

## **CENTRAL BANK DIGITAL CURRENCY, FINANCIAL COMPETITION, AND GROWTH: IDENTIFYING CHALLENGES, OPPORTUNITIES, AND APPLICATIONS**

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### **INTRODUCTION**

The rapid advancement of digital technologies has reshaped the global financial system, and Central Bank Digital Currencies (CBDCs) are emerging as a transformative innovation. CBDCs, as digital equivalents of fiat currencies issued by central banks, promise significant benefits, including enhanced financial inclusion, efficient payment systems, increased transparency, and effective monetary policy implementation. They stand at the intersection of technological progress and monetary innovation, representing a new era of financial transactions.

A total of, approximately, 134 countries and currency unions, representing 98% of global GDP, are currently exploring CBDC. Currently, about 68 countries are in advanced stages of exploration, including development, pilot testing, or launch. Countries like China, India, Nigeria, and the Bahamas are at the forefront of CBDC development, using these digital currencies to drive economic integration and enhance fiscal transparency. In contrast, other countries, such as Argentina, do not see an urgent need to issue a CBDC and are focusing on improving their current payment systems. European countries such as Hungary and the Czech Republic have also stated that they are not considering the launch of a CBDC in near future. Moreover, 17 countries have disabled their CBDC projects.

For Pakistan, where more than 80% of transactions are cash-based, CBDCs present an opportunity to modernize the economy, improve financial inclusion, and address the challenges posed by unregulated digital currencies. Initiatives such as Raast already fostered a digital payment ecosystem, and the adoption of CBDCs could complement these efforts. However, challenges like digital illiteracy, lack of access to financial systems, security of digital transactions, and inadequate infrastructure remain significant obstacles.

This brief explores the potential of CBDCs in Pakistan by conducting an extensive literature review, analyzing global trends, evaluating the country's status regarding selected macro-financial-technological factors, and assessing the perceptions of key stakeholders regarding the level of readiness, benefits, challenges, opportunities, and implications of CBDC in Pakistan. The study offers strategic recommendations for the State Bank of Pakistan (SBP) regarding CBDC.

## METHODOLOGY

To ensure comprehensive insights, this policy brief employs a multi-faceted research methodology integrating global and local perspectives (see Figure 2).

*Figure 1: Mixed Methods Approach*

### Qualitative Data Analysis

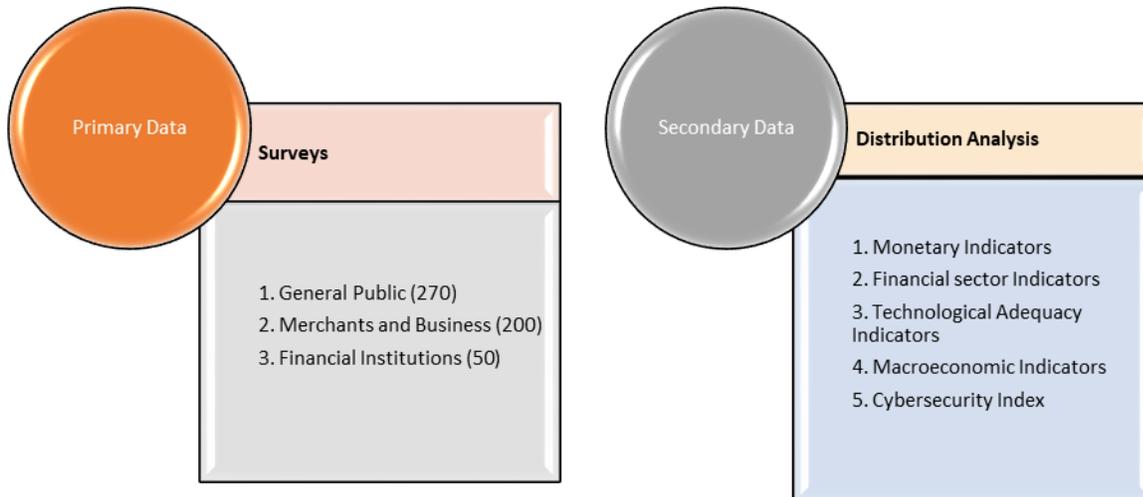
- Conventional Literature Review
- Bibliographic Mapping
- Systematic Literature Review

### Quantitative Data Analysis

- Primary Data Analysis
- Secondary Data Analysis

The review encompasses institutional reports from the International Monetary Fund (IMF), the Bank for International Settlements (BIS), and other key stakeholders, alongside 974 academic articles retrieved from Scopus.

*Figure 2: Quantitative Data Analysis*



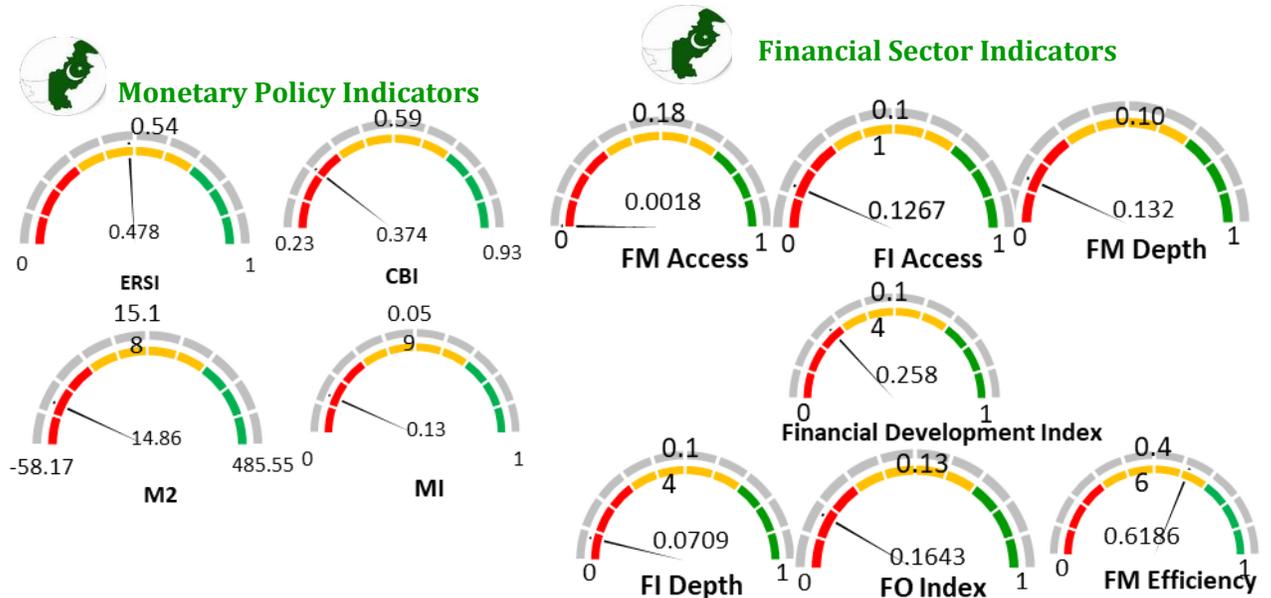
## FINDINGS

These findings and implications are related to the appropriate design, user cases, and types and modes of CBDC regarding implementation and issuance. Moreover, implications are also offered on the various aspects of issuance, adoption, risk management, perceptions, opportunities, and challenges associated with CBDC.

### *Application of CBDC: Need of CBDC in Pakistan*

- Comparing Pakistan's economic, monetary, and financial indicators with those of the research group, it is found that Pakistan's performance in these indicators provides supporting evidence for the need for CBDC (see Figure 3).

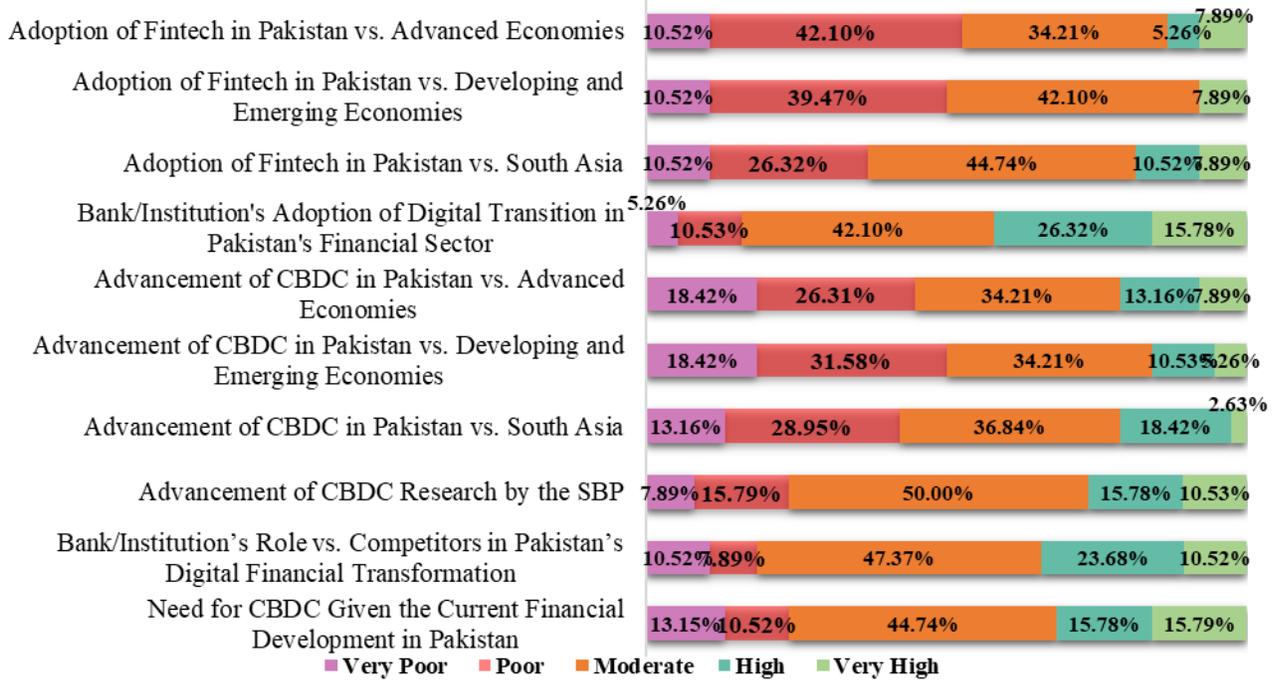
**Figure 3: Monetary and Financial Indicators-Pakistan's Position**



- Another important finding related to the necessity of CBDC is that the neighboring countries of Pakistan like India and China are moving fast toward adoption of CBDC with the perspective of first mover advantage. This can facilitate their financial integration and improve trade competitiveness.
- It is observed that majority of the general public and merchants are using variety of digital payment modes and considering financial technology useful for their financial transactions. They also consider themselves confident for adopting any technological and financial innovation comprising superior features than the existing ones, hence highlighting the need to launch CBDC in Pakistan.

- It is also highlighted by the representatives of financial institutions that CBDC is essential for financial development and Pakistan is already lagging behind as far as adoption of advanced financial technology is concerned (Figure 4).

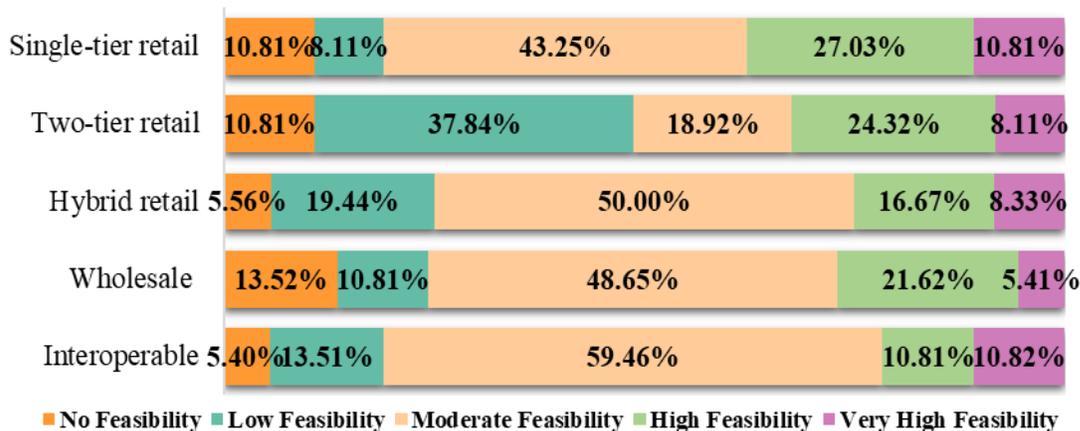
**Figure 4: Financial Institutions' Perceptions of Fintech and CBDC**



### Design and Architecture of CBDC Suitable for Pakistan

- Approximately 60 percent of countries around the globe are focusing on retail CBDC projects. Nonetheless, it is observed that many other countries are also exploring wholesale CBDC, which has the potential to facilitate cross-border payments.
- The evidence suggests that by involving both the central bank and private sector intermediaries, a hybrid model can enhance the resilience and security of the payment system. This dual-layer approach can help mitigate risks associated with cyber threats and operational failures.

**Figure 5: Feasibility of Different Design of CBDC**



- According to findings drawn from Financial Institutions, the neutral response of financial institutions regarding the design of CBDC may reflect a lack of awareness and knowledge of financial institutions about the implications of each design.

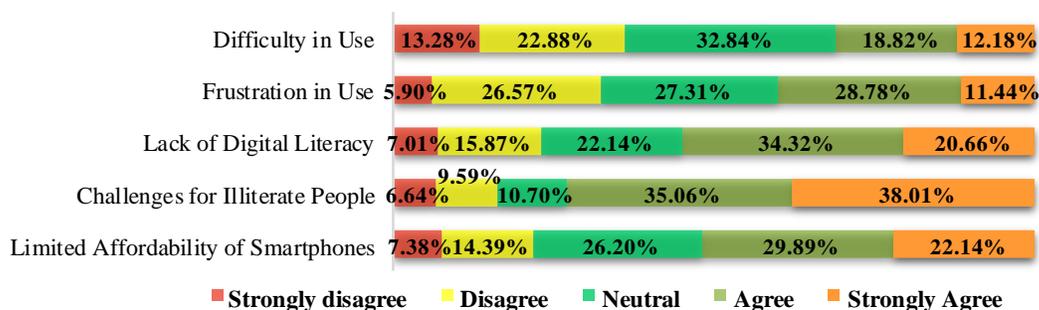
### Regulatory Framework

- Launching and regulating CBDCs would require new frameworks that address unique concerns such as distribution, control, and integration with monetary policy.
- Additionally, it is also documented that CBDCs could influence monetary policy and financial stability and also alter monetary transmission mechanisms, necessitating revisions to central banks' tools for managing interest rates and money supply.

### Challenges of CBDC

- Our findings from thematic analysis of institutional and academic research highlighted the usefulness as the most important factor in the adoption of CBDC followed by ease of use and digitalization
- The survey of the general public and merchants confirmed that digital literacy is necessary for the successful launch, acceptance and adoption of CBDC in Pakistan. Lack of digital literacy along with lack of communication and data privacy can pose a serious challenge to gain potential benefits from the CBDC. Especially for females' lack of digital literacy may pose serious challenges.

**Figure 6: Perceived Challenges of CBDC**

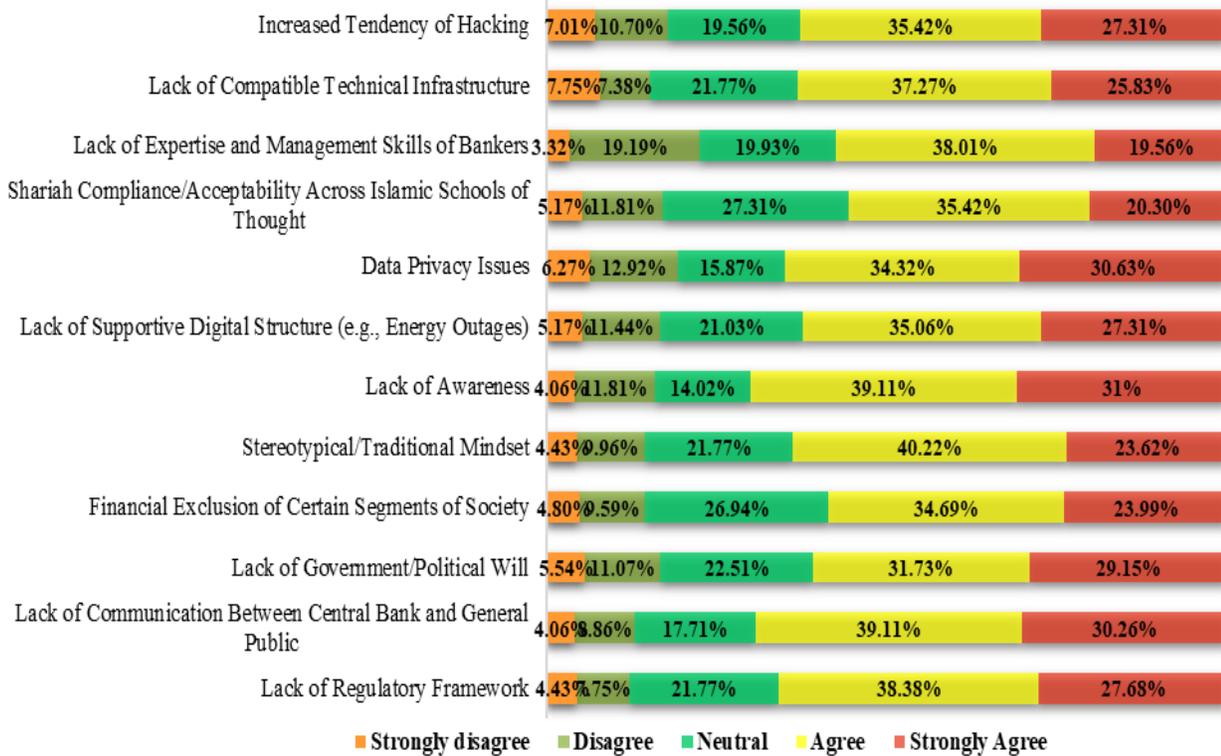


- The respondents from financial institutions are of the view that lack of political will and insufficiency/inadequacy of physical and technological infrastructures at both SBP and financial institutions level are important challenges.
- The findings highlight the need to improve SBP communication with stakeholders (Financial institutions) about its programs /initiatives with regard to CBDC and its implications. Similarly, the respondents are also not clear (stay neutral) about their respective bank initiatives for creating awareness regarding CBDC.
- Investments in infrastructural development (physical, technological, hardware, software) are required before the launch of CBDC. However, the financial resources required to initiate such investment are another prominent challenge for SBP and financial

institutions.

- Trust on the existing financial system and security concerns are also important factors in inducing or hindering the adoption of CBDC.

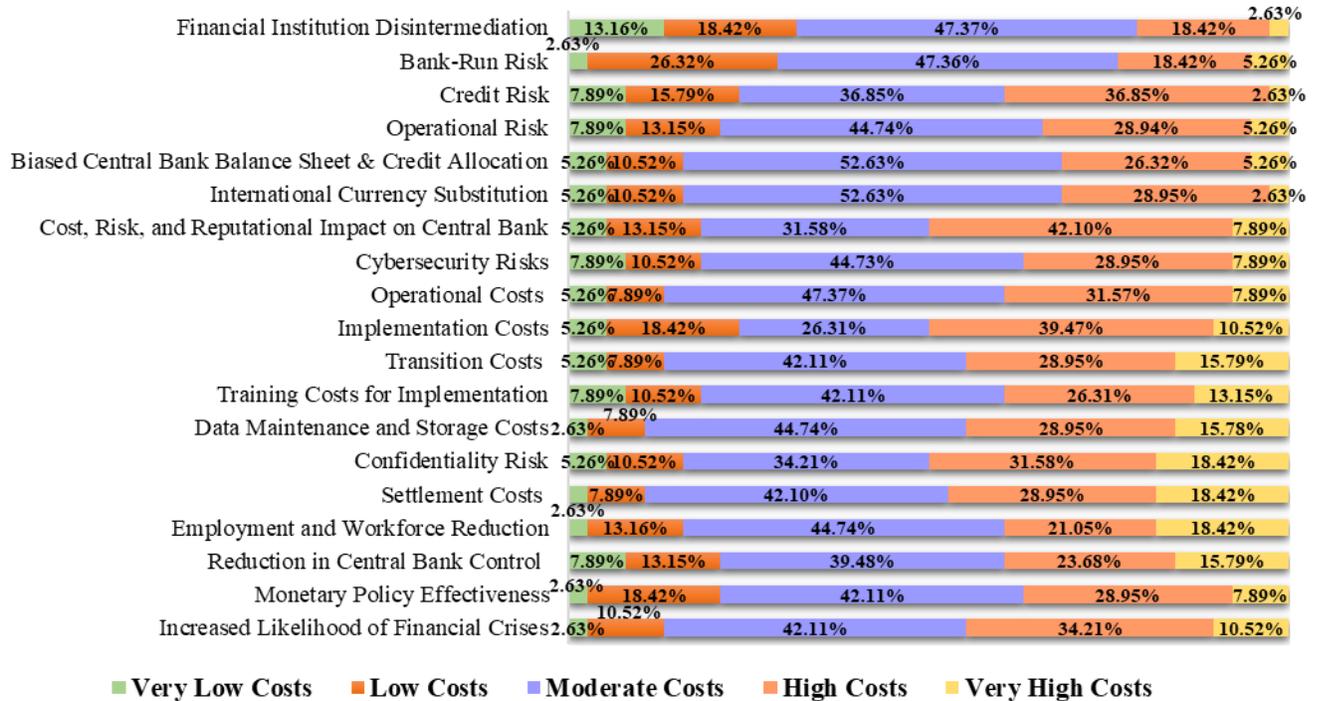
**Figure 7: Perceived Challenges of CBDC**



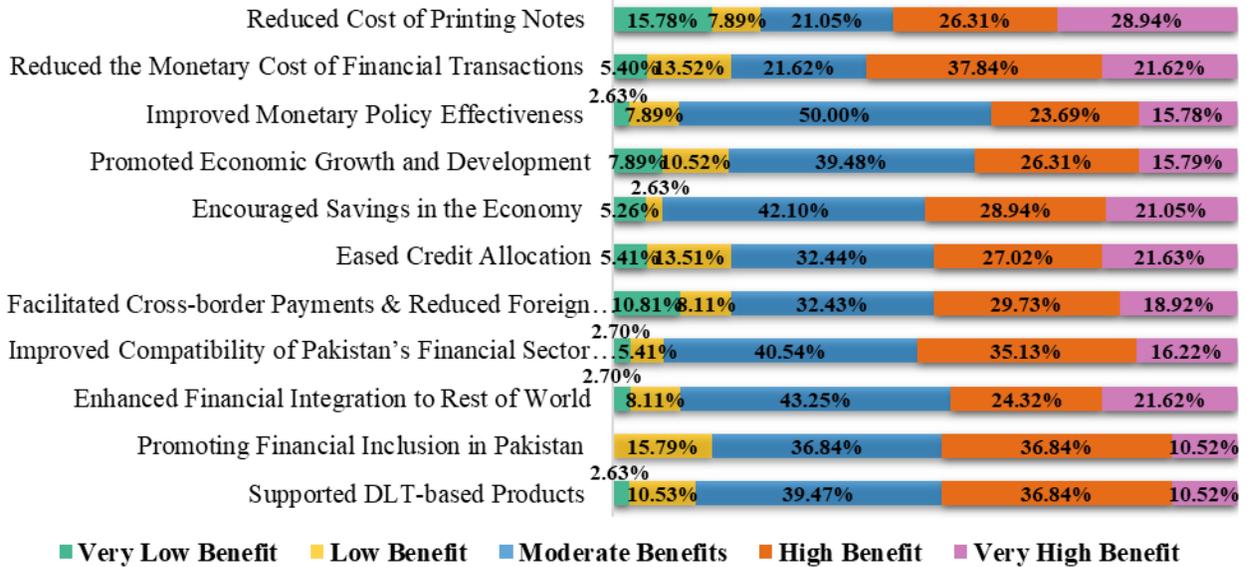
- The data theft, information privacy, and security protocols are found to be some of the biggest challenges posed by CBDC.
- According to financial institutions' survey, CBDC does not have the potential to improve the effectiveness of monetary policy not it can improve financial stability and funds allocation in Pakistan.

- Moreover, financial stability and bank dis-intermediation are also important concerns (Figure 10) that cannot be overlooked. In a country with a dismal financial profile, digital innovation of this scale may yield risks that may surpass the perceived benefits. Hence the issuance and designing of CBDC require intense scrutiny measures.

**Figure 8: Potential Costs and Risks Associated with CBDC**



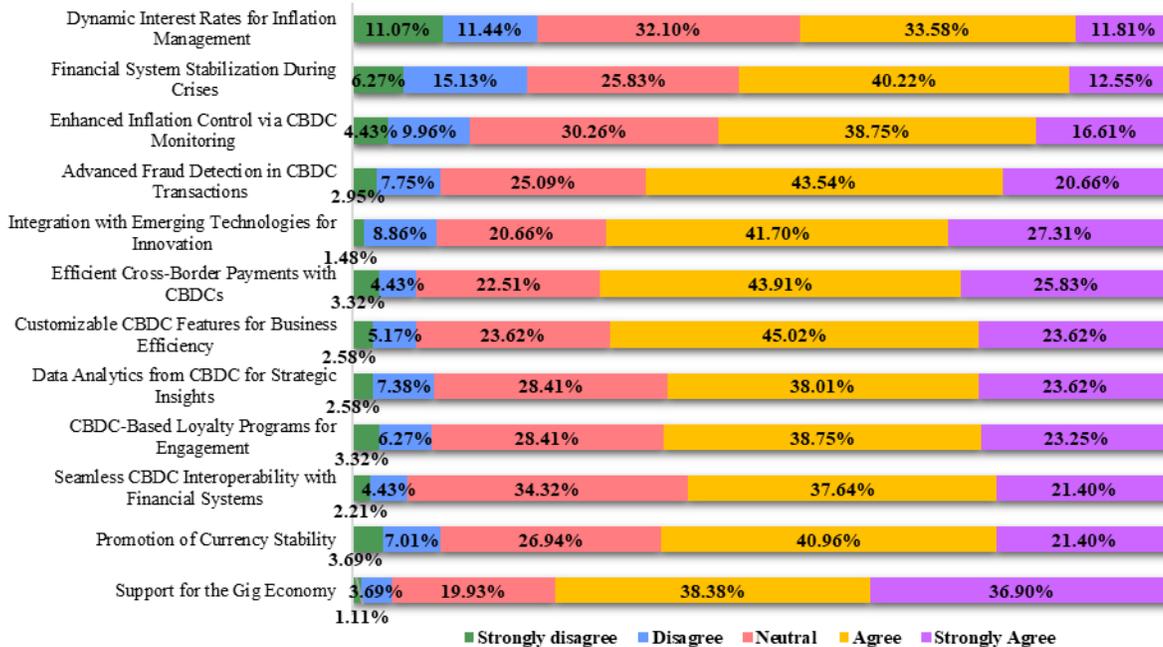
**Figure 9: Potential Benefits of CBDC at Economy Level**



### Prospects / Opportunities

- Improvement in digitalization and financial inclusion, increase in payment efficiency, and effectiveness of monetary policy are the most frequently reported benefits of CBDC. Research including Pakistan has also reported enhanced security as one of the most prominent benefits of CBDC.
- Pakistan's performance in the monetary sector is better than the average score of other countries in the proof of concept and pilot testing group.

**Figure 10: Future Considerations regarding CBDC**



- Pakistan has already initiated a digital transaction system since 2018 and provided basic infrastructure for digital transactions and online payments, which may serve as a platform for the launch of CBDC. These facilities include 1LINK switch, RAAST payment system, Roshan Pakistan, and Person to Person (P2P), RAAST-P2M. Hence, the availability of digital payment system can be capitalized to launch CBDC if and when the need arises.

## **POLICY RECOMMENDATIONS**

- SBP may consider conducting extensive research, surveys, and feasibility studies to understand the necessity of CBDCs unique to the country by taking into consideration different stakeholders in the economy.
- A full-fledged policy framework and implementation procedure should be designed in order to effectively launch the CBDC.
- Pakistan may consider retail CBDC to align its payment system with rest of the world. SBP may simultaneously explore wholesale CBDC to facilitate cross border payment.
- Implementing a hybrid CBDC can be more technologically feasible for Pakistan, as it can be built on existing financial infrastructure and leverage the expertise of private sector intermediaries.
- Given the current levels of digital literacy, overall education, and demographic profile, transitioning to an entirely new system of financial payments and transactions may face significant resistance. Therefore, based on our analysis, we suggest that an account-based CBDC is a more feasible option.
- SBP shall conduct target-oriented trainings and workshops for financial institutions to educate them about CBDC designs, and the implications and benefits associated with each. Moreover, SBP may also motivate and engage financial Institutions to provide awareness and necessary skills required in the management of CBDC.
- Given the conventional and Islamic window operations of financial institutions in Pakistan, it is recommended that SBP should consider the compatibility of the CBDC with the Shariah legitimacy.
- Pakistan's existing laws only recognize cash and bank deposits as legal tender, the SBP's mandate under its current legal structure might need to be expanded to accommodate CBDC. However, SBP should first implement pilot program to evaluate operational and regulatory aspects of CBDC before proposing the final amendments in its Acts.
- SBP may establish a specialized unit for exploration, launch, implementation, management, and monitoring of CBDC. Moreover, SBP may formulate a multi-stakeholders steering committee comprising government representatives, central bank officials, academic researchers, financial institutions, neobanks, and corporate sector to coordinate the launch and operations of CBDC.
- SBP should prioritize creating a simple and intuitive user interface for CBDC transactions. This includes ensuring digital wallets and payment platforms easy to navigate, even for

those with limited technological knowledge and experience.

- Investing in robust technological infrastructure and cybersecurity is essential, with blockchain technologies offering scalable and secure solutions.
- The SBP can leverage CBDCs to gain more precise control over monetary policy. SBP is required to update its underlying models to include CBDC and other forms of digital money.
- Pakistan may follow India and China's strategy of improving financial access in rural areas and unbanked population to ensure financial inclusion.
- Pakistan should ensure that its CBDC integrates with the existing payment systems like JazzCash, Easypaisa, RAAST, P2P, RAASTP2M, and internet banking.