Ekonomi Maliye İşletme Dergisi -2023- 6(2)
Araştırma Makalesi/Research Article
Doi:10.46737/emid.1311081

AN EMOTIONAL EXPLANATION OF THE INTEREST DECISION: TWITTER ANALYSIS IN TÜRKIYE

FAİZ KARARININ DUYGUSAL AÇIKLAMASI: TÜRKİYE'DE TWİTTER ANALİZİ

Ebru Z. BOYACIOĞLU*, Tuba ADIGÜZEL, Hilal TAŞ***, Ertuğrul TÜRKSEVER******
*Assoc. Prof., Trakya University, Department of Economics, Edirne, Türkiye, ebruzboyacioglu@yahoo.com,
** Postgraduate Student, Trakya University, Department of Economics, adgzlt@gmail.com,
***Postgraduate Student, Trakya University, Department of Economics, hilaltas3607@gmail.com,
****Postgraduate Student, Trakya University, Department of Economics, ertugrultrksvr@gmail.com,

ARTICLE INFO

Received
07.06.2023
Revized
05.09.2023
Accepted
20.11.2023
Article Classification:
Research Article

JEL Codes
E43
E58
G41

ABSTRACT

Emotions are quite prevalent in economics. The spillover effect of the Central Bank's interest decision is crucial not only for economies but also for individuals. Twitter is an effective data source for social and economic research due to its public availability and easy data accessibility. This study aims to determine the emotions shared on Twitter regarding the Central Bank's interest decision in Türkiye longitudinally using a qualitative research method. Emotions expressed in tweets concerning the interest decision were analyzed with reference to Plutchik's Wheel of Emotions. A total of 2,873 tweets related to the interest rate cut decision on November 29, 2022, were examined using the Maxqda qualitative data analysis program. According to the findings, Twitter users predominantly exhibit the emotion of "anger" following the interest rate decision. Furthermore, the analysis revealed that the majority of tweets emphasize macroeconomic variables, particularly inflation and exchange rates. Reducing the interest rate demonstrates a negative impact on the economy, especially due to inflation. The study involves the classification of emotions related to the interest rate decision and provides evidence that economic decisions influence emotions and are interdependent. Additionally, it aims to offer data for researchers interested in utilizing Twitter in conjunction with economics and emotions.

Keywords: *Interest Decision, Central Bank, Emotion, Twitter, Türkiye*

MAKALE BİLGİSİ

Gönderilme Tarihi
07.06.2023
Revizyon Tarihi
05.09.2023
Kabul Tarihi
20.11.2023
Makale Kategorisi
Araştırma Makalesi

JEL Kodları
E43
E58
G41

ÖZ

Ekonomide duygular oldukça yaygındır. Merkez Bankası'nın faiz kararının yayılma etkisi sadece ekonomiler için değil, bireyler için de çok önemli bir konudur. Twitter, verilerin halka açık ve kolayca erişilebilir olması nedeni ile sosyal ve ekonomik araştırmalar için etkin bir veri kaynağıdır. Çalışma nitel araştırma yöntemi ile Türkiye'de Merkez Bankası faiz kararına ilişkin Twitter'da paylaşılan duyguları boylamsal araştırma ile belirlemeyi amaçlamaktadır. Çalışma kapsamında faiz kararı ile ilgili tweetlerde ifade edilen duygular, Plutchik Duygu Çarkı referans alınarak analiz edilmiştir. 29 Kasım 2022 tarihli faiz indirim kararına ilişkin 2873 tweet, Maxqda nitel veri analiz programı kullanılarak incelenmiştir. Bulgulara göre faiz oranı kararı sonrası Twitter kullanıcıları en çok "öfke" duygusunda yoğunlaşmaktadır. Ayrıca analiz sonucu, tweetlerin büyük çoğunluğunun makroekonomik değişkenlerden enflasyonu ve döviz kurunu vurguladığı tespit edilmiştir. Faiz oranının indirilmesi, özellikle enflasyon nedeni ile ekonomide olumsuz etkileşim göstermektedir. Çalışma, faiz kararına ilişkin duyguların sınıflandırılmasını içermekte ve ekonomik kararların duyguları etkilediğine ve birbirlerinden bağımsız olmadığına dair kanıtlar sunmaktadır. Ayrıca Twitter'ı ekonomi ve duygularla birlikte kullanmak isteyen araştırmacılar için veri sağlamayı amaçlamaktadır.

Anahtar Kelimeler: *Faiz Kararı, Merkez Bankası, Duygu, Twitter, Türkiye*

Atıf (Citation): Boyacıoğlu, E. Z., Adıgüzel, T., Taş, H. & Türksever, E. (2023). "An Emotional Explanation of the Interest Decision: Twitter Analysis in Türkiye", *Ekonomi Maliye İşletme Dergisi*, 6(2): 82-99

Genişletilmiş Özet

Merkez Bankası tarafından belirlenen faiz kararlarının ekonomik açıdan önemi büyüktür ve faiz oranları etkin bir para politikası aracı olarak karakterize edilmektedir. Faiz kararları ekonomik birimler ile bireylerin hem şimdi hem de gelecekteki kararlarını etkilemektedir. Tüketim tercihleri, yatırım düzeyleri ve tasarruflar ile faiz oranları arasında önemli bir etkileşim bulunmaktadır. Fisher'a (1930) göre bireylerin belirli dönemlerde göstermiş oldukları tüketim davranışları neticesindeki faiz oranı, tasarruf davranışını etkilemektedir.

Türkiye gibi ekonomilerde faiz politikaları ülkenin makroekonomik performans göstergelerinden biridir. Merkez Bankası para politikası uygulanmalarına, konjonktürel krizler sonrası bazı eklemeler yapılmıştır. En temel değişiklik, 2008 krizi sonrası, fiyat istikrarı söz konusu olduğunda finansal istikrarın otomatik sağlanacağı görüşünden vazgeçilmesidir (Serel ve Özkurt, 2014, 57). Bunun nedeni, küresel ekonomik gelişmelerin finansal istikrar üzerindeki etkileridir. 2010 öncesi uygulanmakta olan geleneksel yaklaşım, para politikasının temel amacı olarak fiyat istikrarını belirtirken, finansal istikrar yeni yaklaşıma eklenmiştir (Kara ve Ekinci, 2018, 49).

Merkez Bankası faiz oranı kararlarının bireyler üzerinde sosyal ve psikolojik etkileri de bulunmaktadır. Merkez Bankası kararları; ekonomik birimlerin yanı sıra hane halkının ekonomik davranışlara olan duygusal tepkilerini de etkilemektedir. Günümüzde sosyal medya bireylerin seslerini duyurabildikleri en etkili iletişim alanıdır. Hem ekonomik, hem psikolojik, hem de sosyolojik etkileri olan bu mecranın gelişimini sürdürmesi ve kullanımının giderek artması ile gündemi saptama gücü de artmaktadır. Twitter, verilerin halka açık ve kolayca erişilebilir olması nedeni ile sosyal ve ekonomik araştırmalar için etkin bir veri kaynağıdır.

Merkez Bankası'nın faiz kararının yayılma etkisi sadece ekonomiler için değil, bireyler için de önemli bir konu olması nedeni ile çalışmada Türkiye'de Merkez Bankası faiz kararına ilişkin Twitter'da paylaşılan duyguların boylamsal araştırma ile belirlenmesine odaklanılmıştır. Çalışmanın amacı, Merkez Bankası faiz kararı sonrası Twitter kullanıcılarının karara verdikleri tepkilerin hangi duygu durumu ve hangi makroekonomik değişken ile bağlantılı olduğunu ortaya çıkarmaktır. Ekonomide duygular oldukça yaygındır ve sosyal medya paylaşımları üzerinden yapılan analizlerde genellikle kişilerin duygu durumlarını ve duyguların şiddetini ölçmek için Plutchik Duygu Çarkı'ndan yararlanılmaktadır. Bu çalışmada kapsamında Merkez Bankası faiz kararı sonrası tweetlerdeki makroekonomik değişkenlere ve duygu durumlarına ilişkin söylemlerin analizinde 1980 yılında Robert Plutchik tarafından geliştirilen sekiz temel duygunun birleşimlerinden oluşan Plutchik Duygu Çarkı referans alınmıştır. Plutchik çarkının tercih edilmesindeki sebep duyguların dizilimi, yoğunluk, benzerlik ve zıtlık kavramlarını şemalaştırılmış hali ile içermesinden kaynaklanmaktadır.

Çalışmada Twitter paylaşımları üzerinden bir araştırma planlanmış ve Merkez Bankası faiz kararının açıklanması sonrası ilgili tweetler incelenerek, kararın bireyler üzerinde yarattığı duyguların tespitine yönelik bir nitel araştırma tasarımı belirlenmiştir. 29 Kasım 2022 tarihinde açıklanan faiz oranına ilişkin Twitter'da paylaşılan tweetler, MAXQDA nitel veri programı kullanılarak içerik analizi ile incelenmiştir. MAXQDA, sistematik inceleme ve meta-analiz araştırmaları için oldukça uygun bir programdır (Kuckartz ve Rädiker, 2021, 5). Araştırmanın geçerliği için: faiz kararı sonrası makroekonomik ve psikolojik sonuçlar ilgili literatürdeki çalışmalar incelenmiş ve kodlamalar araştırma sonuçları dikkate alınarak yapılmıştır. 29 Kasım 2022 tarihli faiz indirim kararına ilişkin 2873 tweet analize dahil edilmiştir. Bulgulara göre faiz oranı kararı sonrası Twitter kullanıcıları en çok "öfke" duygusunda yoğunlaşmaktadır. Ayrıca analiz sonucu, tweetlerin büyük çoğunluğunun makroekonomik değişkenlerden enflasyonu ve döviz kurunu vurguladığı tespit edilmiştir. Bu durum Berument (2002), Sever ve Mızrak (2007), Alacahan (2011)'ın faizin, enflasyon ve döviz kurlarını etkilediğini belirten araştırmaları ile örtüşmektedir. Makroekonomik parametrelerden enflasyon, faiz, döviz değişkenleri arasındaki kuvvetli bağ bu çalışma ile de desteklenmiştir. Faiz oranının indirilmesi, özellikle enflasyon yaratma nedeni ile ekonomide olumsuz etkileşim göstermektedir. Çalışma, faiz kararına ilişkin duyguların sınıflandırılmasını içermekte ve ekonomik kararların duyguları etkilediğine ve birbirlerinden bağımsız olmadığına dair kanıtlar sunmaktadır. Ayrıca Twitter'ı ekonomi ve duygularla birlikte kullanmak isteyen araştırmacılar için veri sağlamayı amaçlamaktadır. Çalışmanın sınırlılığı Türkiye'de Merkez Bankası'nın faiz kararına ilişkin belirli bir zaman dilimindeki anlık tepkileri yansıtan tweet'leri kapsamasıdır.

Introduction

Since the 1990s, Central Banks of advanced economies have shifted from targeting monetary aggregates to directly using interest rates as a policy instrument. Following the formal announcement of a change in the interest rate, financial participants base their investment decisions on shifts in the Central Bank's interest stance (Suk-Joong & Do Quoc Tho, 2009). After these announcements, social media reflects opinions on monetary policy, incorporating macroeconomic variables and emotions. As stated by Bernanke & Blinder (1992), Kuttner (2001), Bonfim (2003), and Bernanke & Kuttner (2005), if the actual interest rate announcement differs from the rate already priced into the market, financial markets react correspondingly. Moreover, interest rate announcements by Central Banks can have spillover effects on other countries' financial markets and consumer behavior and sentiments. Suk-Joong & Do Quoc Tho (2009) suggest that the pivotal role played by financial markets concerning interest policies can influence direct and indirect impacts on any given economic situation. Interest rate decisions not only impact markets (the first-moment effect) but also influence trading movements and consumer behaviors (the second-moment effect).

The analysis of emotions in textual data has emerged as a valuable tool for assessing public opinion and responses to government policies. This capability is particularly vital during times of crisis, providing governments with insights into societal sentiments. In the contemporary era, the influence of social media has introduced numerous innovations and alterations. Online texts, including social media posts and blog articles, have become the primary vehicles for individuals to express their emotions regarding the government and its policies during these periods. Consequently, the significance of detecting and analyzing emotions from text has escalated. Notably, the emotional content conveyed through online platforms can encompass positive and negative sentiments, underlining the intricate nature of public feelings. With advancing technology, digital media supersedes traditional forms of media, offering an expanding array of possibilities (Dai & Yavuz, 2019). Individuals increasingly share their feelings, thoughts, and reactions through digital channels. In recent years, one of the most significant technological innovations has been the rise of social media (Albayrak et al., 2017). Among many social media platforms available, Twitter stands out as a prevalent and extensively utilized application (Wlash, 2022). Established in 2006, Twitter initially aimed to offer microblogging services, evolving into a substantial source of social media on the internet, enabling users to share content, connect, and gather information (Holton & Lewis, 2011). This functionality allows people to access information about events swiftly and efficiently (Kaigo, 2012). For instance, according to Lasorsa (2011), Twitter has highlighted that certain journalistic norms are affected in addition to journalists' freedom of expression (Lasorsa et al., 2012).

As of December 2022, Twitter boasts a user base exceeding 368 million active users globally (Statista, 2022). In Türkiye, the reported number of active Twitter users is 16.1 million (IHA, 2022). Studies across various domains, such as politics, health, tourism, and economics, have utilized data gathered from Twitter. According to several findings, information derived from the Twitter platform is a significant resource for robust analysis, often yielding dependable conclusions (Albayrak et al., 2017). Twitter has emerged as a fitting platform for gauging public sentiment. In contrast to traditional research methods like surveys and in-depth interviews, Twitter offers an alternative means to analyze data with reduced direct interaction with individuals and without the necessity of posing direct questions to them (Atılgan & Yoğurtçu, 2021: 33). The utilization of Twitter for emotion analysis is prevalent in both academic and practical studies (Yavuz, 2019: 21).

Although extensive research exists on the interest rate decisions of Central Banks, there has been limited exploration in the current literature concerning how these decisions are absorbed. Surprisingly, none of the studies has investigated the effects of Türkiye's interest rate decisions on consumer behaviors and emotions. This study fills this gap by presenting substantial evidence of the impact of the Central Bank's interest rate decisions on the feelings of Twitter users, analyzing these effects within the context of Türkiye's struggle with high inflation. The primary objective of this study was to propose and develop effective methodologies for analyzing economic variables and emotions extracted from textual data. The research implemented a supervised machine learning framework to identify emotions in tweets using the Maxqda qualitative data analysis program.

1. Literature Review

Interest rates are pivotal in maintaining economic stability and have intricate relationships with various macroeconomic indicators. The determinants of interest rates are multifaceted and can be influenced by multiple factors, including strategies implemented by Central Banks in their monetary policies. Numerous empirical studies have delved into the determinants of interest rate decisions by Central Banks. Mishkin (1996) identified four key factors influencing Central Banks' interest rate decisions: inflation, output gap, monetary aggregates, and exchange rates. Additional factors were proposed by Bernanke & Blinder (1988): asset prices and financial conditions. The literature provides comprehensive evidence regarding the direct impact of interest rate decisions, examining the overall influence of news. It also discusses the expressed interest policies of countries and the causal relationships between macro variables (Öztürk & Durgut, 2011; Byrne & Nagayasu, 2010; Karacan, 2010). Recent studies have expanded the empirical analysis to encompass additional factors, such as global economic conditions and political influences.

The impact of Central Banks on the economy has perpetually intrigued scholars. Reviewing existing literature shows that most empirical studies have centered on the effects of a Central Bank's interest rate decisions. De Haan (2008) emphasizes that interest rates, as communicated by Central Banks, significantly influence financial markets according to the intended objectives. Policy interest rate determinations are critical in shaping economic activities and maintaining inflation and price stability. These decisions intricately regulate market liquidity levels, influencing loan rates, consumption patterns, and societal savings—consequently, interest rate determinations function as a vital link between the Central Bank and the market. In economies with high inflation rates, like Türkiye, the Central Bank's decision to reduce interest rates negatively impacts demand. Conversely, Central Banks lower policy rates to stimulate demand in economies where inflation remains below a specific threshold. Within this framework, the interest rate decisions made by Central Banks generate expectations within both the public and markets (Eren & Demireli, 2023: 2).

Twitter enables users to express their emotions regarding announced interest rate decisions, offering a substantial volume of relevant data. It is widely recognized that Twitter data represents a valuable resource for capturing public discourse on various topics (Rane & Kumar, 2018: 769). The abundance of tweets makes this data ideal for content and emotion analysis. Emotion analysis aids in categorizing data into positive, negative, or neutral sentiments (Atılgan & Yoğurtçu, 2021: 34). Bollen et al. (2011) discovered a strong correlation between individuals' emotions expressed in tweets and economic indicators. Harnessing the potential of social media, emotional and content analyses can gauge social media users' reactions to fluctuations in currency prices. Such studies are instrumental in measuring public sentiment and identifying market needs, offering valuable insights for shaping necessary steps in monetary policy (Alkoç & Sütcü, 2019: 92).

Numerous studies investigating the correlation between interest rates, exchange rates, and inflation demonstrate variations across different countries. These factors are often discussed in conjunction with various other macroeconomic variables. Notable contributions in this realm come from studies conducted by Saraçoğlu et al. (2015), Sever & Mızrak (2007), İşcan & Kaygısız (2019), Asari et al. (2011), Adanur Aklan & Nargileçekenler (2008), and Okur (2017). A considerable portion of these studies supports the transition from exchange rates to prices, as observed in the works of Beirne & Bijsterbosch (2011), Oke & Adetan (2018), Mihaljek & Klau (2001), and Leigh & Rossi (2002). However, contrasting opinions are present in the literature, with studies suggesting no substantial relationship between these factors, contradicting the findings that establish a correlation between exchange rates and prices. This stance is evident in the works of Frimpong & Adam (2010), Mohanty & Bhanumurthy (2014), and Özdamar (2015). Furthermore, the correlation between inflation and interest rates has been extensively examined within the framework of the Fisher Hypothesis. While numerous studies predominantly affirm the validity of this hypothesis Hristov et al., (2014); Onur, (2008), but Yılancı (2009) presents findings suggesting its invalidity in Turkey due to the inflation targeting policy implemented by the Central Bank.

Several studies have utilized survey expectations as a proxy for target rate announcements (Reinhart & Simin, 1997). The diversity of perspectives on the interest variable has led to differing outcomes

in research. Bernanke & Blinder (1988) discovered that monetary policy not only directly influences interest rates but also impacts aggregate demand through its effect on bank credit supply. Mishkin (1996) aims to delineate the transmission channels of monetary policy, outlining the three results on the real economy stemming from changes in interest rates: the income effect, substitution effect, and wealth effect, collectively known as the 'Monetary channel.' Thorbecke (1997) concluded that Fed interest rates and monetary policy significantly influence stock prices. Furthermore, Leite (1982) examined the outcomes of implementing low-interest procedures in West Africa, emphasizing that maintaining low and stable interest rates is crucial to prevent structural distortions in interest rates and prices. This is vital for ensuring an optimal allocation of resources and should be a key component of policies aimed at enhancing overall economic performance (Leite, 1982: 74).

Laubach (2009) conducted a study on the United States to explore the relationships between budget deficits, debts, and interest rates. The research established that the interest rates in the US economy are influenced by the volume of debt and the budget deficit. In contrast, Cheung et al. (2008) aimed to analyze the impact of US interest rates on Chinese interest rates, determining that US interest rates had no significant effect on those in China. Masatçı & Darıcı (2006) examined the importance of the interest rate and concluded that inflation, public expenditures, and real income exert a collective influence on the interest rate. Investigating the effect of the Federal Reserve's interest rate decisions on market returns across different countries, studies such as those by Wongswan in 2006 & 2009 have produced mixed results. Krueger & Kuttner (1996) found that the Fed's target rate effectively predicted policy expectations, a finding subsequently corroborated by Gürkaynak et al. (2002).

1.1. Monetary Policies on Interest Rate in Türkiye

In Türkiye, the primary factors influencing interest rates include changes in money supply, money demand, and inflation. Since 2010, the Monetary Policy Board (MPB) has been responsible for announcing the target rate of the Central Bank (CB) funds. The MPB has consistently made decisions regarding the interest corridor to mitigate inflationary pressures (Sümer, 2020, p. 56).

The interest corridor serves as a financial tool to regulate liquidity and control exchange rates by exerting pressure on the interest rate. Within this structure, the Central Bank's lending interest rate forms the upper limit of the corridor, while the borrowing interest rate establishes the lower limit. The midpoint is the policy interest rate (Yücememiş et al., 2015, pp. 450-461).

Table 1: *Interest Decisions of the Central Bank Monetary Policy Board - Türkiye 2022*

	Policy Interest Rate (%)		**Policy Interest Rate (%)**
18.03.2021	19	20.01.2022	14
24.09.2021	18	23.08.2022	13
22.10.2021	16	22.09.2022	12
19.11.2021	15	20.10.2022	10
17.12.2021	14	22.12.2022	9

Source:https://www.tcmb.gov.tr/wps/wcm/connect/TR/TCMB+TR/Main+Menu/Temel+Faaliyetler/Para+Politikasi/PPK/2021,https://www.tcmb.gov.tr/wps/wcm/connect/TR/TCMB+TR/Main+Menu/Temel+Faaliyetler/Para+Politikasi/PPK/2022

Interest rate decisions, as depicted in Table 1, unmistakably highlight Türkiye's ongoing battle with high inflation. Starting from August 2021, the Central Bank initiated a gradual reduction in the policy rate. Over the period spanning 2021 to 2022, the interest rate declined from 19% to 9%. However, in November 2022, while the policy interest rate decreased, deposit rates and consumer and commercial loan rates experienced an increase. This observation indicates a divergence where market interest rates and policy interest rates do not necessarily move in the anticipated or identical direction.

Contrary to expectations, the failure of interest rate cuts to stimulate investment and production is rooted in high inflation and a significant erosion of confidence in the Central Bank. The impact of the interest rate extends to foreign capital inflows and the valuation of assets like stocks and bonds. The reduction in the policy interest rate negatively influences the exchange rate, contributing to the depreciation of the Turkish currency. The pursuit of price stability, a vital objective of the Central Bank, faces a challenge when interest rate reductions are proposed as a remedy. This approach

contrasts with resolving the inflationary crisis in Türkiye (Güler, 2021, p.16).

2. Emotions' Role in Economics

Emotions play a prevalent role in the realm of Economics. In his "Treatise," Hume (1985) presents a theory and psychological framework concerning the impact of passions and emotions on individuals' economic attitudes and behaviors. Hume posits that an individual's self-interest prompts them to experience pleasure when witnessing others' joy and pain when observing their suffering, demonstrating an innate capacity for empathy. Individuals' anxiety about their welfare influences their ability to experience pleasure from an opponent's joy and pain. This prompts the inquiry: How exactly do our emotions shape our economic behavior?

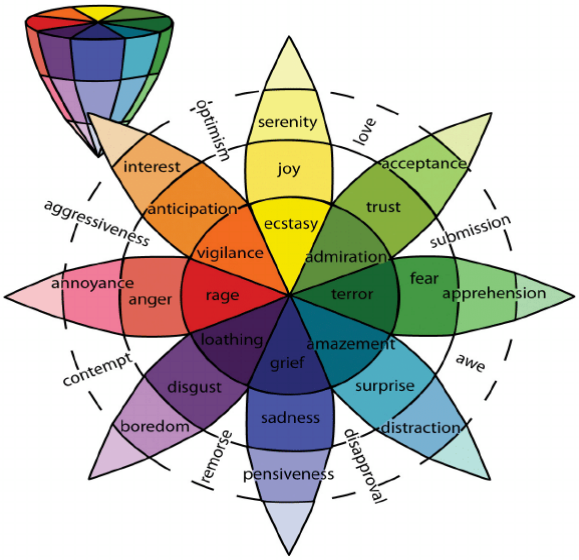
Thaler (2000) contended that emotions hold relevance in economic behavior, exerting influence on the decisions of economic actors through various channels (Gomes, 2017, p. 59). Traditional theoretical models in economics often presume that individuals consistently act rationally, forming a practical foundation for examining economic phenomena. However, recognition has grown regarding the impact of emotions such as optimism and pessimism in financial decision-making. For example, Faria (2011) investigated a modified version of the standard optimal growth model, revealing the roles of both joy and sorrow in the utility and production functions. This study suggests emotions can significantly influence productivity, underscoring their importance and advocating their consideration in economic analyses.

Interest rate volatility triggers various perspectives regarding the Central Bank's decisions, leading to divergent emotional responses among individuals. These decisions by the Central Bank have social, economic, and psychological implications for people. They influence the emotional reactions of households towards financial behaviors, aligning with individuals' emotional states. In such scenarios, decisions within the monetary transmission mechanism may align with the principles of the "nudge strategy." Thaler & Sunstein (2019), experts in behavioral economics, advocate for employing the nudge strategy when individuals struggle to reconcile their preferences with particular situations. For instance, the Central Bank's reduction of the policy rate indirectly impacts the choices and emotions of individuals. When the Central Bank announces an interest rate decision, it indirectly nudges the markets, fostering a status quo bias among consumers and investors. The status quo bias refers to individuals' inclination to maintain their current situation (Kamilçelebi, 2019, p. 64). Consequently, macroeconomic reactions arise, and diverse emotional states develop, shaping how individuals adapt to and critique interest rate decisions.

Plutchik's renowned "Wheel of Emotion" is a significant classification model for identifying and understanding emotional responses (Plutchik, 2001, p. 349). Central to Plutchik's theory of emotion are eight primary (basic) emotions: anger, fear, sadness, disgust, surprise, anticipation, trust, and joy. What sets Plutchik apart from other theorists is his model's foundation on expectations and trust in categorizing emotions (Ortony & Turner, 1990, p. 316). Emotion analysis, utilizing Plutchik's emotion wheel, has been applied across various fields and subjects. However, within the realm of economic analysis, the concept of assumed rationality has traditionally constrained the exploration of emotions. Consequently, sentiment analysis explicitly oriented towards the economy, using the Plutchik emotions, remains uncharted territory.

Plutchik's conceptualization of emotions is encapsulated in the visual model depicted in Figure 1, commonly known as the "wheel of emotions." This circular diagram consists of four axes, each axis delineating a primary emotion alongside its opposite, as well as weaker and stronger manifestations of both the fundamental and contrasting emotions.

Figure 1: *Plutchik Wheel of Emotions*



Source: Plutchik R. (2001), "The Nature of Emotions," American Scientist, 89(4), 349.

Plutchik's Wheel of Emotion has been widely employed in diverse research areas for emotion analysis. Mohsin and Beltiukov (2019) utilized Plutchik's emotional schema to assess comments from an internet forum discussing online shopping. Weismayer et al. (2021) applied the Wheel of Emotion to gauge temporal variations in social media posts, while Zhou et al. (2016) integrated this model into a theory aimed at accurately interpreting emotions expressed in social media content. Gomes (2017) explored the economic dimension of emotions using Plutchik's emotion wheel, noting that emotion analysis within economics often concentrates on specific emotions rather than embracing a comprehensive research approach. Additionally, while acknowledging the utility of Plutchik's emotion wheel in creating fundamental emotion pairs, Gomes highlighted its potential limitations in fully addressing this aspect (Gomes, 2017, p. 49).

Studies investigating Plutchik's Wheel of Emotion have indicated its relevance in social media analyses and theoretical applications. Kumar and Vardhan (2022) evaluated the efficiency of the Wheel in Twitter analysis, noting a high accuracy rate in data analysis focused on the contrasting emotions within the wheel. Schoene and Mel (2019) employed Plutchik's model to discern Twitter trends by prioritizing the intensity of emotions in their analysis. Furthermore, Tromp and Pechenizkiy (2014) combined the original rule-based emotion model (RBEM) with the Wheel of Emotion for their Twitter analysis.

3. Methodology

Social media platforms have become a frequent resource for qualitative research due to their vast collection of individual, interpersonal, and organizational data, which appeal to a broad audience and are easily accessible (Herring, 2010). Qualitative content analysis, including Twitter analysis, involves comprehensively categorizing and delineating a subject within its context, comparing it with other issues, and describing its internal consistency (Mayring, 2014, p.21).

This study's methodology contains utilizing a spectrum of emotions derived from Plutchik's Wheel of Emotion as a framework to identify emotions in textual data. The research used secondary data consisting of tweets generated between November 24, 2022, 9:00 and November 25, 2022, 21:00, explicitly addressing the Central Bank's interest rate decision. This data, composed of Turkish-language tweets, was collected from Twitter and processed using the MAXQDA 20.22 qualitative data analysis program.

A critical methodological consideration when using Twitter data for research involves the selection of hashtags (Sarkar et al., 2021, p. 312). Hashtags often serve to tag tweet topics, create trends, or act as a substitute for sentences about related subjects. This study employed a word-based criteria

selection approach, scanning for relevant title tags (hashtags) and keywords such as #interest rate, #interest, and #CentralBank.

To ensure diversity in the data collected, the sample was chosen from a range of tweets with the identified tags. The qualitative data from Twitter was processed and categorized within the analysis program. The information was organized into themes, and theme frequencies were determined. To maintain user privacy, personal data from Twitter users was excluded from the research, and the selection of tweets was randomized.

The research sample encompasses 9065 tweets that met the predefined word-based criteria, focusing solely on the textual content of these tweets. In the initial analysis phase, tweets were categorized based on their relevance to the subject matter. This process entailed the removal of duplicates and retweets consisting solely of hashtags, resulting in a remaining set of 2873 tweets.

Subsequently, the MAXQDA, a Computer-Assisted Qualitative Data Analysis Program, was employed for a more in-depth examination of the tweet contents. MAXQDA, commonly used in academic research, organizes research outcomes, including systematic reviews and meta-analyses (Kuckartz & Rädiker, 2021, p. 5). It also aids in systematically managing texts, such as literature scanning and automatic encoding (Kuckartz & Rädiker, 2019, p. 18).

The findings were presented utilizing various features, such as the code map, enabling visualization of similarities among categories, subcode statistics to identify commonly discussed topics by Twitter users, and the code relations scanner to reveal relationships between categories and subcategories, as well as identifying codes that co-occur—utilizing these tools aimed to enhance the overall comprehension of the research (Rädiker, 2020: 88-93).

In the initial phase, an inductive coding framework was developed to convert tweets into codes, and definitions were refined in alignment with the study's objectives. A conventional content analysis approach was utilized to analyze textual data, which is suitable when the literature on a specific phenomenon is limited (Hsieh & Shannon, 2005). Subsequently, a relational analysis was conducted with the coded data, creating a code map to visually represent the connections between various codes. Following the coding process, a code relations browser was utilized, generating a code co-occurrence model and a visual code map illustrating code proximity. The outcomes derived from the Code Relationships Scanner and Code Map analyses were presented, and all tweets were visualized.

Nevertheless, devising standardized criteria for emotion analysis in text is challenging due to the subjective nature of emotions and the absence of clear definitions. As part of the research presentation, the findings are elucidated through tools such as the Maxqda code map, subcode statistics, and code relations scanner to enhance overall comprehension.

Table 2: *The Basic Emotions and Their Opposites of Plutchik's Wheel*

Basic Emotion	**Opposite**
Joy	Sadness
Trust	Disgust
Fear	Anger
Suprise	Anticipation

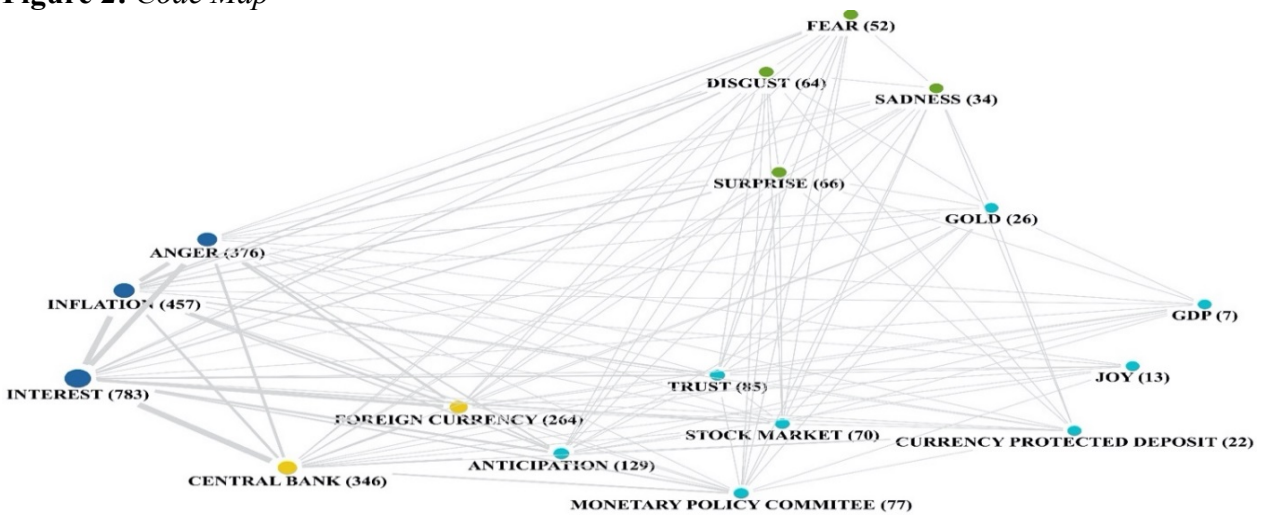
Source: Kumar, P., & Vagnar, M. (2021). PWEBSA: Twitter Sentiment Analysis By Combining Plutchik Wheel of Emotion and Word Embedding. International Journal of Information Technology, 14(1), 71.

Table 2 displays the eight fundamental emotions of Plutchik's Wheel of Emotions. In this study, these basic emotions formed the basis for identifying eight overarching themes, each encompassing a variety of codes (as illustrated in Figure 4). Plutchik intended to establish a set of standards by determining basic emotions from which complex emotions could be derived. Researchers such as Parrott (2001), Plutchik (1980), and Schroder et al. (2011) sought to create a framework for defining emotions, which could then be used as a foundation to describe various emotional states.

3.1. Findings

The following findings have been observed based on the empirical data collected and analyzed.

Figure 2: *Code Map*



Source: Compiled from the Maxqda Analysis Program by the authors.

Figure 2 illustrates the Code Map displaying macroeconomic variables and emotions, delineating the cause-effect relationship between these factors. The variables are categorized into four distinct clusters. Line thickness within the code map and the frequency intensity signify the interaction between these variables. Participants notably highlighted the interest rate decision and exhibited a notable correlation between this decision and inflation, evident in the thicker connecting lines. The pronounced thickness of the lines between the interest rate and the emotion of anger suggests a frequent association between users' anger and responses to interest rate decisions. The Code Map indicates a strong interconnection between interest, inflation, and the emotion of anger. It becomes apparent that changes in macro variables elicit emotional responses.

Table 3: *Code Relation Browser of Emotions and Macro-Economic Variables*

Code System	MONETARY POLICY COMMITTEE	STOCK MARKET	GOLD	CENTRAL BANK	FOREIGN CURRENCY	GROSS DOMESTIC PRODUCT	CURRENCY PROTRECT DEPOSIT	INFLATION	INTEREST
PLUTCHIK WHEEL of EMOTIONS									
ANTICIPATION									
ANGER									
DISGUST									
SADNESS									
SURPRISE									
FEAR									
TRUST									
JOY									
MACRO ECONOMIC VARIABLES									
MONETARY POLICY COMMITTEE									
STOCK MARKET									
GOLD									
CENTRAL BANK									
FOREIGN CURRENCY									
GROSS DOMESTIC PRODUCT									
CURRENCY PROTRECT DEPOSIT									
INFLATION									
INTEREST									
TOTAL	302	161	69	796	551	17	54	969	1349

The code relations scanner is a method employed in relational analysis, specifically when identifying overlaps or proximities among variables. Table 3 displays the relationship between macroeconomic variables and emotions. The code map supports a robust association between interest and inflation, with primarily feelings of anger, disgust, sadness, surprise, and fear. Upon coding, the most apparent correlation emerged between interest, inflation, and emotions. Additionally, variables such as interest and Currency Protection Deposit (KKM in Türkiye) demonstrated a relationship with the Central Bank variable. Notably, all macroeconomic variables are strongly associated with the interest variable, as seen in Table 3.

Sample tweets related to macroeconomic factors such as inflation, interest rate, Central Bank and foreign currency, and the emotion of anger are given below.

- *We are in a country where interest rates are single digits, but inflation hits three digits.*
- *My brain burned. Central Bank rate: 9% Bank rate: 30%, official inflation: 85%…*
- *Central Bank cuts interest rate to single digits. How do you plan to address the current account deficit, stabilize the dollar rate, or curb inflation? What is the strategy to lower prices?*
- *Dollars are spiraling; our currency is losing value. Expensiveness hurts, people are outraged, and there is no smiling face on the streets*

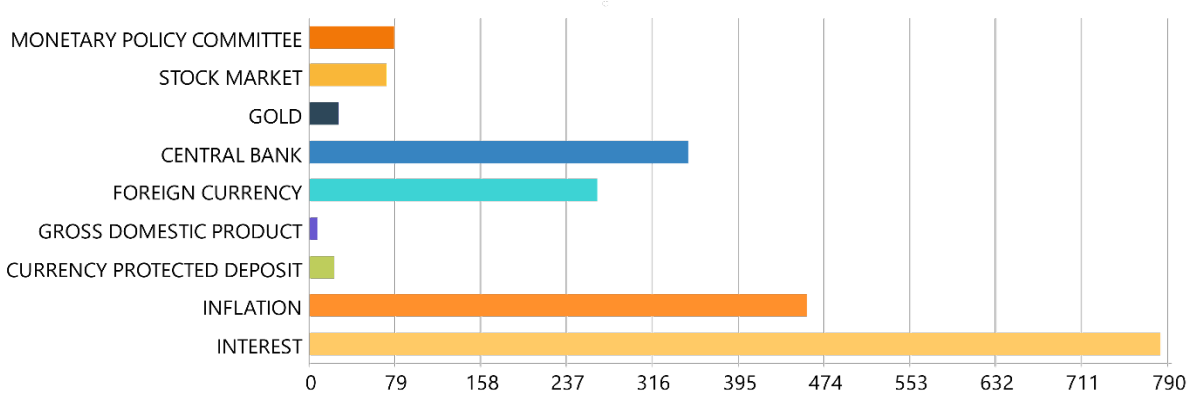
Sample tweets related to emotions such as anger, anticipation, and disgust are given below.

- *Since the government is against the Interest, it is lowering, but the inflation is jumping up. What is happening to us is that inflation explains that it takes back 40% more from the citizens.*

Sample tweets related to emotions such as trust and joy are given below.

- *Interest rates have fallen to single digits, which means that inflation will gradually begin to fall. The first step is that the interest rate has fallen to single digits. Congratulations.*

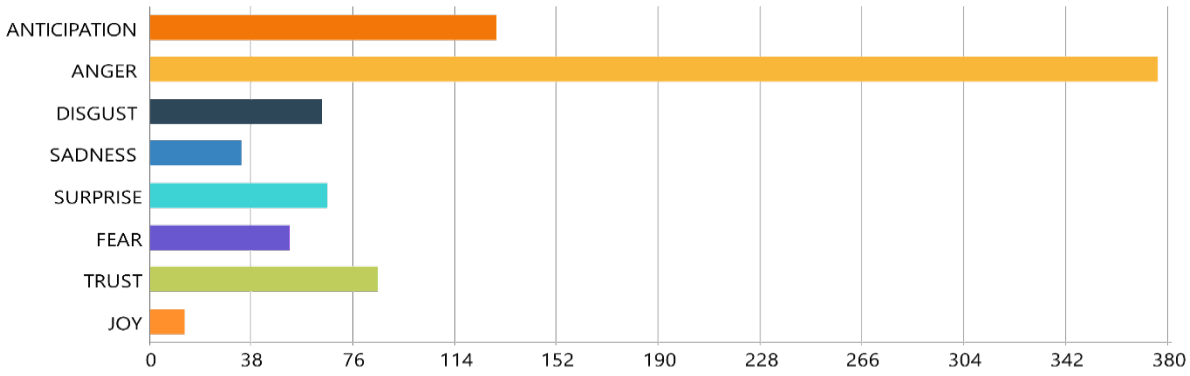
Figure 3: *Subcode Statistics of Macroeconomic Variables*



Source: Compiled from the Maxqda Analysis Program by the authors.

Figure 3 displays the frequency of tweets regarding macroeconomic variables, representing codes associated with the content of tweets from individual accounts. Twitter users predominantly expressed their reactions to the interest rate decision, as evidenced by the higher frequency of the 'interest' variable. Subsequently, the variables 'inflation,' 'Central Bank,' and 'foreign currency' emerged as significant discussion topics. These codes reflect the discourse surrounding the impact of inflation and interest on the economy.

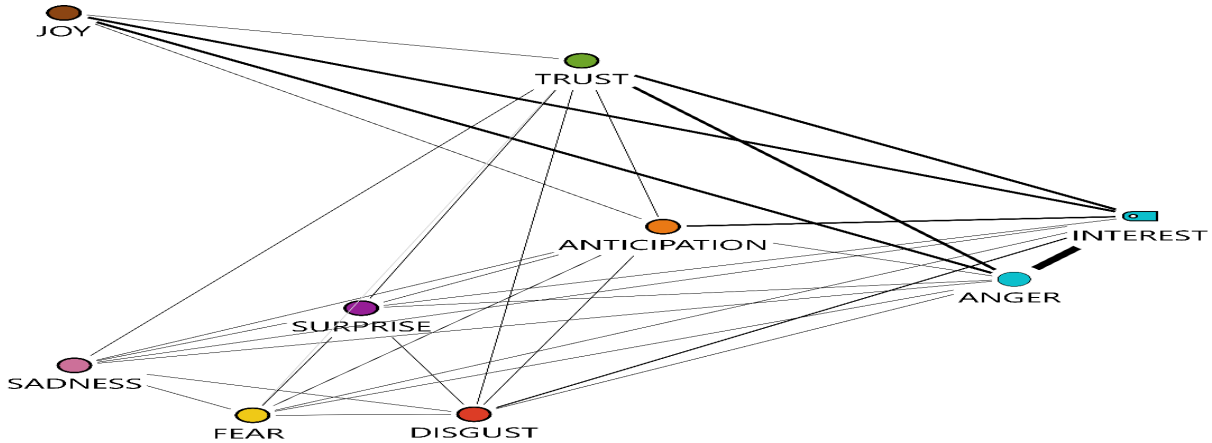
Figure 4: *Subcode Statistics of Emotions*



Source: Compiled from the Maxqda Analysis Program by the authors.

Figure 4 is based on the emotional states of Pluchik's eight basic codes. Among these, anger stands out prominently as one of the primary emotions. The emotion of 'anger' is primarily concentrated under the category of interest rates. Besides anger, it is observed that interest rate decisions generate expectations for some individuals and, consequently, instill confidence. According to the findings, Twitter users believe that this interest rate decision will have a negative impact on the economy. Furthermore, the analysis indicates the presence of emotions such as 'anticipation,' 'trust,' 'sadness,' and 'disgust' in the tweets.

Figure 5. *Code Relation Analysis Map of Interest and Emotions*



Source: Compiled from the Maxqda Analysis Program by the authors.

The code relation analysis map illustrates the connections between variables. In Figure 5, the code relation analysis map was employed to assess the significance of the relationship between interest and emotion. More comprehensive lines are used to depict stronger connections between codes. In this context, the thickness of the black lines connecting the variables signifies a significant correlation. The proximity of variables indicates the strength of the relationship. Notably, the emotion of anger exhibits the closest proximity to interest. Anticipation, disgust, and trust are also closely associated with the interest decision. Conversely, joy and sadness are more distantly positioned from the interest decision, indicating a weaker relationship.

Table 4. *Code Relation Browser of Interest and Emotions*

CODE SYSTEM	PLUTCHIK'S EMOTION	ANTICIPATION	ANGER	DISGUST	SADNESS	SURPRISE	FEAR	TRUST	JOY	INTEREST
PLUTCHIK'S EMOTION										
ANTICIPATION										
ANGER										
DISGUST										
SADNESS										
SURPRISE										
FEAR										
TRUST										
JOY										
MACRO-ECONOMIC VARIABLES										
INTEREST										
TOTAL	0	490	1261	358	182	288	296	388	80	1605

Source: Compiled from the Maxqda Analysis Program by the authors.

Table 4, which presents the results of the code relations scanner, highlights the connections between the interest decision and emotions. The size of the red squares is employed to gauge the level of correlation between the variables. The pronounced presence of courts for the variables of anger and interest suggests that users express intense anger regarding the interest rate decision. Consequently, a notable and significant relationship has been identified between the variables of anger and interest.

4. Conclusion

This study provides empirical insights into the emotions of Twitter users in Türkiye regarding the interest rate decision. Analyzing tweets and conducting sentiment analysis on Twitter is crucial in understanding people's emotional inclinations (Eliacik & Erdoğan, 2018: p. 2). Given the limited research on how Central Bank decisions are perceived, this study contributes substantial evidence regarding the influence of the Central Bank's interest rate decision.

Within this study, emotions post the interest decision are analyzed and expressed using Plutchik's wheel of emotions. A mixed-methods approach was employed to analyze a dataset of sourced and cleaned Turkish language tweets (n = 2,873). The tweets were scrutinized for their topics or content to discern the discussions on Twitter related to the interest decision.

Regarding research validity, it was observed that despite the diversity in emotions, the macroeconomic and emotional outcomes following the interest decision were concentrated in anger, anticipation, and disgust. The results highlighted that most tweets conveyed anger and emphasized concerns about inflation. Many tweets did not support decreased interest rates, particularly about inflation and foreign currency.

The findings suggest that the interest rate decision is most strongly associated with inflation and foreign exchange variables among macroeconomic factors. The content of the tweets, as classified through qualitative analysis, emphasized specific issues and concerns related to the interest decision. Qualitative research also revealed that the interest rate decision significantly shaped the agenda on social networks.

The assertion that interest rates influence inflation and exchange rates aligns with the findings of previous studies conducted by Berument (2002), Sever & Mızrak (2007), and Alacahan (2011). Additionally, Westerlund (2006) established a correlation between exchange rates, inflation, and interest in a study involving 14 OECD countries, further supporting the strong connection between interest rates and inflation.

The interconnectedness of macroeconomic variables and the widespread impact of changes in one variable across society is well-established in the literature. This research underscores the significant role of interest rates in affecting individuals economically and psychologically. The decisions of the Central Bank (CB), renowned for its autonomous structure and influence over the country's monetary policy, play a pivotal role in shaping the sentiments of individuals. The CB's decisions, even when expressed through discourse without immediate action, have a far-reaching impact on the entire economy and the well-being of individuals.

The findings underscore the relevance and effectiveness of interest rate decisions as fundamental economic data within society. This highlights the role of Twitter users as a significant tool for shaping the agenda in monetary policy matters, with the potential to contribute to resolving such issues. In this context, it is proposed that countries prioritize and recognize the financial and psychological effects of interest rate decisions separately.

Drawing on the Appraisal Theory in Psychology, which posits that the formation of emotion is contingent upon the ability to evaluate the momentary situation of an individual in a way that influences emotions (Parkinson, 1996: 664), the emotional state of individuals resulting from the Central Bank's interest rate decision becomes an indicator of their feelings of anger and anticipation towards the conclusion.

This study carries significant implications for online discussions on economic topics, particularly the interest decisions of the Central Bank. Motivated to address gaps in existing literature, the research provides substantial evidence of the Central Bank's decision-making process concerning interest rates in Türkiye. It is a reference for understanding perspectives, particularly people's impressions when interest decisions decrease. Furthermore, the findings presented in this study have the potential to make valuable contributions to the academic literature and policymakers as a data source for future interest rate decisions.

However, there are certain limitations to the study. The analysis is based solely on tweets reflecting instantaneous reactions to the Central Bank's interest rate decisions in Türkiye within a specific time frame. By focusing on tweets using the hashtag #interest, the study provides an overview of the

relationship between the content of tweets. Future research could explore relationships between content and delve into how individuals and organizations differ in the range of their tweets. Additionally, the scope of future studies could be expanded by incorporating different analysis methods.

Ethics Committee Approval: We used secondary data from Twitter in this study. Twitter is a public platform and Twitter content is available for viewing by the general public. From an ethics standpoint, Twitter data usage in research falls secondary data analysis. The entire basis of legitimate access to Twitter data rests on legal contracts. The data does not include any identifiable personal data. Therefore, we did not need an ethical approval.

Author Contributions: Ebru Z. BOYACIOĞLU (%25), Tuba ADIGÜZEL (%25), Hilal TAŞ (%25), Ertuğrul TÜRKSEVER (%25)

Ethical Responsibilities of Authors : This study has been prepared in accordance with the principles of research and publication ethics.

Conflict of Interest: The authors have no conflict of interest to declare.

Plagiarism Checking : The study is our own original work and was screened for plagiarism using the plagiarism screening program.

Grant Support: The authors declared that this study has received no financial support.

REFERENCES

Adanur Aklan, N., & Nargeleçekenler, M. (2008). "Para Politikası Faiz Kararları ve Uzun Dönem Faiz İlişkisi: Türkiye Örneği". *Marmara Üniversitesi İ.İ.B.F. Dergisi*, 25(2): 141-163.

Alacahan, N. D. (2011). "Enflasyon, Döviz Kuru İlişkisi ve Yansıma: Türkiye / The Relationship Between Inflatıon, Exchange Rate and Pass Through: Turkey". *Sosyal Bilimler Dergisi*, 49-56.

Albayrak, M., Topal, K., & Altıntaş, V. (2017). "Sosyal Medya Üzerinde Veri Analizi: Twitter". *Süleyman Demirel Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi*, 22(15): 1991-1998.

Alkoç , M., & Sütcü, C. S. (2019). "Büyük Veri ile Foreks Algısının Twitter Üzerinden Gündem Belirleme Kuramı Bağlamında Araştırılması". *Istanbul Journal of Social Sciences*, 82-103.

Asari, F. F. A. H., Baharuddin, N. S., Jusoh, N., Mohamad, Z., Shamsudin, N.,& Jusoff, K. (2011). "A Vector Error Correction Model (VECM) Approach in Explaining the Relationship Between Interest Rate and Inflation Towards Exchange Rate Volatility in Malaysia". *World Applied Sciences Journal*, 12(3): 49-56.

Atılgan, K. Ö., & Yoğurtçu, H. (2021). "Kargo Firması Müşterilerinin Twitter Gönderilerinin Duygu Analizi". *Çağ Üniversitesi Sosyal Bilimler Dergisi*, 18(1): 31-39.

Beirne, J. & Bijsterbosch, M. (2011). "Exchange Rate Pass-Through in Central and Eastern European EU Member States". *Journal of Policy Modeling*, 33(2): 241- 254.

Bernanke, B. S. & Blinder, A. (1988). "Credit, Money and Aggregate Demand". *Papers and Proceedings of the OneHundredth Annual Meeting of the American Economic Association*, 78(2): 435-439.

Bernanke, B. S. & Blinder, A. (1992). "The Federal Funds Rate and Channels of Monetary Transmission". *American Economic Review*, 82(4): 901-921.

Bernanke, B. S., & Kuttner, K. N. (2005). "What Explains The Stock Market's Reaction to Federal Reserve Policy?". *The Journal of Finance*, 60(3): 1221-1257.

Berument, H. (2002). "Döviz Kuru Hareketleri ve Enflasyon Dinamiği: Türkiye Örneği". https://www.researchgate.net/profile/M_Hakan_Berument/publication/4727671_ Doviz_Kuru_Hareketleri_ve_Enflasyon_Dinamidi (Accessed: 10.09.2022).

Bollen, J., Mao, H., & Zeng, X. (2011). Twitter Mood Predicts the Stock Market. *Journal of Computational Science*, 2(1), 1-8.

Bonfim, A.N. (2003). "Pre-Announcement Effects, News Effects, and Volatility: Monetary Policy and the Stock Market". *Journal of Banking and Finance*, 27(1): 133-151.

Byrne, J. P. & Nagayasu, J. (2010). "Structural Breaks in the Real Exchange Rate and Real Interest Rate Relationship". *Global Finance Journal*, 21(2): 138-151.

Cheung, Y. W., Tam, C. D. & Yiu, M. S. (2008). "Does the Chinese Interest Rate Follow the Us Interest Rate?". *International Journal of Finance and Economics*, 13(1): 53-67.

Dai, T. U. & Yavuz, V. (2019). "Yazılı Basın ile İnternet Haber Sitelerinin Finansal Yapısı Üzerine Bir Araştırma". *Üçüncü Sektör Sosyal Ekonomi Dergisi*, 54: 1476-1495.

De Haan, J. (2008). "The Effect Of ECB Communication On İnterest Rates: An Assessment". *The Review of International Organizations,* 3: 375-398.

Eliacik, A. B., & Erdogan, N. (2018). "Influential User Weighted Sentiment Analysis On Topic Based Microblogging Community". *Expert Systems with Applications*, 92: 403-418.

Eren, B. S., & Demireli, E. (2023). "Gelişmekte Olan Ülkelerde Merkez Bankası Faiz Kararlarının Mevduat Bankaları Hisseleri Üzerine Etkileri: TCMB ve BİST A.Ş Örneği". *Pamukkale Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, (55): 347-364.

Faria, J. R. (2011). "Emotions, Happiness And Growth: Spinoza, James and Ramsey". *Economic Issues*, 16: 81-92.

Fisher, I. (1930). *Theory of Interest: As Determined By Impatience to Spend Income and Opportunity to Invest It.* Clifton: Augustusm Kelly Publishers.

Frimpong, S. & Adam, A. M. (2010). "Exchange Rate Pass-Through in Ghana". *International Business Research*, 3(2): 186-192.

Gomes O. (2017). "Plutchik and Economics: '… Disgust, Fear, and, Oh Yes, Love.'". *Economic Issues*, 22(1): 37-63.

Güler A. (2021). "Politika Faizlerinin Banka Faizlerine Geçişkenliği: Türkiye Örneği". *Ekev Akademi Dergisi*, 85: 15-38.

Gürkaynak, R.S., Sack, B. & Swanson, E. (2002). *Market-Based Measures of Monetary Policy Expectations*. WP/2002/40, FEDS Working Paper, Board of Governors of the Federal Reserves System Finance and Economics Discussion Series.

Herring, S. C. (2010). *Web Content Analysis: Expanding the Paradigm*. J. Hunsinger, L. Klastrup, & M. Allen içinde, International Handbook of Internet Research, Heidelberg: Springer.

Holton, A. E., & Lewis, S. C. (2011). "Social Media in News Discourse". *The Electronic Journal of Communication*, 21: 1-2.

Hristov, N., Hülsewig, O. & Wollmershauser (2014). "The Interest Rate Pass-Through in the Euro Area During The Global Financial Crisis". *Journal of Banking & Finance*, 48: 104-119.

Hsieh, H. F., & Shannon, S. E. (2005). Three Approaches to Qualitative Content Analysis. *Qualitative Health Research*, 15(9), 1277–1288. https://doi.org/10.1177/1049732305276687.

Hume, D. (1985). *A Treatise of Human Nature.* Ernest C. Mossner (ed), PenguinBooks, USA.

İHA. (2022). *Twitter'ı En Çok Kullanan Ülkeler Belli Oldu.* Cumhuriyet.com.tr.https://www.cumhuriyet.com.tr/dunya/twitteri-en-cok-kullanan-ulkeler-belli-oldu-1930711 (Accessed: 15.12.2022).

İşcan, H. & Kaygısız Durgun, A. (2019). Türkiye'de Döviz Kuru, Enflasyon ve Faiz Oranı İliskisi: 2009- 2017 Uygulaması". *Iğdır University Journal of Social Sciences*, 17: 581-604.

Kaigo, M. (2012). "Social Media Usage During Disasters and Social Capital: Twitter and the Great East Japan Earthquake". *Keio Communication Review*, 34: 19-35.

Kamilçelebi, H. (2019). Davranışsal İktisat. *IJOPEC Publication*, London.

Kara, M. & Ekinci, M. B. (2018), "New Monetary Policy Frame and Tools of the Central Bank in Turkey", *International Journal of Social Science Research*, 7(1): 46-61.

Karacan R. (2010). "Faiz, Döviz Kuru İlişkisinin Makroekonomik Performansa Etkisi Üzerine Bir Değerlendirme". *Kocaeli Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, 20: 72-92.

Krueger, J.T, & Kuttner, K. (1996). "The Fed Funds Futures Rate as A Predictor of Federal Reserve Policy". *Journal of Futures Markets*, 16(8): 865-879.

Kuckartz, U., & Rädiker, S. (2021). *MAXQDA 2020 Literature Reviews with MAXQDA. (S. Toraman, Trans. Turkish)*, MAXQDA Press.

Kumar, P., & Vardhan, M. (2021). "PWEBSA: Twitter Sentiment Analysis By Combining Plutchik Wheel of Emotion and Word Embedding". *International Journal of Information Technology*,

14(1): 69-77.

Kuttner, K.N. (2001). "Monetary Policy Surprises and Interest Rates: Evidence from Fed Funds Futures Market". *Journal of Monetary Economics*, 47(3): 523-544.

Lasorsa, D. L., Lewis, S. C., & Holton, A. (2012). "Normalizing Twitter: Journalism Practice in an Emerging Communication Space". *Journalism Studies,* 13(1): 19-36.

Laubach, T. (2009). "New Evidence on the Interest Rate Effects of Budget Deficits and Debt". *Journal of the European Economic Association*, 7(4): 858-885.

Leigh, D., & Rossi, M. (2002). *Exchange Rate Pass- Through in Turkey*. WP/02/204, IMF Working Paper,

Leite S.P. (1982). "Interest Rate Policies in West Africa". *IMF Staff Papers*, 29(1): 48-76.

Masatçı, K. & Darıcı, B. (2006). "Türkiye'de Faiz Oranlarının Belirlenmesinde İçsel ve Dışsal Faktörlerin Rolü". *Yönetim ve Ekonomi Araştırmaları Dergisi*, 4(6): 18-31.

Mayring, P. (2014). *Qualitative Content Analysis: Theoretical Foundation, Basic Procedures and Software Solution.* Klagenfurt, 2014.

Mihaljek, D., & Klau, M. (2001). "A Note on the Pass-Through from Exchange Rate and Foreign Price Changes to Inflation in Selected Emerging Market Economies". *BIS papers*, 8: 69-81

Mishkin, Frederic S. (1996). *The Channels of Monetary Transmission: Lessons for Monetary Policy.* Working Paper, 5464, National Bureau of Economic Research, Cambridge.

Mohanty, B. & Bhanumurthty, N. R. (2014). "Exchange Rate Regimes and Inflation: Evidence from India". *International Economic Journal*, 28(2): 311-332.

Mohsin, A. M. & Beltiukov A. (2019). "Summarizing Emotions from Text Using Plutchik's Wheel of Emotions". *Advances in Intelligent Systems Research*, 166: 291-294.

O'Connor, B., Balasubrayamanyan, R., Routledge, B. R., & Smith, N. A. (2010). "From Tweets to Polls: Linking Text Sentiment to Public Opinion Time Series". *Proceedings of the Fourth International AAAI Conference on Weblogs and Social Media, Carnegie Mellon University*, 122-129.

Oke, M. O. & Adetan, T. T. (2018). "An Empirical Analysis of the Determinants of Exchange Rate in Nigeria". *International Journal of Scientific Research and Management (IJSRM),* 6(5): 412-423.

Okur, A. (2017). "Türkiye Ekonomisinde Faiz Oranı ve Döviz Kurunun Enflasyon Hedefi". *Yalova Sosyal Bilimler Dergisi*, 7(13): 146-164.

Onur, S. (2008). "Türkiye Ekonomisinde Faiz Oranları-Enflasyon İlişkisi Üzerine Bir Model Denemesi". *Akademik İncelemeler Dergisi*, 3(2): 69-110.

Ortony A. & Turner T. J. (1990). "What's Basic About Basic Emotions?". *Psychological Review*, 97(3): 315-331.

Özdamar, G. (2015). "Türkiye Ekonomisinde Döviz Kuru Geçiş Etkisi: ARDL Sınır Testi Yaklaşımı Bulguları". *Akdeniz İ.İ.B.F. Dergisi*, 15(32): 66-97.

Öztürk, N. & Durgut, D. (2011). "Faiz Oranlarının Belirleyicileri: Türkiye için Ampirik Bir Analiz". *Uluslararası Alanya İşletme Fakültesi Dergisi,* 3(1): 117- 144.

Parkinson, B. (1996). "Duygular Sosyaldir". *İngiliz Psikoloji Dergisi*, 87(4): 663-683.

Parrott, W. G. (2001). *Emotions in Social Psychology.* Psychology Press, Philadelphia.

Plutchik R. (2001). "The Nature of Emotions". *American Scientist*, 89(4): 244-350.

Plutchik R. (1980). "A General Psycho Evolutionary Theory of Emotion". *Academic Press*, New York, 3-33.

Rädiker, S. (2020). *Focused Analysis Of Qualitative Interviews With MAXQDA: Step By Step*.

Rädiker, S., & Kuckartz, U. (2019). *Nitel Verilerin MAXQDA ile Analizi.* Springer Fachmedien Wiesbaden, Almanya.

Rane, A., & Kumar, A. (2018). Sentiment Classification System Of Twitter Data For US Airline Service Analysis. *In 2018 IEEE 42nd Annual Computer Software and Applications Conference (COMPSAC),* 1, 769-773.

Reinhart, V.R., Simin, T. (1997). "The Market Reaction to Federal Reserve Policy Action from 1989 to 1992". *Journal of Economics and Business*, 49(2): 149-168.

Saraçoğlu, M., Kuzu, M. & Kocaoğlu, F. (2015). "Türkiye Ekonomisinde Sermaye Hareketleri, Döviz Kuru, Enflasyon ve Faiz Arasındaki Etkileşimlerin Küresel Ekonomi Politik Çerçevesinde Analizi". *Gazi İktisat ve İşletme Dergisi*, 1(2): 75-110.

Sarkar, T., Forber-Pratt, A. J., Hanebutt R. & Cohen M. (2021). "Good Morning, Twitter! What Are You Doing Today to Support The Voice of People with Disability?, Disability and Digital Organizing". *Journal of Community Practice,* 29(3): 299-318.

Schroder, M., Baggia, P., Burkhardt, F., Pelachaud,C., Peter, C. & Zovato, E. (2011). *Emotionml An Up-Coming Standard for Representing Emotions and Realated States*. In Proceedings of the 4th International Conference on Affective Computing and Intelligent Interaction-Volume Part I, ACII'11,Springer-Verlag ,Berlin, Heidelberg.

Serel, A. & Özkurt, İ. C. (2014), "Geleneksel Olmayan Para Politikası Araçları ve Türkiye Cumhuriyet Merkez Bankası". *Yönetim ve Ekonomi Araştırmaları Dergisi*, 22: 56-71.

Sever, E. & Mızrak, Z. (2007). "Döviz Kuru, Enflasyon ve Faiz Oranı Arasındaki İlişkiler: Türkiye Uygulaması". *SÜ İİBF Sosyal ve Ekonomik Araştırmalar Dergisi*, 7(13): 264-283.

Statista, Dixon (2022, December 14). Statista.com. https://www.statista.com/statistics/303681/twitter-users-worldwide/ (Accessed: 07.07.2023).

Suk-Joong, K., & Do Quoc Tho, N. (2009). "The Spillover Effects of Target Interest Rate News from the U.S. Fed and the Europan Central Bank on the Asia-Pasific Stock Markets". *International Journal of Financial Markets, Institutions and Money,* 19(3): 415-431.

Sümer, A. L. (2020). "2008 Sonrası TCMB Faiz Kararlarının Makroekonomik Etkilerinin Analizi". *Uluslararası Ekonomi Siyaset İnsan ve Toplum Bilimleri Dergisi,* 3(1): 49-74.

Thaler R. H. (2000). "From Homo Economicus to Homo Sapiens". *Journal of Economic Perspectives*, 14: 133-141.

Thaler R.H & Sunstein C.R (2019). *Dürtme*. Pegasus Yayıncılık, Taksim/İstanbul.

Thorbecke, W. (1997). "On Stock Market Returns and Monetary Policy". *The Journal of Finance*, 52(2): 635-654.

Tromp E. & Pechenizkiy, E. T. (2014). *Rule-Based Emotion Detection on Social Media: Putting Tweets on Plutchik's Wheel*. arXiv:1412.4682, 1-6.

Weismayer C., Gunter U. & Önder İ. (2021). Tempral Variability of Emotions in Social Media Post. *Technologital Forecasting and Social Change*, 167.

Westerlund, J. (2006). "Testingfor Panel Cointegration with Multiple Structural Breaks". *Oxford Bulletin of Economics and Statistics,* 68(1): 101- 132.

Wlash, S. (2022). *Search Engine Journal*, https://www.searchenginejournal.com/social-

media/biggest-social-media-sites/#close. (Accessed: 30.05.2022)

Wongswan, J. (2006). "Transmission of Information Across International Equity Markets". *The Review of Financial Studies,* 19(4): 1157-1189.

Wongswan, J. (2009). "The Response of Global Equity Indices to U.S. Monetary Policy Announcements". *Journal of International Money and Finance*, 28(2): 344-365.

Yavuz, M. (2019). *Yatırımcı Tweetleri ile Finansal Getiri Arasındaki Asimetrik Nedensellik İlişkisi: NASDAQ Teknoloji Sektöründe Uygulama*. Yüksek Lisans Tezi. Denizli: Pamukkale Üniversitesi Sosyal Bilimler Enstitüsü.

Yılancı, V. (2009). "Fisher Hipotezinin Türkiye İçin Sınanması: Doğrusal Olmayan Eş Bütünleşme Analizi". *Atatürk Üniversitesi İktisadi ve İdari Bilimler Dergisi,* 23(4): 205-213.

Yücememiş, B. T., Alkan, U. & Dağıdır, C. (2015). "Yeni Bir Para Politikası Aracı Olarak Faiz Koridoru: Türkiye'de Para Politikası Kurulu Faiz Kararlarının Enflasyon Üzerindeki Etkisi". *Finansal Araştırmalar ve Çalışmalar Dergisi*, 7(13): 449–478.

Zhou, D., Zhang, X., Zhou, Y., Zhao, Q. & Geng. X. (2016). "Emotion Distribution Learning from Texts". *In Proceedings of the 2016 Conference on Empirical Methods in Natural Language Processing*, pp. 638–647, Austin, Texas. Association for Computational Linguistics.