory frameworks, cross-border transaction efficiency, and their integration into mainstream financial systems. Through an in-depth analysis of global policy landscapes, compliance challenges, market stability implications, and the burgeoning role of Central Bank Digital Currencies (CBDCs), we uncover the dynamics shaping the future of digital finance. Employing statistical analysis, econometric models, and case studies, we explore the reduction in transaction costs, increased speed and accessibility, and the security concerns associated with digital currencies. Furthermore, we analyze the trends in digital currency adoption and the potential for their integration with traditional financial systems. Our findings highlight the complex interplay between technological advancements and regulatory strategies, offering insights into the opportunities and challenges digital currencies present for the global economy.

KEYWORDS: digital currency, policies, international, trade, investment

I. INTRODUCTION

The history of money spans thousands of years, evolving from barter systems to precious coins, transitioning through paper currency, now advancing in the era of digital currencies and impacting how society functions. Whether it is coins, paper or digital currency, money performs three primary functions:[1]

It is a medium of exchange for buying or selling any goods or services

It is a unit of account used to value goods or services

It can be stored for future purposes

Innovation in finance and currency are interlinked; hence, digital currency is gaining popularity globally, mirroring the pre-existing private company-operated electronic wallets while incorporating a sovereign-backed facility. Three major kinds of digital currencies exist: stablecoins, cryptocurrency, and central bank digital currency (CBDCs). While stablecoins and cryptocurrencies are digital currencies exchanged between people and various entities, CBDCs, as the name suggests, are issued and backed by a central bank. Central banks and private entities worldwide are exploring digital currencies in various capacities, but what drives the adoption of digital currencies?

The Rise of Digital Currencies

The fast-growing popularity of digital currency can be attributed to multiple factors, such as seeking a reduction in operational costs involved in physical cash management, embracing financial inclusion, faster payments, 24x7 availability, improving the efficiency of the settlement system, and facilitating cross-border payments.

Enhancing financial inclusion is a key benefit of implementing digital currency. It eliminates socio-economic barriers and addresses challenges associated with connectivity and physical banking infrastructure, helping facilitate increased participation of the hitherto underserved in the financial system. Digital currencies typically come with the added advantage of conditional anonymity, just like physical cash, and are poised to boost a rise in cashless transactions. This shift towards a cashless economy is expected to act as a catalyst for payment innovation, offering consumers a range of diverse options.

India's CBDC, called the Digital Rupee (₹), is a sovereign currency issued by the Reserve Bank of India that holds the distinctive advantage of trust, liquidity, settlement finality, and integrity. Launched in November 2022 for wholesale and December 2022 for retail, India's CBDC is the next-generation seamless, ubiquitous and anonymous payment mode that delivers value to its customers.



As per the International Monetary Fund, India is among the few countries globally at the forefront of developing CBDC. Beyond the advancements in the financial landscape, embracing CBDC will help ease India's financial burden in printing, distribution, and currency storage. For instance, India incurred a substantial cost of INR 4,984 Cr from April 2021 to March 2022 for currency printing, which can be reduced by adopting digital currency. Not only will digital currency reduce pressure on the government in terms of printing, distribution, and storage, but it also aligns with India's Environmental, Social, and Governance (ESG) goals for reducing carbon footprint.

From financial inclusion to reduced cost of cash management, there's a lot that digital currencies such as CBDCs can offer to economies. Let's dive deep into the economic avenues it creates for countries.

Creator of Economic Opportunities for Countries

Given their digital format, CBDCs can improve the efficiency of transactions by allowing for reduced settlement times. Reducing settlement time can lead to faster and more efficient payments, promoting economic activity and growth.

Additionally, CBDCs can streamline costs and provide a cheaper alternative to conducting international transactions.[2]

Cross-border payments have emerged as a key focus area for the G20. The Financial Stability Board (FSB), in its 'G20 Roadmap for Enhancing Cross-Border Payments', has acknowledged that many central banks are developing a CBDC to explore promising solutions to tackle international transactions that are plagued by time-consuming procedures and strict compliance checks, constrained by their dependency on the correspondent bank's availability and time-zones.

The use of CBDC by financial institutions identified by the RBI can help streamline processes and make it easier to reduce counterparty risks. Overall, a successful use-case of CBDC is expected to further accelerate the method of transaction and settlement.

Additionally, CBDC holds promise in simplifying transactions in government securities and facilitating international forex trade.

With the acceleration of economies globally, central banks worldwide are developing CBDCs to embrace the rapidly changing digital environment. Over 93% of central banks globally are experimenting with the implementation of CBDC.

Nearly 114 countries are exploring the viability of CBDCs, with several central banks launching pilot projects or introducing a digital currency. Bahamas, Jamaica, and Nigeria are the few countries that have already issued CBDCs.

The first retail CBDC, Sand Dollar in Bahamas, came into existence in 2019. It is pegged to the US\$ and intended to provide banking access to the 18% of the Bahamian unbanked population that is unbanked.

Digital currencies are shaping how economies will function in the future, but what is the role of technology in its evolution?

Role of Blockchain in Shaping the Future of Digital Currencies

New technologies, such as blockchain, can help streamline the process of recording transactions and tracking assets across a business network. Blockchain, also known as Distributed Ledger Technology (DLT), converts & stores currency in a digital format to make transactions secure.

India's fintech sector is projected to reach \$6.2 Tn by 2025. This growth is inclusive of areas such as digital payments, digital lending, peer-to-peer (P2P) lending, crowdfunding, blockchain technology, distributed ledger technology, big data, etc.

Globally, central banks typically use "permissioned" blockchain network implications in which the participants are limited and must be granted access to participate in the network and view the set of transactions. On the other hand, well-known cryptocurrencies like Bitcoin and Ethereum use "permissionless" blockchains, allowing public participation and complete transparency of transactions.

II. DISCUSSION

Financial Innovations Like Cryptocurrencies Impacting Economies

Cryptocurrencies are an innovative payment infrastructure that aims to serve as an alternative to existing payment systems. This digital currency adds to the evolution of money as well as a viable substitute for traditional currencies.

It also allows users to diversify their asset holdings and explore it as a mode of transaction. Distributed Ledger Technology can help cut the cost of international transfers and bring more people into the formal financial fold. Payment services are increasingly leveraging this technology for quick overseas transfers and reduced processing time from days to a few hours.

The technology[3] also allows for secure storage of critical records such as medical histories and land deeds. Nevertheless, the widespread adoption of crypto assets presents substantial concerns regarding money laundering and terrorism financing.

Challenges and Benefits of Adopting Digital Payment Systems

As digital currencies continue to gain popularity, India, too, has experienced an advancement in its digital payment systems. Platforms such as Unified Payment Interface (UPI) offer users the convenience of seamless, affordable, quick, and secure digital transactions.

The expansion of the Unified Payment Interface (UPI) in the country reflects its capacity to create a top-tier payment infrastructure from ground zero. The UPI system has established a national open standard that over 550 banks have adopted as of January 2023. The interface also facilitates seamless operations for global entities like Google, WhatsApp, Walmart, Amazon, and Uber. For instance, while booking a cab, the user can pay for the service through a cashless medium without using their bank account details in real-time.

The UPI ecosystem offers several benefits, including 100% coverage for payment transactions through Person to Person (P2P) and Person to Merchant (P2M) payments. The platform supports various merchant integration methods, with QR-based payments being the most prevalent. Remarkably, in just five years, the market has witnessed the deployment of over 256 Mn UPI QR codes from meagre 2.5 Mn devices.

The UPI ecosystem strengthens India's leadership position in the global digital payment landscape by ensuring safety and compliance with international security standards and certification. The success of UPI extends beyond national borders, with its launch in several countries, including Sri Lanka, Mauritius, France, UAE, Singapore, Bhutan, and Nepal.

The growing popularity of advanced payment methods has brought new challenges. These include increased fraudulent activity, data breaches, and recurring lapses in information security. According to the latest RBI Annual Report, fraud incidents have nearly doubled compared to the previous year. Financial institutions (FIs) reported a 34% increase in fraud cases related to cards and Internet banking, with the number rising from 3,596 in 2021-22 to 6,659 in 2022-23.

Digital Currency Adoption for Economic Growth

The introduction of digital currency represents more than just the modernisation of the financial system. The rise of new and emerging technologies has also evolved as a strategic imperative to ensure sustainable economic growth. In their pursuit of developing and exploring digital currencies, countries must work closely with each other and private entities to successfully push the boundaries of technology. This must, however, be done against the backdrop of a strengthened cybersecurity regime and a conducive regulatory framework that adapts to the ever-changing customer needs and preferences.[4]

India, particularly with its innovative and successful India Stack, can help countries unlock the economic primitives of identity, data, and payments at the population scale and collaborate with like-minded countries to continue evolution in this domain.

Digital currency undoubtedly has the potential to transform the financial sector and bridge the existing geographical boundaries. By seamlessly integrating with legacy systems and offering interoperability, they can extensively assist in

facilitating trade and economic opportunities for countries. While its real-world impact is significant, it must be balanced with a facilitative governance that ensures the benefits reach all.

III. RESULTS

Digital currencies do not have physical attributes and are available only in digital form. Transactions involving digital currencies are made using computers or electronic wallets connected to the internet or designated networks. In contrast, physical currencies, such as banknotes and minted coins, are tangible, meaning they have definite physical attributes and characteristics. Transactions involving such currencies are made possible only when their holders have physical possession of these currencies.

Digital currencies have utility similar to physical currencies. They can be used to purchase goods and pay for services. They can also find restricted use among certain online communities, such as gaming sites, gambling portals, or social networks.

Digital currencies also enable instant transactions that can be seamlessly executed across borders. For instance, it is possible for a person located in the United States to make payments in digital currency to a counterparty residing in Singapore, provided they are both connected to the same network.

Characteristics[5] of Digital Currencies

As mentioned earlier, digital currencies only exist in digital form. They do not have a physical equivalent. Digital currencies can be centralized or decentralized. Fiat currency, which exists in physical form, is a centralized system of production and distribution by a central bank and government agencies. Prominent cryptocurrencies, such as Bitcoin and Ethereum, are examples of decentralized digital currency systems.

Digital currencies can transfer value. Using digital currencies requires a mental shift in the existing framework for currencies, where they are associated with sale and purchase transactions for goods and services.

Digital currencies, however, extend the concept. For example, a gaming network token can extend the life of a player or provide them with extra superpowers. This is not a purchase or sale transaction but, instead, represents a transfer of value.

Types of Digital Currencies

Digital currency is an overarching term that can be used to describe different types of currencies that exist in the electronic realm. Broadly, there are three different types of currencies:

Cryptocurrencies

Cryptocurrencies are digital currencies that use cryptography to secure and verify transactions in a network.¹ Cryptography is also used to manage and control the creation of such currencies. Bitcoin and Ethereum are examples of cryptocurrencies. Depending on the jurisdiction, cryptocurrencies may or may not be regulated.

Cryptocurrencies are considered virtual currencies because they are unregulated and exist only in digital form.

Virtual Currencies

Virtual currencies are unregulated digital currencies controlled by developers or a founding organization consisting of various stakeholders involved in the process.² Virtual currencies can also be algorithmically controlled by a defined network protocol. An example of a virtual currency is a gaming network token whose economics is defined and controlled by developers.

Central Bank Digital Currencies

Central bank digital currencies (CBDCs) are regulated digital currencies issued by the central bank of a country. A CBDC can be a supplement or a replacement to traditional fiat currency. Unlike fiat currency, which exists in both physical and digital form, a CBDC exists purely in digital form. England, Sweden, and Uruguay are a few of the nations that are considering plans to launch a digital version of their native fiat currencies.[6]

The use of CBDCs has been suggested as a means of enhancing the speed and security of centralized payment systems, lowering the costs and dangers of handling cash, and promoting greater financial inclusion for people and companies without access to conventional banking services. They may also make cross-border payments easier and lessen the need for foreign exchange.

The introduction of a U.S. CBDC presents a number of difficulties. For instance, for Congress to authorize the issuance of a CBDC, there must be robust privacy and security infrastructures put in place. The government must also weight the possible impacts on monetary policy and the operational management of the switch from conventional money to a CBDC.

Digital Currencies	Virtual Currencies	Cryptocurrencies
Regulated or unregulated currency that is available only in digital or electronic form.	An unregulated digital currency that is controlled by its developer(s), its founding organization, or its defined network protocol.	A virtual currency that uses cryptography to secure and verify transactions as well as to manage and control the creation of new currency units.

Advantages of Digital Currencies

The advantages of digital currencies are as follows:

Fast Transfer and Transaction Times

Because digital currencies generally exist within the same network and accomplish transfers without intermediaries, the amount of time required for transfers involving digital currencies is extremely fast.

As payments in digital currencies are made directly between the transacting parties without the need for any intermediaries, the transactions are usually instantaneous and low-cost. This fares better compared to traditional payment methods that involve banks or clearinghouses. Digital-currency-based electronic transactions also bring in the necessary record keeping and transparency in dealings.

No Physical Manufacturing Required

Many requirements for physical currencies, such as the establishment of physical manufacturing facilities, are absent for digital currencies. Such currencies are also immune to physical defects or soiling that are present in physical currency.

Monetary and Fiscal Policy Implementation

Under the current currency regime, the Fed works through a series of intermediaries—banks and financial institutions—to circulate money into an economy. CBDCs can help circumvent this mechanism and enable a government agency to disburse payments directly to citizens. They also simplify the production and distribution methods by obviating the need for physical manufacturing and transportation of currency notes from one location to another.

Cheaper Transaction Costs

Digital currencies enable direct interactions within a network. For example, a customer can pay a shopkeeper directly as long as they are situated in the same network. Even costs involving digital currency transactions between different networks are relatively cheaper as compared to those with physical or fiat currencies. By cutting out middlemen that seek economic rent from processing the transaction, digital currencies can make the overall cost of a transaction cheaper.

Decentralized

Digital currencies may be decentralized. This means they are not controlled by any government or financial institution. Digital currencies that are decentralized make them more resistant to government interference, censorship, and manipulation. Decentralization means true control over the digital currency is spread over a broader range of owners or users.[7]

Privacy

Due to the fact that transactions with digital currencies are not linked to personal data, users are given a high level of privacy and anonymity. They are therefore very helpful for those who want to protect the confidentiality of their financial dealings.

Accessible Around the World

Anyone with an internet connection can utilize digital currencies from anywhere in the globe. These services are therefore particularly helpful for people who do not have access to conventional banking institutions. In addition, many of these banking services only need access to an internet connection; for geographical areas that are not as developed with a strong financial infrastructure, digital currencies may be a stronger option.

Disadvantages of Digital Currencies

The disadvantages of digital currencies are as follows:

Storage and Infrastructure Issues

While they do not require physical wallets, digital currencies have their own set of requirements for storage and processing. For example, an Internet connection is necessary as are smartphones and services related to their provisioning. Online wallets with robust security are also necessary to store digital currencies.

Hacking Potential

Their digital provenance makes digital currencies susceptible to hacking. Hackers can steal digital currencies from online wallets or change the protocol for digital currencies, making them unusable. As the numerous cases of hacks in cryptocurrencies have proved, securing digital systems and currencies is a work-in-progress.

Volatile Value

Digital currencies used for trading can have wild price swings. For example, the decentralized nature of cryptocurrencies has resulted in a profusion of thinly capitalized digital currencies whose prices are prone to sudden changes based on investor whims.

Other digital currencies have followed a similar price trajectory during their initial days. For example, Linden dollars used in the online game Second Life had a similarly volatile price trajectory in its early days.⁴

Limited Acceptance

Digital currencies are still not commonly used as a means of payment by retailers and other enterprises. Because of this, using them for routine transactions may be challenging. Though digital currencies have gained in popularity, there are still limited functionalities in everyday transactions in many places.

Irreversibility

On a digital currency[8] network, transactions are irreversible. This means that once a transaction has been completed, it cannot be undone. In circumstances where a mistake or fraud has taken place, this may be a disadvantage.

This is also a tremendous disadvantage for those new to the digital currency space, as there is a substantial learning curve. Because there is no central oversight area for many digital currencies, new users can't simply go to their local branch to receive help for many digital currencies.

Pros and Cons of Digital Currencies

Pros

- Faster transaction times.
- Do not require physical manufacturing.
- Lower transaction costs.
- Make it easier to implement monetary and fiscal policy.
- Offers greater privacy than other forms of currency.

Cons

- Can be difficult to store and use.
- Can be hacked.
- Can have volatile prices that result in lost value.
- May not allow for irrevocability of transactions.
- Still has limited acceptability.

Central Bank Digital Currencies Around the World

Some major central banks around the world have begun looking issuing their own digital currencies. Some of the larger, more notable examples include the countries below.

- China: Since 2020, the People's Bank of China (PBOC) has been testing the digital yuan, also known as e-CNY, in a number of Chinese localities. Millions of Chinese citizens currently utilize the digital yuan, which is intended to be used for retail transactions.
- Sweden: Also since 2020, Sweden's Riksbank has been testing the e-krona digital currency. The e-krona is being created to complement Sweden's diminishing use of currency and to give the general public access to a safe and effective payment system.⁵
- EU: A digital euro that may be issued by the European Central Bank (ECB) and used for retail transactions within the Eurozone is being investigated.⁶
- England: The Bank of England is looking into the prospect of launching the "Britcoin" cryptocurrency. The UK's payment system would be backed by a digital currency, which could also reduce the nation's dependence on cash.⁷
- Canada: The Bank of Canada has been conducting research and consultations on the idea of creating a CBDC

IV. CONCLUSION

Cryptocurrencies like bitcoin have exploded in value, but they are largely used for speculation or to buy other speculative assets. Although there have been some signs of merchant adoption in countries like El Salvador, the high volatility and complexity of these currencies make them impractical for most daily applications.

Many companies have tried to reduce volatility by introducing stablecoins, whose value is fixed to the price of fiat currency. This is usually done by depositing an equivalent amount of fiat, which can be used to redeem the tokens. However, stablecoin issuers such as Tether have used these deposits on more speculative investments, raising concerns that they are vulnerable to a market crash.

Another possible application is in central bank digital currencies, which could be issued by a country's bank or monetary authority. These would be used and stored in online wallets, similar to cryptocurrencies, but allowing the central bank to issue and freeze tokens at will. Several countries, such as China, have proposed digital versions of their currencies.^[9]

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