

# Central Bank Digital Currency in an Emerging Market Economy: Case of the Central Bank of the Republic of Türkiye

Gelişmekte Olan Piyasa Ekonomisinde Merkez Bankası Dijital Para Birimi: Türkiye Cumhuriyet Merkez Bankası Örneği

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## Abstract

Central banks have historically been using traditional channels for communication and physical money for transactions, fulfilling the needs of previous millennia, while the evolution of technology, electronic devices, and needs in transactions necessitate the use of modern communication channels, such as X (formerly known as Twitter), as well as modern payment systems, such as central bank digital currencies (CBDC). Hence, this paper aims to unfold where the Central Bank of the Republic of Türkiye (CBRT), as an example of emerging markets, stands in informing the public about CBDC. To this end, it conducts an event study on the official X account of CBRT in English over 10.2020-12.2022 by utilizing Nvivo. The findings of the quantitative analysis of the tweets show that CBRT does not regard X as a primary communication channel and mainly shares links to publications from the official websites in X. Also, CBRT tends to adopt a 'cold-turkey' informative approach about CBDC with the public rather than 'gradualism'. Consequently, CBRT should rigorously design a communication strategy that fulfills the needs of the modern economy and start addressing CBDC to raise awareness if a quick transition to digital currency is targeted.

**Keywords:** Central Bank Digital Currency, Knowledge Management, Emerging Market Economies, Social Media, Türkiye.

**JEL Codes:** E58, B52, O23

## Öz

Merkez bankaları geçmişte iletişim için geleneksel kanalları ve işlemler için fiziksel para kullanarak, binlerce önceki yılın ihtiyaçlarını karşılamışken, teknolojinin, elektronik cihazların ve işlemlerde ihtiyaçların evrimleşmesi, X (eski adıyla Twitter) gibi modern iletişim kanallarının yanı sıra merkez bankası dijital para birimleri (MBDPB) gibi modern ödeme sistemlerinin kullanılmasını gerektirmiştir. Bu anlamda, bu makale, gelişmekte olan piyasa ekonomilerinin bir örneği olarak Türkiye Cumhuriyet Merkez Bankası'nın (TCMB), kamuoyunu MBDPB hakkında bilgilendirmede bulunduğu noktayı ortaya çıkarmayı amaçlamaktadır. Bu amaçla, Nvivo kullanarak 10.2020-12.2022 tarihleri arasında TCMB'nin İngilizce resmi X hesabı hakkında bir olay çalışması yürütmektedir. Tweetlerin nicel analizinin bulguları, TCMB'nin, X'i birincil iletişim kanalı olarak görmediğini ve X'de genellikle resmi web sitelerinde bulunan yayınlara dair bağlantılar paylaştığını göstermektedir. Buna ek olarak, TCMB, MBDPB hakkında kamuoyunu bilgilendirmede "tedricilikten" ziyade "soğuk hindi" yaklaşımını kullanma eğilimindedir. Sonuç olarak, TCMB, modern ekonominin ihtiyaçlarını karşılayan bir iletişim stratejisini dikkatli bir şekilde tasarlamalı ve eğer dijital para birimine hızlı bir geçiş hedefliyorsa, MBDPB hakkında farkındalık yaratmak için bundan bahsetmeye başlamalıdır.

**Anahtar Kelimeler:** Merkez Bankası Dijital Para Birimi, Bilgi Yönetimi, Gelişmekte Olan Piyasa Ekonomileri, Sosyal Medya, Türkiye.

**JEL Sınıflandırması:** E58, B52, O23

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## **Central Bank Digital Currency in an Emerging Market Economy: Case of the Central Bank of the Republic of Türkiye**

The forms of two types of money, namely reserve deposits and cash, issued by central banks (CBs), present the technical solutions of previous centuries. Although ledger technology and banknote production have improved from that day forward, the forms of central bank money have remained the same. With the rapid advances in electronic devices and high-speed internet connections, various electronic payment methods that can be used for daily transactions have emerged. These developments raised questions for CBs about issuing sovereign digital currencies that could be more appropriate for today's modern economy. The same argument holds for the communication channels used by CBs, as they tend to heavily rely on traditional channels from previous decades to inform the public rather than embracing communication tools of the current era.

The Bank for International Settlements (BIS) has been conducting surveys about central bank digital currency (CBDC) with several countries since 2017. In these surveys, it is expressed that there has always been a stronger motivation for issuing CBDC in emerging markets and developing economies (EMDEs) than in advanced economies (AEs) (Boar et al., 2020; Boar & Wehrli, 2021). The recent surveys of Boar and Wehrli (2021) and Kosse and Mattei (2022) indicate that the primary motivations for launching CBDC for EMDEs are financial inclusion and enhanced payment methods (i.e., safety and efficiency). Additionally, the importance attached to the alternative motivations for launching CBDC is compared over time. The result identifies that financial stability and monetary policy implementation also became motivations for issuing CBDC in EMDEs. Moreover, CBs from EMDEs state that they are more likely to issue a CBDC in the short- and medium-run than CBs from AEs. These evidences point out an urgent desire to launch CBDC among EMDEs, paving the way for an analysis of emerging markets.

The existing literature has focused on the implications of CBDC (Ahmat & Bashir, 2017; Bordo & Levine, 2017; BIS, 2018; Barontini & Holden, 2019; Brunnermeier et al., 2019) and the design of CBDC (Burgos & Batavia, 2018; Agur et al., 2019; Auer et al., 2020; Ali & Narula, 2020; Davoodalhosseini & Rivadeneyra, 2020; Ozili, 2023; Dionysopouloset al., 2024), as there were no 'cases' for CBDC (ECB, 2020). Yet over time, due to the declining use of banknotes relative to other payment methods in some countries, such as Canada and Sweden (Engert et al., 2017), CBs start to engage in exploring CBDCs, such as the Sveriges Riksbank (Skingsley, 2016), BIS, Bank of England (Broadbent 2016), European Central Bank (ECB) (Mersch, 2016), and progress with projects and pilot tests, such as Project Ubin in Singapore (MAS, 2016), Project Jasper in Canada (Bank of Canada, 2017; Chapman et al., 2017), Project LionRock in Hong Kong, Project Stella by ECB and the Bank of Japan (ECB-BoJ, 2017); DXCD by Eastern Caribbean Central Bank (ECCB, 2019), Sand Dollar by Central Bank of the Bahamas (CBB, 2019) and the People's Bank of China (Fan, 2020). These projects and pilot tests highlight that there is a growing interest in CBDCs, especially by AEs, leaving scope for an analysis of EMDEs<sup>1</sup>. Hence, this paper aims to unfold where the Central Bank of the Republic of Türkiye (CBRT), as an example of a CB that communicates in English using a modern tool among emerging markets, stands in informing the public about CBDC.

Türkiye has always been among the respondents in the surveys of BIS over 2018-2022, though CBRT has not published any work about CBDC until recently. In September 2021, CBRT announced that there is ongoing research on the Central Bank Digital Turkish Lira (CBDTL). CBDTL is planned to complement the existing payment methods, and there will be pilot tests over the established Digital Turkish Lira Collaboration Platform. According to Türkiye's Presidential Annual Program for 2023, CBDTL will be issued for pilot testing in 2023. This news can be followed through the official website of CBRT, rendering proofs over the use of a traditional communication tool. Although CBs have been

using traditional communication channels, such as press releases, press conferences, and executive summary reports, the advancements in technology now necessitate the use of alternative communication channels, such as X (formerly known as Twitter), as well. While X first emerged for entertainment blogging (Howard, 2008), it is now also used as a platform for investigating various phenomena (see, e.g., Ozturkcan et al., 2022; Bianchi et al., 2019), as millions of users around the world provide a huge amount of data that unravels and changes behavioral patterns (see, e.g., Mavrodieva et al., 2019; Bonnevie et al., 2020). In other words, X allows for reaching out to a wider audience to inform the masses, raise awareness on various topics, and advertise products. Therefore, an analysis of tweets by CBRT about CBDC is presented in this study because the use of X by CBRT provides an outlet for an alternative tool of public communication that is more plausible in today's modern economy. Specifically, the official X account of CBRT in English is scraped for tweets that exclusively relate to the CBDC and CBDTL. To provide a benchmark for comparison, the same analysis is repeated for ECB as an example from AEs.

The primary objective of CBRT has been explicit price stability since 2006 through inflation targeting (IT). In 2011, CBRT changed its policy objectives to financial stability and growth-enhanced focus rather than sole IT to be able to become more flexible and to respond faster to macroeconomic shocks (Kara, 2012). While the discrepancy between the inflation target rate and actual inflation is expected in the first years of a new policy regime, actual inflation remained above the target rate between 2006 and 2022. There has also been a wedge between inflation expectations from CBRT surveys and actual inflation in this period (Ökten & Asfuroğlu, 2022). These evidences suggest that CBRT has been having difficulties guiding inflation expectations and anchoring inflation, all of which cause a loss of confidence in CBRT, as proven by Türkiye Raporu (2021). However, there are several benefits of launching CBDC that CBRT can utilize, such as building credibility, mitigating the informal economy, achieving price-level stability, and in return, sustaining macroeconomic and financial stability. Taking into account such contributions of issuing CBDC in an emerging economy, it is clear that publications, reports, and posts regarding CBDC would be vital in informing the public. In other words, when an institution (e.g., CB) considers launching a new product (e.g., a payment system in the form of digital currency), it is expected of it to advertise (e.g., via X) the new product (e.g., CBDC) in order to increase the familiarity and adoption of the product, assuming that the institution has already built the trust of economic agents (see, e.g., Koziuk, 2021).

Söilen and Benhayoun (2022) survey the household acceptance of CBDC using a questionnaire and find social recommendations to be an important factor in affecting attitudes toward CBDC. Maryaningsih et al. (2022) show that the role of authorities is pivotal in influencing the acceleration of CBDC projects. Tronnier et al. (2023) discover that the public's perceptions of the advantages, drawbacks, and concerns associated with related payment solutions, which can be managed by CBs, affect the demand for CBDC. Li (2023) also claims that the adoption of CBDC grows in proportion to the public's awareness of it. Given established arguments regarding the ability of CBs to steer the perception of the public about CBDC, a quantitative analysis of the tweets of CBRT is conducted. According to the results, CBRT has been relying on traditional communication channels rather than X and using its X account to share mainly the links to publications from the official website. Since there were not any tweets mentioning CBDC and CBDTL over the period 12.2016-12.2022, it can be concluded that CBRT tends to adopt a 'cold-turkey' informative approach about CBDC with the public rather than 'gradualism'. However, ECB is comparatively better at knowledge management for CBDC than CBRT.

The contribution of this paper to the existing literature is three-fold. First, it summarizes the common features of CBDCs that the literature mainly has a consensus on, which would be especially beneficial

for EMDEs. Secondly, to the best of our knowledge, this is the first study investigating digital currencies and the knowledge management of CBDCs focusing on X, neither for AEs nor for EMDEs. By employing an event study on tweets, this paper shows how efficient CBRT is in using a modern communication tool. Lastly, this study unravels where CBRT stands in informing the public about CBDC and whether it can raise awareness on this topic, facilitating policy recommendations.

The structure of this paper is as follows: to motivate the quantitative analysis, Section II reviews the literature on CBDC in terms of design and motivations. Section III explains the methodology of the analysis and presents the results. Finally, conclusions with policy recommendations are set out in Section IV.

### **Background**

Although there is no universally agreed definition of CBDC, there are certain aspects and features of CBDC that CBs have been investigating. For instance, it is accepted that CBDC is a “digital form of central bank money that is different from balances in traditional reserve or settlement accounts” (BIS, 2018). It is a direct liability of the CBs, which is denominated in the national unit of account, that is proposed as a digital instrument of the CBs. A vital instrument that is currently used by CBs to provide the safest form of money is physical money, which acts as a means of payment, store of value, and unit of account. Therefore, CBDCs have to fulfill the efficiency, security, and stability functions of physical money for economic and financial transactions.

On the efficiency of the medium of exchange, Bordo and Levine (2017) think that an account-based CBDC should be issued more parallel to debit cards than cash, as the former case provides a simpler, more practical, and costless design. While token-based CBDC uses a form of distributed ledger technology (DLG), which requires transparent procedures for updating DLG, that is proven to be difficult and expensive in digital currencies, where incidents led to the separation of “Ethereum” and “Ethereum Classic”, and “Bitcoin” and “Bitcoin Cash”. On the other hand, in account-based CBDC, agents hold their funds electronically in CBDC accounts at CB, and CB switches transactions between debiting and crediting CBDC funds of those involved in transactions instantaneously and without any costs (Scorer, 2017).

On the security of the unit of account, CBDC could have a constant nominal value. In this case, in the event of positive nominal interest rates, agents would be encouraged to reduce the funds held in CBDC accounts. As a result of deflation or a decrease in aggregate demand, CBs can still use nominal interest rates to help the economy. Yet, its ability in this respect would be limited due to the zero lower bound. Alternatively, the real value of funds in CBDC accounts could be indexed to changes in the general price level to have a stable real value. In times of weak aggregate demand where the real interest rate becomes negative, agents would switch to CBDC funds bearing zero real interest. This, however, results in a zero lower bound on real interest rates, which is a worse constraint on monetary policy than the previous one. According to another alternative, CBs can pay interest on CBDC as the Fed does in reverse repo. The interest-bearing feature of CBDC allows CBs to drop interest rates as much as needed (e.g., the ECB and BoJ paid negative interest before) in the face of a downward pressure on aggregate price levels. In such times, the presence of non-interest-bearing cash arises as an attractive alternative compared to negative interest-bearing CBDC. Since the subsequent disintermediation into cash would not be healthy for the economy, a gradual switch between cash and CBDC towards the latter becomes important. This can be imposed by a fee between cash and CBDC transactions (Bordo & Levine, 2017), so that this is no longer a problem for monetary policy. On the stability of the unit of account, the elimination of the zero lower bound would allow CBs to achieve true price stability so that the value of CBDC remains stable over time as well.

As it can be deduced from the above, the features of CBDC discussed in the literature also pertain to

the motivations for issuing it. There are several reasons why cash is still in use. For instance, cash does not depend on technology, provides anonymity, allows transactions without third parties, and instant finalization of transactions. Nevertheless, the rapid pace of innovations in blockchain technology and the internet enable the majority of these features for CBDC as well, creating a room for restricting the use of cash. The rationale behind this restriction is to reduce the criminal economy by removing large-denomination banknotes from circulation or limiting the maximum value of cash payments. From the perspective of EMDEs, limiting cash use with the introduction of CBDC is even more pertinent as a large part of economic activity is conducted with cash, and hence, tax evasion, money laundering, and illegal activities are very high (Rogoff, 2016). An account-based CBDC would facilitate monitoring of unusual activities and frauds by CBs. Since CBDC creates a data trail for transactions, CBs of countries with large informal economies could use it to decrease shadow economies. Establishing the fee schedule to substitute away from cash could also serve as a tax on black-market transactions, expediting the obsolescence of large-denomination paper currency bills. For EMDEs, adopting CBDC is also beneficial for lower-income households, relying heavily on cash, and for small businesses, incurring costs for handling cash or taking payments via cards (e.g., Barrdear & Kumhof, 2016). Launching CBDC introduces an additional payment method to the system, increasing payment diversity. The interest-bearing feature of CBDC also contributes to the competitiveness of the banking system. These are particularly important for EMDEs, as monopolies and high concentrations in sectors cause more damage in EMDEs than in AEs (Begazo & Nyman, 2016).

It is well established by the literature that monetary policy should provide a nominal anchor for agents to guide their economic decisions. In recent decades, this has been implemented through the adoption of IT by several CBs. Although this target is supposed to be fixed at a specific value, it has been observed that, in practice, it may change arbitrarily or depending on political speeches and elections. These undermine the credibility of the CBs together with their nominal anchor and tend to be experienced in EMDEs more frequently (for example, Demiralp & Demiralp, 2019). However, adopting an interest-bearing CBDC facilitates CBs in establishing a stable price level target for expectations and in return, constitutes a credible nominal anchor. Furthermore, transparency and accountability of the balance sheets of CBs are regarded as a guarantee for CB independence (e.g., IMF, 2020), and several studies show that CBs in the AEs are more transparent than ones in EMDEs (for instance, Dincer & Eichengreen, 2009; Crowe & Mead, 2008). In this regard, the introduction of CBDC by CBs from EMDEs can also assist them in developing a better reputation in terms of credibility and, in return, independence. With the choice of interest-bearing CBDC, the interest rate would still act as the primary tool for CBs. Additionally, it prevents CBs from using unconventional monetary policies, disrupting the balance sheet, as the interest rate could be pushed below zero. Furthermore, the elimination of the zero lower bound simplifies price stability through price-level targeting (Bordo & Levin, 2017). In this sense, there are several studies concluding that price-level targeting is more beneficial to macroeconomic stability than IT (Clarida et al., 1998; Woodford, 2003). Especially for EMDEs, where inflation tends to be high and persistent, price stability is particularly important for sustained economic growth and macroeconomic and financial stability.

In short, the existing literature focuses on CBDC in terms of design and motivations, and discusses that there are several advantages to launching CBDC that CBs, especially from EMDEs, can capture. In fact, in the survey of Boar and Wehrli (2021), seven out of eight advancements in CBDC work are from CBs in EMDEs. This stronger need for CBDCs translated into a likelihood of advancement in a pilot or implementation phase in some EMDEs. However, CBRT recently joined this race by establishing a platform for research on CBDC in 2021. Therefore, the attitude of CBRT towards CBDC is important, as Türkiye may greatly benefit from issuing a local digital currency and could be indicative of other EMDEs in terms of understanding their knowledge management for CBDC.

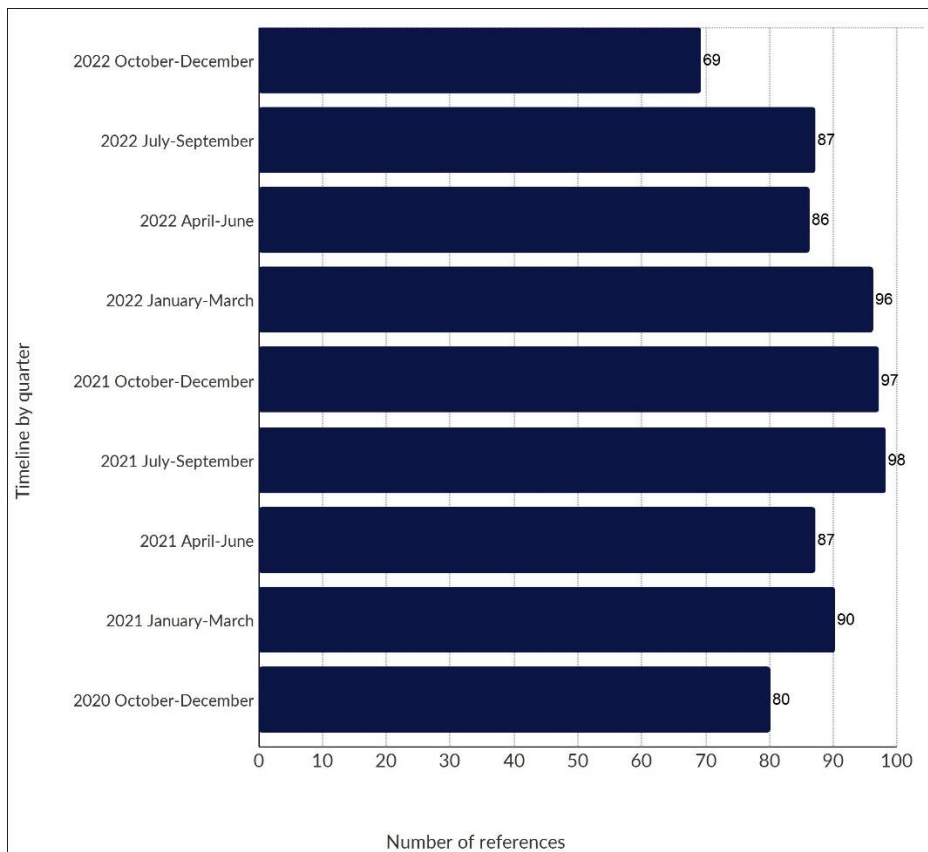
## Methodology and Results

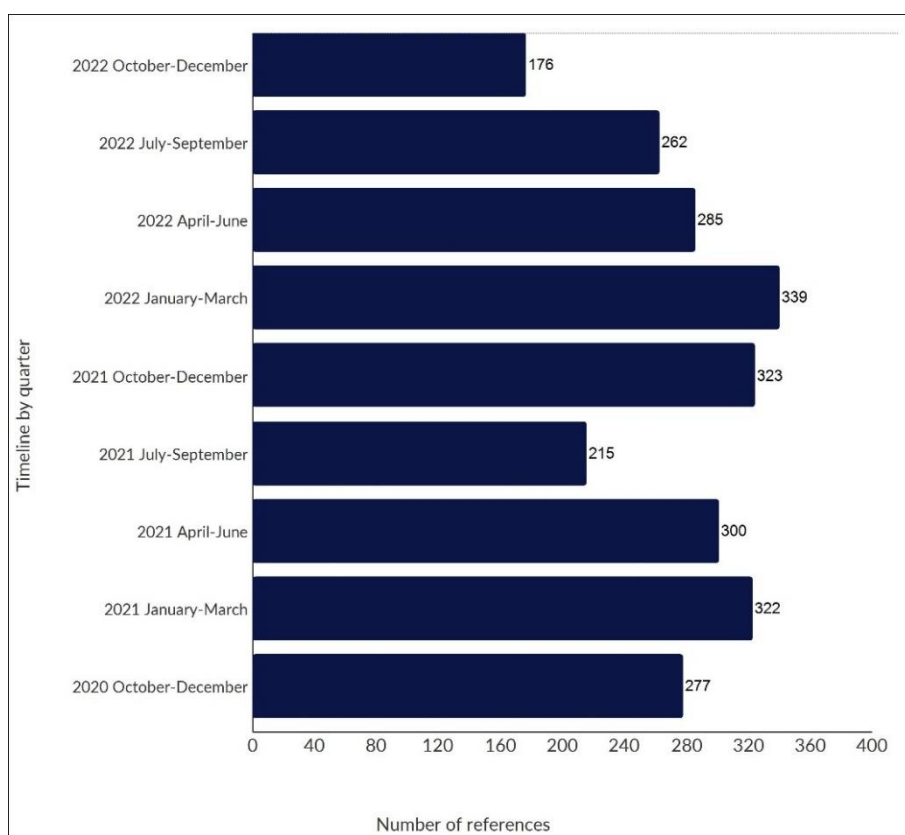
In this event study, the official X account of CBRT in English is scraped for tweets that exclusively relate to the CBDC and CBDTL because the use of X by officials also provides a public communication channel for the current era and facilitates advertisement of CBDTL. This, first, requires the capture of the content in the tweets. To do so, a browser extension called NCapture, which allows researchers to collect written and visual web content, is utilized. Since the web content gathered via NCapture is a raw dataset, an analysis tool is employed to provide statistical evidence on where CBRT stands in informing the public about CBDC. Second, the content is imported to Nvivo, which is a software that enables quantitative analysis. Then, charts and frequency tables of these tweets are presented.

To provide a better frame of how CBRT positions itself and how informative CBRT is regarding CBDC as an example of EMDEs, a comparison is made with ECB as a benchmark from AEs. Tweets posted with CBDC and CBDTL in CBRT and digital euro in ECB, together with their hashtag versions, between 20.10.2020 and 07.12.2022 are retrieved from their official X accounts using NCapture. The choice over the period is targeted to be recent, as the announcement by CBRT is recent. Yet, it should be noted that how far in the past the tweets can be retrieved is contingent on NCapture and X's application programming interface and alternates depending on various factors. Due to the high volume of posts by ECB compared to CBRT, as demonstrated in Figure 1, the dates of the tweets by ECB that are captured dictate the period for the analysis, which is 20.10.2020-07.12.2022. The sample consists of 790 tweets by CBRT and 2499 tweets by ECB, excluding retweets. Nevertheless, the same analysis below is repeated for CBRT over 02.12.2016-07.12.2022, when there are 2983 tweets and the findings are found to be robust.

**Figure 1**

*Number of Tweets*





*Note.* Prepared by the author.

The top panel of Figure 1 indicates the bar chart for CBRT, whereas the one at the bottom refers to that for ECB. The numbers next to the bars in the charts denote the number of tweets posted by these CBs. On the horizontal axis, the frequencies of the tweets are given, and on the vertical axis, dates arranged as quarters are provided. Specifically, the number of posts by ECB over April-December 2022, which is the sum of three quarters, almost equals the total number of posts by CBRT over 10.2020-12.2022, which is the overall period of analysis. In each corresponding quarter, the number of tweets by ECB is 2.5- to 3.5-fold of those by CBRT. In other words, CBRT is a much less frequent user of X than ECB. Even when the 2016-2022 period is considered, the total number of tweets by CBRT is only 484 more than those by ECB over 2020-2022. This may imply that CBRT does not regard its X account as a primary communication tool or does not prefer using X posts as much as ECB to communicate information about monetary policy and to advertise new financial services.

Since this study aims to provide statistical evidence on where CBRT stands in informing the public about CBDC and to measure the efficiency of knowledge management on CBDC based on tweets related to CBDC, the content of the tweets is checked for word similarity. In doing so, the tweets of CBRT are clustered for 'smart money', 'digital money', 'digital currency', 'digital currency money', 'sovereign currency', 'digital lira', and 'e-lira'; and the tweets of ECB are clustered for the first five phrases and 'digital euro' and 'e-euro' in Nvivo. To apply the word analysis, plural and hashtag versions of these phrases are also accounted for.

Word frequency can be presented as a table with the number of occurrences and weighted percentages associated with words or as a word cloud, where the more frequently a word arises in the text, the larger the word is shown in the image compared to other words. As word clouds are an easy-to-comprehend visual manifestation of the most frequent words, Figure 2 displays the word clouds of CBRT at the top panel and ECB at the bottom panel.





**Table 1***Word Frequency Tables*

CBRT			ECB		
Word	Count	Weighted Percentage (%)	Word	Count	Weighted Percentage (%)
https	4794	11.09	https	3695	6.26
statistics	763	1.77	euro	628	1.06
2017	686	1.59	policy	530	0.9
cbrt	565	1.31	monetary	524	0.89
rates	451	1.04	area	439	0.74
banking	422	0.98	board	408	0.69
rate	354	0.82	president	396	0.67
funding	332	0.77	inflation	363	0.62
billion	316	0.73	banks	325	0.55
term	311	0.72	watch	305	0.52
money	310	0.72	economic	303	0.51
short	308	0.71	member	277	0.47
securities	298	0.69	@lagarde	272	0.46
2018	284	0.66	paper	271	0.46
loans	279	0.65	working	253	0.43
monetary	274	0.63	supervisory	252	0.43
financial	258	0.6	schnabel	241	0.41
interest	248	0.57	pandemic	237	0.4
weekly	243	0.56	read	232	0.39

*Note.* Prepared by the author.

Table 1 reveals that the top 20 words in tweets by CBRT and ECB comprise 26.61% and 16.86% weighted percentages of overall words used in tweets, respectively. The greater percentage covered by the top 20 words in CBRT tweets than in ECB tweets is expected as the overall number of tweets by CBRT is lower than that by ECB. The top-ranked word in both lists, namely ‘https’, suggests that both CBs use their X accounts to convey the announcements, statistics, and reports published on their official websites and/or databanks. Surprisingly, among the 20 most frequently used words in neither CBRT nor ECB, there is CBDC. However, when all the tweets are searched for CBDC and the words mentioned in word clustering above, there are no matches in the tweets by CBRT, while there are 97 matching results in ECB tweets, amounting to 3.9% of its total posts. Note that the number of matching results for ECB does not change when the analysis is extended to include ‘Stella’, the joint project by ECB and BoJ, in the word search. Considering that according to CBDC Tracker, CBRT started researching CBDC in 2018, having no posts covering any information about CBDC and/or CBDTL since 2016 suggests a lack of communication effort, knowledge management, and advertisement about CBDC and CBDTL by CBRT.

## **Conclusion and Policy Implications**

CBs have been historically using traditional communication channels, such as press conferences, press releases, and executive summary reports, to establish transparency, trust, and confidence for economic agents, and physical money to secure transactions. Now, the evolution of technology, electronic devices, and needs in transactions necessitate the use of modern communication channels and digital currencies as a modern payment method. To this end, any efforts to launch CBDC could also be shared via alternative communication channels, such as X, to inform the masses and raise awareness about this new payment system.

In this regard, this paper conducts a quantitative analysis of the official X account of CBRT over 10.2020-12.2022 by utilizing Nvivo in an attempt to unfold where CBRT stands in informing the public about CBDC. The findings show that CBRT does not regard X as a primary communication channel and mainly publishes links to reports and announcements from its official website on X. CBRT is more inclined to share general information on money and financial markets periodically in a formal way. It also tends to adopt a ‘cold-turkey’ advertising approach about CBDC with the public rather than ‘gradualism’. To provide a better frame of how CBRT positions itself and how informative CBRT posts are regarding CBDC as an example of EMDEs, a comparison is made with ECB as a benchmark from AEs. Accordingly, it is evident that ECB performs better in knowledge management for CBDC than CBRT.

As an emerging economy, the attitude of CBRT towards CBDC is important, as Türkiye may greatly benefit from issuing a local digital currency. Therefore, first, CBRT should rigorously design a communication strategy that fulfills the needs of the modern economy. In doing so, it should emphasize a more informative and advertiser-like manner. Then, CBRT should start addressing CBDC and CBDTL in its announcements and posts to raise awareness if a quick transition to CBDTL is targeted.

Further endeavors on this topic could be to work on sentiment analysis. Specifically, the announcements and posts of CBs, together with the presidents of CBs could be investigated over positive, negative, and neutral comments to determine how close CBs are to issuing CBDC.

## **Compliance with Ethical Standards**

### **Ethical Approval**

Ethics committee approval is not required for this study.

### **Author Contributions**

The author solely contributed to the conception and design of the study, data collection and analysis, as well as the writing and revision of the manuscript.

### **Data Availability Statement**

The data that support the findings of this study are available at: <https://doi.org/10.5281/zenodo.7436747>

### **Declaration of Conflicting Interests**

The author declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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## Notes

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<sup>i</sup> Several CBs from EMDEs either use official languages rather than English in their announcements or do not have official X accounts at all, leaving Türkiye as a unique outlet for this type of analysis.