Forschen
s- und Literaturbericht

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War, Risk, and Gold: The Turkish War of Independence and Ottoman Empire
Krieg, Risiko und Gold: Der Türkische Unabhängigkeitskrieg und das Osmanische Reich

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Abstract: After the end of the First World War in November 1918, the Allies were involved in a military campaign in the Ottoman lands, leading to a national resistance by Turks that would end in 1923. It is relevant to provide actual information on the outcomes of the Turkish War of Independence, since it was a long-lived event that paved the way for further problems on the belligerents' economies. Using unique data for the value of the gold from 1919 to 1925 at the Istanbul bourse, our analysis complements the historical arguments as historians may find political risks difficult to quantify. We observe that in 1921 the Turkish victories created expectations on the part of traders that the war could end soon, as is manifested in exchange rate fluctuations. The Turkish economy would have experienced higher financial instability with the Allies' occupation and resistance in 1920, creating a lower chance to return the pre-war gold content of the belligerents' currencies.

JEL-Codes: G 1, N 25, N 45

Keywords: The First World War, the Turkish War of Independence, the occupation, the Istanbul bourse, foreign exchange trading, structural breaks, Erster Weltkrieg, Türkischer Unabhängigkeitskrieg, Istanbuler Börse, Devisenhandel, Strukturbrüche

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1 Introduction

During the First World War (WWI), all belligerents suspended the convertibility of their currencies into gold. In November 1918, when the military conflicts ended, economic instability associated with severe exchange rate fluctuations, debt accumulation, and high inflation was intolerable. These problems were accompanied by increasing war expenditures financed by printing money, and the return to the pre-war gold standard was promised by all belligerent governments.\(^1\) The adoption of the gold standard was discussed but was not established by 1926. This situation can be linked to the Turkish War of Independence, which started with the occupation of Ottoman lands by the Allies\(^2\) in January 1919 and was over in 1923. It comprises of many different military conflicts, which had influence on all belligerents’ economic systems. Traders in financial markets were concerned about the Turkish War of Independence outcomes, as economic instability had risen, increasing the default risk of government debts. This uncertainty was related to financial problems and substantial devaluation in the belligerents’ currencies, such as Greek Drachma.\(^3\)

In the context of Turkish history, Ergin argues that as the conflicts and occupation in Anatolia progressed, the state’s ability to support Lira decreased, leading to its depreciation.\(^4\) To that end, the Ottoman state sometimes intervened in the currency market to restore the convertibility of Lira to gold.\(^5\) A daily Ottoman newspaper, Vakit, argued that the state did not strongly support the value of Lira at the beginning of the occupation.\(^6\) Another daily newspaper, Tasvir-i Efkar\(^7\), reported that the traders did not worry about the state’s survival thanks to the Turkish victories in 1922, as the end of the occupation was approaching. Resultantly, Lira appreciated, even if economic problems were still being expe-

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2. The UK, France, Greece, and Italy.
5. Vakit, Altın ve evraki nakdiye meselesi, 18.02.1921, p. 2.
7. Tasvir-i Efkar was sometimes changed its name to Tevhid-i Efkar. To make a consistent analysis, the paper uses Tasvir-i Efkar.
rienced. In 1923, relatively strong control of the economy was finally established by the continuing state, i.e., the Republic of Turkey, which could have placed substantial trust in the economy and Lira. Compared to these arguments found in conventional historical studies, an important advantage of our study is the use of econometric methods to analyse financial market data. Therefore, effective and unbiased signals can be obtained to understand the results of historical events by examining price changes. For instance, events bringing an end to the (civil) war would lead to higher gold prices through an increasing possibility to returning gold standard. This is depicted by the pioneering studies of Willard, Willard, Guinnane & Rosen, Smith and Smith, and Weidenmier. In line with these findings, the literature on WWI indicates that exchange rates for the belligerent countries’ currencies were responsive to the news related to the conflict, such as being close to defeat, through decreasing the possibility of maintaining the war in economic terms.

However, the literature on the WWI’s financial problems does not attach much importance to the conflicts in Anatolia after 1919. Our paper, therefore, focuses on when the effects of the Allies’ military campaigns ended by identifying sudden changes in the value of gold against Lira at the İstanbul bourse. Our analysis helps to understand when the belligerents of WWI would be effectively stabilized after the military conflicts were over. Based on a historical example, our findings may also contribute to the literature by understanding the economic consequences of this kind of political shock, i.e., civil war. The dissolution process of the Ottoman Empire is particularly interesting given that a consensus does not exist among historians about the starting and ending dates of the

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8 Vakit, Piyasa, 8.04.1922, p. 3; Tasvir-i Efkar, Günün iktisadi meselelerine bir nazire, 20.06.1923, p. 2.
12 See Willard/Guinnane/Rosen, Turning Points.
Turkish military resistance\textsuperscript{13} in Anatolia.\textsuperscript{14} This paper is the first to employ gold to explain the reactions of the market participants to political threats, which would determine the fluctuations in the value of Lira against gold. In addition, for decades, the history of the Allies’ campaign in Anatolia has received considerable attention from historians. However, they neglected the applied methodologies to assess traders’ perceptions of political and military events and have not been conclusive. We formulate our hypothesis as follows:

When the end of the occupation and resistance was approaching, the price of gold denominated in Turkish Lira became more stable, as the ability of the state to maintain the value of Lira was improving.

We have created a new dataset on the value of gold against Lira at the İstanbul bourse from daily Ottoman newspapers, \textit{Tasvir-i Efkar} and \textit{Vakit}. In particular, we examine the price of gold which would be highly responsive to political threats. We believe that the conflicts in Anatolia could have disrupted belligerents’ attempt to establish the gold standard. For instance, the UK could have succeeded in adopting the gold standard in 1925.\textsuperscript{15} We establish an empirical approach to examine traders’ views on the outcome of the Allies’ invasion based on conventional structural break detections in the value of Lira at the İstanbul bourse by the Bai and Perron test.\textsuperscript{16} We then match break dates with well-known events to identify how the investors responded to political shocks. As this econometric methodology does not suffer from misjudgements based on a priori information, our approach is valuable. Our paper illustrates that the return to gold convertibility and economic stability did not seem accessible by 1922 in case of the destructive effects of the war and occupation. Thanks to Turkish victories in 1921, investors could view that the Allies’ defeat was inevitable, while the state was more powerful in controlling its economy by 1923. However, the new government was vulnerable to the political problems in Mosul already in 1925. These

\textsuperscript{13} The Turkish National Movement (TNM) began to be formed by the Turkish revolutionaries after June 1919 to struggle against the Allies. In April 1920, a new government was established in Ankara. İstanbul, the home of the Ottoman government, was under occupation.


\textsuperscript{15} Rockoff, Until it’s over, pp. 333-335; Wolf, Europe’s Great Depression, p. 344.

impacts of the Anatolian occupation bring clarity to the discussion in the literature of when belligerent economies stabilized. So, our study extends the papers on the other belligerent economies, such as the research of Christodoulakis, Hall, Rockoff, and Wolf,\textsuperscript{17} with its different focus and novel dataset on the value of Lira on which there is a lack of examination. Finally, our findings do not show the presence of sudden decreases in the value of Lira, coinciding with occupations of strategically important places, such as İzmir. In addition, we find a significant fall in the value of Lira in 1920 when the Allies’ occupation had already spread, while the break point is prior to the official declaration of partitioning by the Treaty of Sevres in August 1921. Hence, these events are not assigned an important place in contrast to the historical research that we consulted.\textsuperscript{18} In sum, an important contribution emerges from these results, suggesting that investors gave different weight to specific events in shaping the outcome of the war and regime changes compared to historians who suffered from a lack of actual information.

The remaining sections are organized as follows: the next section reviews the literature on the relationship between conflicts and foreign exchange fluctuations. This section also addresses insights on the Turkish War of Independence, actual information for the economy during the fall of the Ottoman Empire and foreign exchange trading at the İstanbul bourse. Sections 3 and 4 provide information on the methodology and data. Section 5 examines and discusses how the foreign exchange traders responded to the occupation. The paper concludes in section 6.

2 Background

2.1 Literature Review on the Effects of Political Events on Currency Trading

From an empirical perspective, we know several pioneering research investigations of the responses of currency markets to political or war-related events. A classic discussion of this can be traced back to Phillips’ research.\textsuperscript{19} Phillips finds that the US’ victories against North Vietnam caused a higher survival probabil-

\textsuperscript{17} Rockoff, Until it’s over; Hall, Exchange Rates; Wolf, Europe’s Great Depression; Christodoulakis, Currency Crisis.

\textsuperscript{18} See. Eldem, Harp; T. Çavdar, Yüz Yıllık Pahalılık, Ankara 1983.

ity for South Vietnam and increased the value of South Vietnamese currency on the black market during the Vietnam War. For another Asian country, i.e., Japan, between 1922 and 1930, Grossman and Imai highlight some diplomatic and military problems driving less support of Yen by the state, such as military expansionism in 1920. In another paper covering the Second World War period, Kanago and McCormick outline that changes in the value of the British Pound in the US market efficiently reflect the outcomes of war-related events. For instance, the beginning of the war caused the depreciation of the British Pound due to the expectation of decreasing the state’s power to support its currency.

The literature includes a few contributions on the effects of WWI on currency trade, relying on data from the Ottoman Empire. Hanedar, Gencer, Demiralay & Altay estimate losses in Lira traded at the İstanbul bourse when the Central Powers offered the truces in 1918. This loss comes from the perception that there would be dissolution, creating the destruction of financial institutions and power. For other belligerents, Hall and Duarte, Freidinger & Hoffmann discuss the relationship between conflicts and the monetary system during WWI when the convertibility of belligerents’ currencies was strictly suspended. They show that war losses cause fluctuations in the value of the Swiss Franc against such currencies due to the decreasing possibility to return to gold. Unlike Hall, Duarte, Freidinger & Hoffmann’s approach this points to the importance of military events on the Eastern Front during the conflicts.

The literature inspiring our study concentrates on the relationship between civil wars and the convertibility of domestic currencies to gold in the US. The political shocks created asymmetric effects on the convertibility of domestic currencies. Willard, Guinnane, & Rosen, Smith and Smith, and Weidenmier document that the value of greyback and greenback money against gold was a function of outcomes of the conflicts in the US Civil War. They state that there

22 Hanedar et al., The Ottoman Dissolution.
24 In addition, several descriptive studies (See R.C. Burdekin/P. Burkett, Hyperinflation, the Exchange Rate and endogenous Money: post-World War I Germany revisited, in: Journal of International Money and Finance 15/4, 1996, pp. 599-621; Christodoulakis, Currency.) confirm the presence of economic destruction after the end of WWI in Germany and Greece, causing traders to worry about the survival probability of these states and loss in their domestic currencies.
were changes in the value of the currencies in opposite directions. For instance, the defeat of one side created a decrease in the value of its currency because of weak institutions and increasing uncertainty in the future. At the same time, the value of the winner side’s currency increased.25

2.2 Historical Background on the Turkish War of Independence

On July 28th 1914, WWI had begun when Serbia declared war against Austria-Hungary. On November 2nd 1914, the Ottoman Empire joined the war on the side of the Central Powers.26 The conflicts did not end in a short period, and serious conflicts were ongoing for years. By September 1918, the Allies were steadily victorious on the Western Front, heralding the war’s end. After the long-lasting conflicts, the war ended in favour of the Allies when Bulgaria offered a truce on September 28th 1918. On the other hand, the defeat on the Western Front began during Summer, and rumours suggested that Germany would soon make a peace agreement with the Allies.27 The Ottoman Empire signed the Armistice of Mudros on October 30th 1918 to end the war. On November 11th 1918, Germany requested an armistice, and WWI finally ended, as shown in Table 1.

Tab. 1: Key Military and Political Events During the Occupation and the Turkish War of Independence, 1918–1925.

<table>
<thead>
<tr>
<th>Dates</th>
<th>Events</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.11.1918</td>
<td>The Armistice of Compiegne signed by Germany</td>
</tr>
<tr>
<td>18.01.1919–21.01.1920</td>
<td>Paris Peace Conference to set peace terms for the Central Powers</td>
</tr>
<tr>
<td>15.05.1919</td>
<td>The occupation of İzmir</td>
</tr>
<tr>
<td>22.06.1919</td>
<td>Amasya Circular</td>
</tr>
<tr>
<td>3.07.1919–7.08.1919</td>
<td>Erzurum Congress</td>
</tr>
<tr>
<td>4.09.–12.09.1919</td>
<td>Sivas Congress</td>
</tr>
<tr>
<td>12.02.–10.04.1920</td>
<td>The Conference of London to decide on the partitioning of the Ottoman Empire</td>
</tr>
<tr>
<td>16.03.1920</td>
<td>The occupation of İstanbul</td>
</tr>
</tbody>
</table>

25 Willard/Guinnane/Rosen, Turning Points; Smith/Smith, Greenback-gold; Weidenmier, Turning Points in the US Civil War.
26 Austria-Hungary, Bulgaria, Germany, and the Ottoman Empire.
27 See Hanedar et al., The Ottoman Dissolution.
Continuation Tab. 1:

<table>
<thead>
<tr>
<th>Dates</th>
<th>Events</th>
</tr>
</thead>
<tbody>
<tr>
<td>23.04.1920</td>
<td>The Turkish forces established a government in Ankara</td>
</tr>
<tr>
<td>10.08.1920</td>
<td>The Treaty of Sèvres was signed between the Allies and the Ottoman Empire</td>
</tr>
<tr>
<td>9-11.01.1921</td>
<td>The First Battle of İnönü</td>
</tr>
<tr>
<td>21.02.–12.03.1921</td>
<td>The Conference of London with the TNM</td>
</tr>
<tr>
<td>26.–31.03.1921</td>
<td>The Second Battle of İnönü</td>
</tr>
<tr>
<td>23.08.–13.09.1921</td>
<td>The defeat of Greece in the Battle of Sakarya</td>
</tr>
<tr>
<td>20.10.1921</td>
<td>The Treaty of Ankara and the end of French and Italian occupation</td>
</tr>
<tr>
<td>22.03.1922</td>
<td>The Allies asked for an armistice to the Turkish and Greek forces</td>
</tr>
<tr>
<td>26.–30.08.1922</td>
<td>The victory of the TNM in the Battle of Dumlupınar</td>
</tr>
<tr>
<td>11.10.1922</td>
<td>The Armistice of Mudanya was signed to end the hostilities</td>
</tr>
<tr>
<td>20.11.1922–24.07.1923</td>
<td>The Conference of Lausanne</td>
</tr>
<tr>
<td>24.07.1923</td>
<td>The end of the Allies’ occupation with the Treaty of Lausanne</td>
</tr>
<tr>
<td>29.10.1923</td>
<td>The foundation of the Republic of Turkey</td>
</tr>
</tbody>
</table>

On January 27th 1919, the Allies organized the Paris Peace Conference to decide on the peace terms for the defeated countries. While the meetings were ongoing, the occupation of the UK, France, Italy, and Greece in Anatolia had already begun. In November 1918, these forces gradually increased their control on several important places, such as Istanbul, which could have flamed up the Turkish War of Independence. Directors of the Imperial Ottoman Bank, which was the main agent for debts, expected a civil war in the near future due to this occupation.28 For instance, some governors of the UK had a belief that the occupation of İzmir in May 1919 heralded the resistance and conflicts within Anatolia.29 As expected, various forms of resistance against the Allied forces were soon to occur.30 In February 1920, the Turkish resistance was first realised, as the irregular Turkish

29 R. Gerwarth, Mağluplar, İstanbul 2018, p. 245.
forces gained a significant victory against the French troops. The Turkish side gathered several meetings to organize this resistance, such as Sivas Congress.\textsuperscript{31}

Meanwhile, discussion on the peace agreement for the Ottoman Empire began at the London Conference, causing the Allies’ formal occupation of İstanbul in March of 1920. The occupation of İstanbul approved the dissolution and increased the political fluctuations. During the occupations, two different governments existed. One was in İstanbul and controlled by the Allies. Another one was established in Ankara. This government provided all government services in the unoccupied places until the occupation by the Allied forces ended. On August 10\textsuperscript{th} 1920, the Allies proposed the Treaty of Sevres, officially approving the permanent occupation in the different parts of the Ottoman Empire.\textsuperscript{32} It is a well-known argument of historical studies that this treaty flamed increasing conflicts and the foundation of organized resistance in Ankara by 1921.\textsuperscript{33}

Since the beginning of 1921, severe conflicts had existed between the Turkish forces and the Allies. In addition, domestic rebellions had been common since 1920. In the beginning, France and Italy were a part of the occupation. On the other hand, they signed treaties with the Turkish side in mid-November 1921, which gradually ended French and Italian occupation.\textsuperscript{34} Moreover, with the Treaty of Alexandropol in December 1920, the occupation in the eastern part of the Ottoman Empire ended, suspending the Treaty of Sevres. In 1921, the conflict in Anatolia was a war between Greece and Turkey, backed by the UK.\textsuperscript{35} By January 1921, the Greek forces advanced through central Anatolia. The Battle of İnönü was a turning point for war’s outcome, as the Turkish forces began to defeat the Greek army, which was the first important victory of the resistance. While Greece officially declared its desire to occupy İstanbul by summer 1922, at the end of 1921, the Battle of Sakarya was one of the crucial stages of the Turkish victory against the Allies’ occupation. The Turkish army again defeated Greece in the Battle of Sakarya. In 1922, the UK asked for armistice, and the end of the Greek invasion began.\textsuperscript{36} The Battle of Dumlupınar in August 1922 was the final stage of the occupation. In November 1922, the Greek forces asked for a truce, and the armistice of Mudanya in 1922 ended the civil war. In November 1922, the Turkish forces

\textsuperscript{31} D. Fromkin, A Peace to end all Peace: The Fall of the Ottoman Empire and the Creation of the Modern Middle East, New York 2001, pp. 404-407; Yalman, Birinci, pp. 320-326.
\textsuperscript{32} Eldem, Harp, pp. 137-152.
\textsuperscript{33} Gerwarth, Mağluplar, p. 253.
\textsuperscript{34} Ikdam, Kilikya’nın Fransızlardan tahliyesi, 17.11.1921, p. 1; Tasvir-i Efkar, Türkiye-İtalya müzakerati ilerliyor, 14.11.1921, p. 1.
\textsuperscript{35} Gerwarth, Mağluplar, p. 254.
\textsuperscript{36} Ibid., p. 255.
gained control over the financial affairs of the Ottoman Empire. In 1923, the Lausanne Conference was organized to end the warfare on the Eastern Front. The Republic of Turkey was officially founded on October 29th 1923, and it inherited the institutions and debts of the former state. By April 1925, the government had changed the form of the political system with reforms and interferences, such as the abolition of the sultanate and caliphate.37

2.3 An Insight into the Economy of a Falling Empire during Political Crisis

In addition to the impact of political events on the value of Lira, the conflicts in Anatolia and WWI marked significant changes in the economy of the Ottoman Empire, which may have simultaneously affected the state’s power for returning to the gold standard. The situation is depicted in Table 2. After the end of the war, economic recovery started slowly and gradually. Table 2 indicates that the money supply decreased to 140 million Liras after 1919. Meanwhile, there was a fall in the cost-of-living index by 29 percent between 1919 and 1922, as wheat production was far from sufficient. Köklü argues that during this period, stability in the purchasing power of Lira was ensured by the limited money supply.38 The budget deficit in 1921 reached 80 thousand Liras which was lower than that of 1919. However, the current account deficit was at its peak in 1921, at 121.77 million Liras, which could have created temporary fluctuations in the value of Lira together with political turmoil by 1921.

The economic crisis after WWI was regarded as one of the most severe problems. Belligerent states followed contractionary policies to overcome the crisis. From 1921 to 1925, current account deficits were, therefore, relatively low. Lower deficits could also be attributed to economic depression.39 This situation resulted in a 3.13 thousand Liras of a budget surplus in 1924 as well. Therefore, the fluctuations in the value of Lira by 1923 could be a function of increasing risks due to the occupation and depression. After the foundation of the Republic of Turkey in 1923, the state imposed regulations on imports and prices, such as tariffs and

37 Yalman, Birinci, pp. 334-338.
price ceilings.\textsuperscript{40} This higher intervention could have led to an increasing cost of living index due to a lower supply of goods. As prices increased after 1923, depreciation of the Lira would have been possible throughout the peace period.

**Tab. 2: Key Economic Indicators for the Turkish Economy, 1919–1925.**

<table>
<thead>
<tr>
<th>Year</th>
<th>Wheat Production (Thousand Tons)</th>
<th>Budget Deficit/ Surplus (Thousand Liras at current prices)</th>
<th>The Cost of Living Index of İstanbul</th>
<th>Paper bills in circulation (Million Liras)</th>
<th>Current Account Deficit (Million Liras at current prices)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1919</td>
<td>2154\textsuperscript{b}</td>
<td>-88.5\textsuperscript{b}</td>
<td>1402\textsuperscript{b}</td>
<td>161\textsuperscript{b}</td>
<td>-7.4\textsuperscript{b}</td>
</tr>
<tr>
<td>1920</td>
<td>--</td>
<td>--</td>
<td>1406\textsuperscript{b}</td>
<td>140\textsuperscript{c}</td>
<td>-54.33\textsuperscript{b}</td>
</tr>
<tr>
<td>1921</td>
<td>2042\textsuperscript{b}</td>
<td>-6.7\textsuperscript{b}</td>
<td>1130\textsuperscript{b}</td>
<td>--</td>
<td>-121.77\textsuperscript{b}</td>
</tr>
<tr>
<td>1922</td>
<td>--</td>
<td>-11.25\textsuperscript{b}</td>
<td>999\textsuperscript{b}</td>
<td>140\textsuperscript{c}</td>
<td>-90.95\textsuperscript{b}</td>
</tr>
<tr>
<td>1923</td>
<td>--</td>
<td>-1.64\textsuperscript{b}</td>
<td>1352\textsuperscript{b}</td>
<td>--</td>
<td>-44.47\textsuperscript{b}</td>
</tr>
<tr>
<td>1924</td>
<td>2686\textsuperscript{a}</td>
<td>3.13\textsuperscript{b}</td>
<td>1419\textsuperscript{b}</td>
<td>--</td>
<td>-36\textsuperscript{a}</td>
</tr>
<tr>
<td>1925</td>
<td>2959\textsuperscript{a}</td>
<td>-9.5\textsuperscript{c}</td>
<td>1500\textsuperscript{b}</td>
<td>--</td>
<td>-30\textsuperscript{a}</td>
</tr>
</tbody>
</table>

Sources: a The data come from B.R. Mitchell, International Historical Statistics: Africa and Asia, New York 1982, pp. 178, 543. The wheat productions are expressed in hectares. We converted them to tones. b The data come from V. Eldem, Harp ve Mübareke Yıllarında Osmanlı İmparatorluğu'nun Ekonomisi, Ankara 1994, p. 69; Ç. Keyder, Dünya Ekonomisi İçinde Türkiye, 1923-1929, Ankara 1982, p. 69). c The data are elaborated from Vakit and Tasvir-i Efkar, 1919-1925. A detailed consumer price index for İstanbul may depict major economic events between 1919 and 1925 better than the data presented in Table 2. To examine an average trend in consumer prices for this period, we collected prices of twenty-one standard consumer goods (such as gas, wheat). The data come from Vakit and Tasvir-i Efkar. We constructed the index by taking averages of the goods’ prices without any weight because of the lack of information on consumption bundles. Figure 1 presents this consumer price index for İstanbul between 1919 and 1925.

Between 1919 and 1920, when İzmir and İstanbul were occupied, prices fluctuated. Conflicts and increasing imports (see Table 2) could have affected the value of the Lira simultaneously. During the occupation of İzmir in May 1919, Tasvir-i Efkar pointed out that the Allies’ warfare created higher prices for export goods\textsuperscript{41} due to transportation disruptions.\textsuperscript{42} As the Allies occupied different regions, in February

\textsuperscript{40} Çavdar, Yüz yıllık, p. 69; Ç. Keyder, Dünya Ekonomisi İçinde Türkiye, 1923-1929, Ankara 1982, pp. 55-58.

\textsuperscript{41} Vakit, Piyasa, 19.05.1919, p. 2.

\textsuperscript{42} Tasvir-i Efkar, 01.06.1919, Piyasa ahvali, p. 2.
1920, the Turkish forces began to resist against the Allies, leading to the foundation of a new government in Ankara.43 Meanwhile, Vakit reported higher inflation through disruptions in trade routes.44 Surprisingly, after the Allies’ occupation of İstanbul in May 1920, different commentaries of Vakit argued that the price of sugar decreased,45 which was related to depression in the world.46

Fig. 1: The Consumer Price Index of İstanbul, 1919–1925. Sources: Elaborated from Vakit and Tasviri Efkar, 1919-1925. Notes: Figure 1 shows three-month averages of the consumer good prices. MAM 1919 means the average prices in March, April, and May 1919, which is the base period.

The dissolution of the Ottoman Empire was realized in August 1920, when the Allies proposed the Treaty of Sevres. The inflation could be linked to uncertainties because of the rage against the Greek forces. These unforeseen political shocks could also correspond to the depreciation of the Lira, which was accom-

44 Vakit, Piyasa ahvali, 10.04.1920, p. 2; Borsa ahvali, 14.04.1920, p. 2; Piyasa ahvali, 24.04.1920, p. 2.
45 Vakit, Piyasada vaziyet, 28.05.1920, p. 2; Borsa muamelati, 28.05.1920, p. 2.
46 Vakit, Fiyatlar düşüyör, 30.05.1920, p. 1; Piyasa fiyatları, 04.08.1920, p. 2; Piyasa ahvali, 24.06.1920, p. 2.
panied by considerable uncertainty about the future. *Vakit* pointed out that an increasing demand was related to increasing prices for flour and bread in the presence of depression.\(^7\) Figure 1 indicates that by the Battle of İnönü at the beginning of 1921, the prices peaked. Meanwhile, *Vakit* argued that the Ottoman Empire had the highest inflation rate among the belligerents, recorded as 1300 percent. At the same time, the overall prices of France and the UK increased by 162 and 269 percent.\(^8\)

After the Battle of İnönü in 1921, the Greek forces were defeated. Investors could have responded to the end of the occupation significantly, as Figure 1 suggests a sharp decrease in prices. This fall could also be related to depression, contractionary policies, and market disruptions. At the end of 1921, the Turkish army again defeated Greece in the Battle of Sakarya, heralding the end of the Greek invasion in 1922. During this period, the Allies asked for armistices, which could have decreased political risk and prices because of the Turkish victories. *Vakit* announced a severe fall in prices.\(^9\) *Tasvir-i Efkar* argued that severe depression and unemployment were leading to a decrease in prices of goods.\(^50\) The armistice of Mudanya in 1922 ended the civil war, and resultantly there could be a sharp decrease in prices for a while, as depicted in Figure 1. Market actors could have reacted to the fact that the country would no longer be drawn to any hostilities, leading to an appreciation of the Lira.

In 1923, the Lausanne Conference was organized to finalize the warfare on the Eastern Front, heralding the foundation of the Republic of Turkey. As the Allies’ occupation was ending, a price increase was often observed. This increase could be related to lower imports, which could have led to decreasing value of the Lira, as the absence of conflicts would be accompanied by considerable certainty about the future. These changes might also be related to the government restrictions, as argued by *Vakit* and *Tasvir-i Efkar*.\(^51\) With the end of the occupation in 1923, imports decreased, and the government could not establish full control on the economy. As a result, prices reached the occupation level. *Vakit* argued that this increase correlated to lower foreign trade under higher government

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\(^{47}\) *Vakit*, İstanbul’da pahalılık hala devam ediyor, 10.08.1920, p. 2; Ekmek fiyatının terfii, 11.08.1920, p. 2; Piyasada vaziyet, 17.08.1920, p. 3; Piyasada ehemmiyetli tahviller, 24.08.1920, p. 3.
\(^{48}\) *Vakit*, Nasıl yaşayabiliyoruz?, 02.10.1920, p. 2; Piyasa, 04.10.1920, p. 3.
\(^{49}\) *Vakit*, Mevki tedavüldeki evrak-ı nakdiyemiz, 03.08.1922, p. 3; Piyasa, 04.08.1922; p. 3.
\(^{50}\) *Vakit*, Piyasa, 16.06.1922, p. 3; Piyasa, 15.07.1922, p. 3; *Tasvir-i Efkar*, Piyasa ahvali, 26.06.1922, p. 3; İhracat memnuniyeti, 01.07.1922, p. 4; Piyasa ahvali, 11.07.1922, p. 4.
\(^{51}\) *Vakit*, Ekmek narhı, 16.07.1923, p. 2; Piyasa, 16.07.1923, p. 2; *Tasvir-i Efkar*, Et fiyatları yükseliyor, 15.07.1923, p. 2; Ekmek fiyatı, 21.08.1923, p. 2; Ekmek fiyatı, 23.08.1923, p. 3.
restrictions on imports. The price increase in goods could have created new problems for returning to the gold standard in the absence of the occupation, heralding depreciation of the Lira.

2.4 Foreign Exchange Trading and Political Events during the Turkish War of Independence

By 1914, seventeen foreign currencies were traded in the İstanbul bourse (Der- saadet Tahvilat Borsası), established in 1866. The İstanbul bourse did not function during WWI. Trading began in 1917, while the exchange of the Allies’ currencies was strictly forbidden. In this period, the state commission announced the daily value of the Lira. After the end of the war, the restrictions on the Allies’ currencies were lifted, and the banks were responsible for trading. With the end of the conflicts, the Lira was floating against foreign currencies and gold. However, the Ottoman Empire had not returned to the gold standard. A commission was established with the creditors’ cooperation in April 1919 to handle the fluctuations in the value of Lira during the defeat and occupation. Due to the weakness of the state, the commission could not impose efficient regulations, and the value of the Lira decreased sharply.

After the WWI, the Ottoman Empire was drawn into hostilities, leading to the loss of economic sovereignty by 1923. Ongoing warfare in Anatolia against the Allies turned into a lack of power to manage the domestic economy, reflecting the fluctuations in the value of the Lira. On April 5th 1919, Vakit announced that the discussion on the dissolution of the Ottoman Empire was negatively corre-

52 Vakit, Ekmek fiyatı, 09.12.1923, p. 2.
53 By 1921, prices in UK, France, Greece, Italy, and the US increased slightly. After 1920, with the exception of Greece, all belligerents’ prices had a decreasing trend. With the end of the occupation in Anatolia in 1923, prices slowly increased in all belligerents, as Greece was negatively affected by the ongoing warfare. Only the US had a stable price level and could sustain the gold standard (Mitchell, International Historical, pp. 178, 848-849; B.R. Mitchell, International Historical Statistics: The Americas, New York 1993, p. 841.)
56 Tasvir-i Efkâr, Kambiyo mesesi, 23.11.1918, p. 2.
57 Vakit, Para farkını azmak için, 03.04.1919, p. 2; Evrak-ı nakdiyemiz, 05.04.1919, p. 2.
58 Al/Akar, Osmanlı’dan, pp. 172-179.
lated with the value of the Lira. On August 10th 1920, the Treaty of Sevres was signed, proposing permanent occupation by the Allies in the different regions of the Ottoman lands. Meanwhile, Lira depreciated substantially, which could imply the doubts of traders about the independence of the country. As the Allies occupied many regions over time, the inefficiency of the state to manage the Lira led to a larger decrease in the value of Lira. On the other hand, due to the Turkish victories in 1921, the end of the civil war was approaching. Meanwhile, the value of the Lira began to increase. The Allies asked for armistices in 1922 while the Ottoman Lira appreciated decreases in frequency and severity of speculative attacks. After 1922, the state imposed higher restrictions on foreign exchange trading, as the ongoing warfare of the Allies was soon to finish. When the Allies’ defeat was approved by the Lausanne Conference of 1923, value of Lira rose. After the foundation of the Republic of Turkey in 1923, *Vakit* reported that the continuing government increased controls over trading at the Istanbul bourse. These controls led to the appreciation of Lira through decreasing speculations. In line with this information provided by the newspapers, Ete states that confidence in Lira increased after the end of occupation through the lower money supply and institutional weaknesses.

### 3 Data and Empirical Approach

#### 3.1 Exchange Rate Data

Our study is based on the daily values of gold against Lira at the Istanbul bourse between March 1919 and 1925. Like related studies, we rely on the value of gold

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59 *Vakit*, Evrak-ı nakdiyemiz, 05.04.1919, p. 2.
60 *Vakit*, Bütün dünyannın kambiyo derdi, 05.09.1920, p. 1.
62 *Vakit*, Osmanlı eshamı, 15.06.1921, p. 2.
63 *Vakit*, Piyasa, 02.01.1922, p. 3; Kambiyo buhranı, 04.01.1922, p. 2.
64 *Tasvir-i Efkar*, Borsa komiseri Adli bey’in beyanatı, 02.09.1923, p. 3; Galata borsasında istihale başılıyor, 04.09.1923, p. 2.
65 *Vakit*, Piyasa, 08.04.1922, p. 3.
66 *Tasvir-i Efkar*, Borsa haberleri, 18.07.1923, p. 2; *Vakit*, İktisadi hafta, 23.09.1923, p. 3; Borsada vaziyet, 30.09.1923, p. 3.
68 See Willard/Guinnane/Rosen, Turning Points; Smith/Smith, Greenback-gold; Weidenmier, Turning Points in the US Civil War.
to capture investor’s perceptions. The manually collected data come from *Tasvir-i Efkar* and *Vakit*. The newspapers include fewer details on the exchange rates before March 1919 and after March 1925. Overall, we draw on over 981 observations.

*Tasvir-i Efkar* and *Vakit* had a daily 15,000 circulation number, on average. So they were popular newspapers and had many commentaries including actual information on aspects of economic life over three to four pages. The newspapers were not politically oriented during the occupation due to censoring. In a survey of 1913, the share of financial news was on average 4 percent of all news. Between 1919 and 1925, the occupation contributed to the emergence of more political events, as only 1 percent of commentaries in a day were related to economic life.\(^{69}\)

To have a more detailed analysis of return dynamics, Table 3 documents the summary statistics. The mean value is 680, while the maximum and minimum values are 910 and 313, respectively. The mean is close to the maximum one, and Gold/Lira is negatively skewed, implying that high values of gold dominate the low values. This shows higher volatility in the Gold/Lira exchange rate due to the conflicts.

**Tab. 3: Descriptive Statistics on the Value of Gold Against Lira, 1919–1925.**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gold/Lira</strong></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>680</td>
</tr>
<tr>
<td>Maximum</td>
<td>910</td>
</tr>
<tr>
<td>Minimum</td>
<td>313</td>
</tr>
<tr>
<td>Std. Dev.</td>
<td>141</td>
</tr>
<tr>
<td>Skewness</td>
<td>-0.865</td>
</tr>
<tr>
<td>Kurtosis</td>
<td>2.681</td>
</tr>
<tr>
<td>(N)</td>
<td>981</td>
</tr>
</tbody>
</table>

*Note: \(N\) represents the number of observations.*

Figure 2 shows the Gold/Lira exchange rate at İstanbul bourse between 1919 and 1925. The horizontal axis represents important political turning points during the Turkish War of Independence. A vital point deserving to be addressed is the increasing trend in the value of gold against the Lira over the period, which may have arisen from the lower credibility of the Lira after WWI.

![Graph showing Gold/Lira exchange rate]  
**Fig. 2:** The Value of Gold Against Lira, 1919-1925. Sources: Elaborated from *Vakit* and *Tasvir-i Efkar*, 1919–1925.

The occupation of İzmir in May 1919 occurred at the same time with an appreciation of Lira. Meanwhile, the consumer price index of İstanbul was decreasing, as depicted in Figure 1. *Vakit* argued that the appreciation was related to higher exports and increasing confidence for the Lira in the foreign markets. By the occupation of İstanbul in the beginning of 1920, the value of the Lira had experienced a sharp decrease, while the prices in İstanbul increased slowly. Under the presence of stable prices, the loss of the value of Lira might be a function of

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70 *Vakit*, Esham borsasi, 01.08.1919, p. 2.
political risk that stems from the occupation. From the perspective of traders, the Treaty of Sevres in August 1920 was not good news, creating a rapid depreciation for the Lira, while overall prices changed modestly. This finding could mean that traders questioned the credibility of the Lira during the outbreak of severe conflicts because of occupation. In addition, as shown in Table 2 higher current account deficit could have led to the depreciation.

Before the defeat of the Greek forces at the Battle of İnönü during the beginning of 1921, there was an increase in the value of Lira. This increase corresponded to skyrocketing prices of goods. The appreciation, therefore, could be related to the Turkish victory, marking the impending defeat of the occupiers. In the Battle of Sakarya, the Turkish forces defeated Greece. The value of the Lira and prices still decreased. The fall addresses the presence of uncertainty about who would win the war even at the end of 1921. At the Battle of Dumlupınar in the mid-1922, there was a rapid increase in the value of the Lira, while the Allies were defeated, and the Greek forces asked for armistice. This finding shows that improving diplomatic conditions in Anatolia seems to have been captured by traders in 1922.

The end of the occupation with the Armistice of Mudanya in 1922 led to a rapid increase in the value of the Lira while prices were decreasing due to depression. Appreciation of the Lira may indicate a higher likelihood of returning to the gold standard, which could be arisen from the Turkish victories. On the other hand, economic problems, such as a lower supply of goods and depression, as depicted in Table 2, could have limited the improvements in the value of the Lira. Upon the foundation of the Republic of Turkey in 1923, the value of the Lira decreased slowly. Meanwhile, prices increased because of intensive regulations. The value of the Lira stabilized after the end of the war in 1923. This implies that the state’s ability to regulate the Lira improved with the end of the occupation.

### 3.2 Estimation Procedure

To examine how the events during the Turkish War of Independence shaped the traders’ view on the sovereignty of the Lira, this paper conducts a standard structural break test on the value of gold against the Lira that links the abrupt changes to political events. The Bai-Perron test endogenously signals the break

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71 After the Treaty of Alexandropol in December 1920, a sharp increase in the value of Lira is observed as shown in Figure 2. This treaty ended the occupation in the eastern part of the Ottoman Empire, as proposed in the Treaty of Sevres, which may mark the beginning of the Turkish victory against the Allies’ invasion.

72 Bai/Perron, Estimating; Idem, Computation.
dates in which the state could not keep the value of Lira fixed in terms of gold due to political events considered important by traders.

In contrast to alternative tests identifying the break dates exogenously, Bai-Perron methodology selects the breakpoints in time series endogenously. The exogenous break date selection could lead to biased and speculative results because of a priori assumption on the sudden changes in the series. To identify the sudden changes in the series, the Bai-Perron test estimates a linear regression as follows:

\[ y_t = c_j + \varepsilon_t \quad t = T_{j-1} + 1, \ldots, T_j \] (1)

where \( y_t \) is the value of gold against Lira at time \( t \) and \( j (j=1, \ldots, m+1) \) equal segments defined by \( m \) structural breaks in sudden change periods. \( c_j \) shows an estimated intercept, and \( \varepsilon_t \) is a white noise error term. The Bai and Perron framework determines \( L + 1 \) versus \( L \) breaks sequentially and employs the F test.\(^73\) The Bai and Perron method allows maximum five endogenous break dates by applying a 15 per cent trim and the 0.05 significance level, which chooses a minimum number of observations in each segment to determine the number and dates of breaks. Using the Bai-Perron test, the paper examines the sudden changes in the value of gold against Lira, indicating expectations about the state’s capacity to manage Lira. We detect the break point and match them with events. For instance, there could have been a higher value of gold against the Lira in a break point, which would mean lower power to sustain Lira due to political events, such as defeat.

\(^73\) We follow the procedure of C.Y. Ho/D. Li, A Mirror of History: China’s Bond Market, 1921-42, in: The Economic History Review, 67/2, 2014, pp. 409-434, using the F test to examine the effect of civil war in China on bond prices. In addition, Kanago/McCormick, The Dollar-Pound, and Bai/Perron, Computation, argue that F test works better than other tests. For instance, SIC (Schwartz Information Criteria) and the LWZ (the modification of SIC (see J. Liu/S. Wu/J.V. Zidek, On Segmented Multivariate Regressions, in: Statistica Sinica, 7, 1997, pp. 497-525.)) do not work well in case of serial correlation and heterogeneity. Using the sequential procedure and F test could only be problematic in the case of a small sample. It seems that our result was not be distorted due to this problem, as our sample is larger than the previous studies using Bai and Perron test. On the other hand, we compare three ways of selecting the number of breaks to check the robustness of the findings.
3.3 Results

The paper conducted a Bai-Perron multiple structural break test on the value of gold against Lira to identify turning points endogenously. The results are presented in Table 4. We include statistically significant structural breaks and percentage changes in the value of Lira as well as corresponding events. The F statistics select four breaks and the LWZ identifies three break points. Four breaks are found by using the SIC. One of breaks is identical to the break point chosen by the SIC. Three breaks are similar to ones identified by LWZ (the details on the test results are depicted in Table A1). Our findings address the effect of worsening political conditions due to the occupation, reflected as problems in the convertibility of Lira. The magnitude of the fall becomes smaller in breaks observed after 1920. This decrease could be related to the investors’ belief in the end of occupation and financial instability, which would become visible with the Turkish resistance and victories, increasing the state’s power to sustain the Lira.\textsuperscript{74}

\textbf{Tab. 4:} Bai-Perron Test Results and Related Events for the Value of Gold Against Lira, 1919–1925.

<table>
<thead>
<tr>
<th>Break Dates</th>
<th>Events</th>
<th>Short-run Change</th>
<th>Long-run Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.06.1920</td>
<td>Economic problems, discussion on peace and occupation, and Greek attacks</td>
<td>10</td>
<td>71 F, SIC, LWZ</td>
</tr>
<tr>
<td>27.05.1921</td>
<td>New attacks by the Turkish Forces</td>
<td>0.65</td>
<td>39 SIC</td>
</tr>
<tr>
<td>31.05.1921</td>
<td>Defeat of the Greek army and new attacks</td>
<td>4.5</td>
<td>39 F, LWZ</td>
</tr>
<tr>
<td>30.07.1922</td>
<td>The Greek Forces’ attacks</td>
<td>2</td>
<td>32 SIC</td>
</tr>
<tr>
<td>20.11.1923</td>
<td>Economic and political problems</td>
<td>0.56</td>
<td>32 F, LWZ</td>
</tr>
<tr>
<td>03.01.1924</td>
<td>Economic problems</td>
<td>0.12</td>
<td>30 SIC</td>
</tr>
<tr>
<td>12.07.1924</td>
<td>Economic and political problems</td>
<td>0.24</td>
<td>17 F</td>
</tr>
</tbody>
</table>

Notes: This table shows the break dates and corresponding events expressed in \textit{Tasvir-i Efkar} and \textit{Vakit}. Short-run change shows the percentage change in a breakpoint. The long-run change reflects the percentage change in average values before and after the break. To estimate standard errors, we allow heterogeneous error distribution and use white heteroskedasticity-consistent covariances.

\textsuperscript{74} We do not report the data and results on the value of US Dollar, British Pound, Greek Drachma, French Frank, Italian Lire. These countries also experienced economic and political troubles during the period with the absence of gold standard. The findings show that the British Pound and US Dollar followed a similar path with gold. There was a continuous decrease in the values of other countries’ currencies against the Lira over the period and similar break-points in Table 4.
Using the sequential procedure and F test could be less problematic while we have a large sample in comparison to Kanago and McCormick’s paper.\textsuperscript{75} We first discuss the events that occurred at the time of each break identified by F statistics which is almost similar to ones detected by LWZ (the fitted structural breaks are depicted in Figure A1). The first break occurs in June 1920, when \textit{Vakit} disseminated news about the discussion on the peace offer of the Ottoman Empire in addition to lower trade and prices in Europe. The details of the Ottoman Empire’s proposal had been published at the beginning of June and there were articles about the fragmentation and occupation,\textsuperscript{76} while the occupation of the western Thrace, Karaağaç, by Greek forces had already began.\textsuperscript{77} In a short while, a 10 percent decrease in the value of gold against the Lira was observed. This news could be expected to weaken the convertibility and value of Lira against gold because of the state’s low power to control the economy. The break is related to a 71 percent increase in the value of gold over time. The finding could show an expectation of strengthening political fragmentation over time that the Allies’ warfare would have triggered. To support this argument, only a month later, in August 1920, the Treaty of Sevres was signed, and the Allies decided to occupy almost all regions of Anatolia. Figure 2 indicates a fall in the value of Lira against gold prior to the Treaty of Sevres, implying that traders negatively responded to the occupation, because of decreasing ability to manage the economy.

The second breakpoint was detected in May 1921, corresponding to the news on the Turkish forces’ attacks. At the end of 2020, the Treaty of Alexandropol was signed, ending the occupation in the eastern part of the Ottoman Empire demanded by the Treaty of Sevres. Two months later, in January 1921, the Turkish forces defeated the Greek army in the Battle of İnönü. Figure 2 indicates an increasing trend in the value of Lira during these events. On May 30\textsuperscript{th} 1921, \textit{Vakit} reported that the Turkish forces organised several attacks against Greek invasions, leading to the defeat of the enemies.\textsuperscript{78} The break shows a 4.5 percent increase in the value of gold for a short time. The temporary fall in the value of the Lira could be interpreted as a signal for the presence of expectation relating to uncertainties due to new attacks of the Greek forces. The break, on the other hand, created a 39 percent increase in the value of gold in the long-run. The fall is smaller than that of the first breakpoint in magnitude. The finding suggests that the Turkish

\textsuperscript{75} Kanago/McCormick, The Dollar-Pound.

\textsuperscript{76} \textit{Vakit}, Sulh muahademizin resmi metni, 01.06.1920, p. 1; Cezanın mahiyeti, 08.06.1920, p. 1; Muahademizi nasıl buluyorlar?, 11.06.1920, p. 1; Fiyatların tenzili, 11.06.1920, p. 1.

\textsuperscript{77} \textit{Vakit}, Karaağaç işgal ediliyor, 02.06.1920, p. 1.

\textsuperscript{78} \textit{Vakit}, 26 Tarihli tebliğ-i resmi, 30.05.1921, p. 1.
victories after 1920 made traders more confident about the end of the conflicts in favour of the Turkish side. It is important to note that depression and low prices could negatively affect traders’ views, creating a lower value of Lira. Figure 1 indicates a sharp decrease in prices during these days, arguably due to trade disruptions and depression.

The last group of breakpoints are identified in November 1923 and July 1924, after the end of the occupation and the foundation of the Republic of Turkey. The break date corresponds to post-WWI political problems on controlling some occupied lands, such as Mosul of Iraq, and economic fluctuations. In November 1923, Vakit provided news on the discussions on the Mosul question in the Turkish assembly.\(^7^9\) In addition, it is reported that lower export could be responsible for the decreasing value of the Lira.\(^8^0\) This was related to a 0.56 percent decrease in the value of gold for the short-run. In July 1924, Tasvir-i Efkar provided news on higher prices of bread.\(^8^1\) Vakit reported the disputes between Turkey and Bulgaria on the Rumelia and Muslim population.\(^8^2\) The break led to a 0.24 percent increase in the value of gold. The depreciation of Lira even after the foundation of the Republic of Turkey show that traders responded negatively to such problems which could decrease the new state’s power to return to the gold standard. The negative effects of the event on management ability could be seen in a slight decrease of the value of Lira presented in Figure 2. In the long run, the breakpoints are correlated with a smaller decrease in the value of Lira, compared to those of the previous breaks, i.e., 32 and 17 percent. This suggests that the investors were no longer concerned about the convertibility after 1922 due to lower political uncertainty. Between 1923 and 1924, product prices skyrocketed again as depicted in Figure 1, arguably due to the inefficiency of the government to take imports under control. The presence of economic fluctuations and several political problems could have temporarily created risks for the power for the Lira.

Table 4 indicates that the breaks in 1920 and 1921 are robust to different methods. Break points detected by SIC after 1920 could only be different from those detected by other methods. Our findings, on the other hand, do not by implication violate these breakpoints since they corresponded with similar events. So, we discuss three additional breaks based on the SIC. The second breakpoint detected by SIC occurs in May 1921, relating to the news on the Turkish forces’ attacks. On May 26\(^{th}\) 1921, Vakit reported that the Turkish forces gathered new

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\(^7^9\) Vakit, Musul meselesi hakkında mühim bir müzakere, 20.11.1923, p. 1.
\(^8^0\) Vakit, Bankalar arasında, 20.11.1923, p. 2.
\(^8^1\) Tasvir-i Efkar, Ekmek meselemiz, 10.07.1924, p. 1.
\(^8^2\) Vakit, Türk Bulgar itilafi, 12.07.1924, p. 1.
soldiers to organise further attacks against Greek invasions. On May 27th 1921, it is argued that Greece would not defeat Turkish forces as economic problems intensified. Meanwhile, the Drachma had lost its value, and the demand for peace had become widespread. This break was related to a 0.65 percent decrease in the value of gold for the short-run. In the long-run, there was a 39 percent depreciation of Lira. The break is close to the date of the break identified by F and LWZ, i.e., May 31st 1921. The break led to lower decreases in the value of the Lira, in comparison to that of the previous break. Two months previously, the Greek army had been defeated by the Turkish forces in the Battle of İnönü, and Figure 2 implies a higher value of Lira. Thus, our findings may identify traders being less suspicious of the power of Lira because of Turkish victories in 1921.

The third break identified by SIC is on July 30th 1922. The break shows a 2 percent increase in the value of gold for a short time, as it created a 32 percent increase in the value of gold in the long-run. In July 1922, Vakit announced the news that the Greek army had some intention and gathered soldiers to occupy İstanbul. The fall in the value of the Lira could be interpreted as a signal for the presence of uncertainties due to new attacks of the Greek army. On the other hand, the fall is smaller than the first and second breakpoints in magnitude. This might signal that traders did not believe a new attack by Greece, which could have decreased the state’s ability to manage the economy. This expectation could be related to the Turkish victories in 1921.

The last break identified by SIC is in January 1924. It corresponds to economic problems on good markets and budget deficits. On January 2nd 1924, Vakit announced discussions on why the declaration of the budget deficit was late. In addition, good prices were still high. The break was related to a 0.12 percent decrease in the value of gold for the short-run, as there was a depreciation of Lira in the long-run by 30 percent. These amounts were smaller in comparison to those of the previous breaks. This could suggest that the investors were not concerned much about the convertibility in 1924, while economic fluctuations could have led to higher problems in returning to gold.

As shown in Table 4, endogenous breaks exist in 1920, 1921, 1923, and 1924. However, the value of the Lira could also have been affected by macroeconomic

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83 Vakit, Anadolu’da harp hazırlığı devam ediyor, 26.05.1921, p. 1.
84 Vakit, Yunanistan savaşı kazanamayacağını anladi, şimdi sulh yolunu tutmak istiyor, p. 1.
87 Vakit, Bütçe açığının miktarı henüz belli değil, 02.01.1923, p. 1; Haftalık piyasa, 02.01.1924: p. 3.
variables such as inflation. For instance, as discussed in section 2 (see Table 2 and Figure 1) the demand for Lira could have been weak when inflation was high without any political uncertainty. In such cases, the causal link between political disorder and the value of Lira will not be clear. Therefore, to examine how fluctuations of the macroeconomic variables do not cause the break points, we ran a regression\textsuperscript{88} of the value of the Lira on dummy variables, inflation, and economic news.\textsuperscript{89} Since the value of gold against Lira could be non-stationary, leading to spurious regression results, the independent variables are regressed on the returns of the exchange rate as follows:

\[
r_t = \alpha + \beta_1 d_t + \beta_2 c_t + u_t
\]  

(2)

where, \( r \) represents the returns of the value of gold against the Lira, FX, at time \( t \), which is calculated by the following equation:

\[
r_t = \log(\frac{FX_t}{FX_{t-1}})
\]  

(3)

\( \alpha \) and \( \beta \) are the coefficients to be estimated, and \( d \) denotes the dummy variables which take the value of 1 in break date and 0 otherwise. \( c \) indicates the control variables, as due to the data constraints, the paper uses the consumer price index of Istanbul and the number of good and bad news at time \( t \) to capture the impacts of economic outcomes.\textsuperscript{90}

Table 5 shows the regression results. After controlling for additional variables and using the return as dependent variable, almost all break-year dummies are statistically significant with expected signs. This finding is consistent with our baseline results presented in Table 4.

\textsuperscript{88} For a similar procedure on bond prices, see Ho/Li, A Mirror.

\textsuperscript{89} For instance, increasing trade and production can be considered good news, while bad news can be related to economic depression and price fluctuations.

\textsuperscript{90} We constructed a three-month average of the consumer price index of Istanbul, as in Figure 2. The Ottoman newspapers, such as Tasvir-i Efkar and Vakit, provide actual and daily information on the economy. We constructed the numbers of bad and good news items to further check the effects of fluctuations in the economy. This is because R.J. Shiller, Narrative Economics, in: American Economic Review, 107(4), 2017, pp. 967-1004 argues that economic fluctuations can be observed well by focusing on the mentioned contents of newspapers on economic outcomes.
### Tab. 5: Results of Regression Analysis for the Gold Returns Against Lira, 1919–1925.

<table>
<thead>
<tr>
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<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
</tr>
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<tbody>
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<td>Break1920</td>
<td>0.097***</td>
<td>0.097***</td>
<td>0.097***</td>
<td>0.097***</td>
<td>0.096***</td>
<td>0.097***</td>
</tr>
<tr>
<td></td>
<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.000)</td>
</tr>
<tr>
<td>Break1921</td>
<td>0.044***</td>
<td>-0.000</td>
<td>0.044***</td>
<td>0.043***</td>
<td>0.006***</td>
<td>0.043***</td>
</tr>
<tr>
<td></td>
<td>(0.000)</td>
<td>(0.906)</td>
<td>(0.000)</td>
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</tr>
<tr>
<td>Break1922–1923</td>
<td>0.085***</td>
<td>0.033***</td>
<td>0.085***</td>
<td>0.091***</td>
<td>0.032***</td>
<td>0.091***</td>
</tr>
<tr>
<td></td>
<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.000)</td>
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</tr>
<tr>
<td>Break1923–1924</td>
<td>-0.002**</td>
<td>-0.002**</td>
<td>--</td>
<td>-0.002***</td>
<td>-0.003*</td>
<td>--</td>
</tr>
<tr>
<td></td>
<td>(0.004)</td>
<td>(0.002)</td>
<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.034)</td>
<td></td>
</tr>
<tr>
<td>Good news</td>
<td>-0.001</td>
<td>-0.000</td>
<td>-0.001</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td></td>
<td>(0.640)</td>
<td>(0.934)</td>
<td>(0.640)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bad news</td>
<td>0.006</td>
<td>0.007*</td>
<td>0.006</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td></td>
<td>(0.113)</td>
<td>(0.086)</td>
<td>(0.112)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consumer price</td>
<td></td>
<td></td>
<td></td>
<td>0.000</td>
<td>-0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>index of İstanbul</td>
<td></td>
<td></td>
<td></td>
<td>(0.900)</td>
<td>(0.909)</td>
<td>(0.901)</td>
</tr>
<tr>
<td>Constant</td>
<td>-0.000</td>
<td>-0.000</td>
<td>-0.000</td>
<td>-0.000</td>
<td>0.000</td>
<td>-0.000</td>
</tr>
<tr>
<td></td>
<td>(0.719)</td>
<td>(0.692)</td>
<td>(0.716)</td>
<td>(0.978)</td>
<td>(0.830)</td>
<td>(0.977)</td>
</tr>
<tr>
<td>$N$</td>
<td>980</td>
<td>980</td>
<td>980</td>
<td>980</td>
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<td>980</td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.041</td>
<td>0.027</td>
<td>0.041</td>
<td>0.035</td>
<td>0.019</td>
<td>0.035</td>
</tr>
</tbody>
</table>

Notes: $N$ is the number of observations. Break variables show the break dates in the value of gold against Lira depicted in Table 4. Regressions use autocorrelation and heteroskedasticity consistent estimates of the standard errors. Columns (1)-(4) show the breaks identified by $F$ statistics. Columns (2)-(5) indicate the breaks detected by $SIC$. Columns (3)-(6) reflect the break times identified by $LWZ$. $P$-values are shown in parentheses. *** and * reflect statistically different from zero at 1 and 10 percent.

Columns (1)-(3) of Table 5 use the number of bad and good news items as control variables. Columns (4)-(5) control for the consumer price index of İstanbul. The findings indicate that almost all break dates are significantly related to the Gold/Lira exchange rate return. The coefficient estimate for the break date in 1921 identified by $SIC$ is not only statistically significant. The statistically significant results on break dates confirm that political events or specific events during the breaks created a substantial shift in the Gold/Lira return rather than macroeconomic events and prices. Moreover, coefficient estimates for the consumer price index of İstanbul and news have almost the expected sign. Column (2) indicates that the coefficient estimate of the effect of bad news is statistically significant.
and has a positive sign. Other effects are not statistically different from zero, providing no evidence for the traders’ concerns about inflation or bad news on the economy.

Table 5 implies that the coefficient estimates for the break dates in 1920 are positive, meaning lower value of the Lira during breaks. Hence, economic problems, discussion on peace, and Greek occupation in 1920 could have created a negative impact on the convertibility of Lira, as we found in Table 4. The coefficient estimates for the break dates in 1921 are positive as well. Their magnitude becomes smaller in comparison to the previous ones. This could imply that in mid-1921, the Turkish attacks and the defeat of the Greek army caused a statistically significant increase in the possibility of the convertibility of the Lira, which is in line with the findings in Table 4. The coefficient estimates for the break dates in 1922 and 1923 are positive. Their magnitude is larger than those of previous points. This means that Greek attacks and economic fluctuations during this period could have created a short-lived negative impact on the convertibility of Lira. The return to the gold standard was also suspended during the political turmoil with the UK, such as the Mosul question, leading to a lower value of the Lira. After 1922, the effects are negative and statistically significant, implying that the new regime altered investors’ confidence to return to gold, which would have been reflected in the higher value of Lira.

To summarize, how did civil wars and occupation shape trends in the convertibility of belligerents’ currencies? Our paper is designed to test that the value of the Lira against gold was related to the political catastrophes during the Allies’ occupation and the Turkish War of Independence. We argue that the impact of war-related events on the value of Lira would have depended on investors’ beliefs about how and to what extent the events would decrease the state’s power to sustain the Lira. As historians have previously not been completely aware of such events due to the lack of research, we offer an empirical window on how returning to a stable monetary system was negatively affected by political problems on the Eastern Front by 1922. So, the behaviour of currency traders in İstanbul during a civil conflict may provide new insights into the results of literature on WWI.91

At this point, there are several major findings. First, our results do not indicate gradual changes in the value of the Lira during several events that are considered as crucial by historians, such as the occupation of İzmir and the Treaty of Alexandropol.92 Surprisingly, Figure 2 indicates a large increase in the value

91 e.g., Hall, Exchange Rates.
of Lira when İzmir was occupied. This occurred simultaneously with a decrease in the price of goods, as shown in Figure 1. Also, there was the increase of exports and confidence in the Lira.\footnote{Vakit, Esham borsası, 01.08.1919, p. 2.} Although this finding contrasts to the conventional views of historians, we were able to argue that market actors did not give the same weight to such events. This is also supported by existing studies that use the prices of government bonds traded at the İstanbul bourse.\footnote{A.Ö. Hanedar et al., Dissolution of an Empire: Insights from the İstanbul Bourse and the Ottoman War Bond, in: Defence and Peace Economics 29/5, 2018, pp. 557-575; A.Ö. Hanedar/E.Y. Hanedar/E. Torun, The End of the Ottoman Empire as Reflected in the İstanbul Bourse, in: Historical Methods: A Journal of Quantitative and Interdisciplinary History 49/3, 2016, pp. 145-156.} Second, our results show that the contribution of WWI on the blockade of convertibility to gold remained significant in 1922. The fall in the value of Lira is inspected prior to the Treaty of Sevres in August 1920, abolishing the Ottoman Empire through partitioning the lands. This could indicate that problems in the state’s return to stable monetary policy had already begun before the Allies announced the occupation officially. Perhaps investors priced the cost of the conflicts before the official declaration. Furthermore, a lower supply of goods and depression, as presented in Table 2, may have mitigated the improvements in the value of the Lira. Third, the results imply that in May 1921, the Turkish victories created an important breakpoint, leading to a lower fall in the value of the Lira. This finding supports the view that investors could have begun to capitalize on the end of the occupation in Anatolia by 1921 as Turkish forces defeated Greek forces in the Battle of İnönü by January 1921. No break points correspond with the Battle of Sakarya in August 1921 and the Armistice of Mudanya in October 1922, which finalized the occupation. Figure 2 indicates a significant decrease in the value of Lira prior to these events, suggesting that these events could not have been viewed as noteworthy operations by traders. The findings extend the existing studies on the belligerent economies\footnote{Rockoff, Until it’s over; Hall, Exchange Rates; Wolf, Europe’s Great Depression; Christodoulakis, Currency Crisis.} by implying that investors expected that the burden on belligerent economies would gradually disappear after 1921. Fourth, traders did not worry much about convertibility after the Republic of Turkey was established. Our analysis, however, identifies breaks indicating that investors attributed significance to the political shock, such as the Mosul question, which could have damaged the monetary system. A slight decrease in Figure 2 could support this result. At the same time, Figure 1 indicates that the prices goods increased due to intensive regulations, which could be related to the Lira’s lower value. Our result on the weakness of the new regime differs from that
Hanedar, Hanedar, Torun, & Ertuğrul pointed out by using the Ottoman bonds’ prices.\textsuperscript{96} New insights into historical literature may accompany our framework, since there is a close link between the state’s survival probability and the currencies’ values against gold, as argued by the previous studies of the conflicts.\textsuperscript{97}

## 4 Conclusions

Exploiting a unique dataset on the value of gold against the Lira in İstanbul between March 1919 and 1925, we provide a test for the impact of developments during the Allies’ occupation and the Turkish War of Independence on the financial markets’ reaction to political uncertainty. The behaviour of traders was able to provide information about actual turning points to foresee the end of failure in managing the value of Lira because of the resistance. In the post-WWI period, the Allies began to occupy the Ottoman lands, and the state lost its political and economic control over the country. Resultantly, the war of independence broke out, and the return of a stable monetary system was suspended. It is known that the belligerents, such as the UK, had several attempts to establish the gold standard, which was blockaded. Stronger control on belligerent economies was established after the war ended in favour of the Turkish forces. Addressing the question in the introduction is important, while historians do not have adequate tools to perform such an analysis. In addition, the turning points could provide the signal for the end of instabilities in the belligerent economies due to warfare in Anatolia.

We found different groups of breakpoints corresponding to various political events and uncertainty. The implications of our results are summarized in four aspects. First, the depreciation of the Lira throughout all breaks means higher uncertainty and blockade to the return of gold standard created by the occupation of the Allies and the resistance of the Turkish forces. Second, we have no evidence on the discrete and provocative events pushing the civil war, such as the occupation of İzmir, as argued by historians. This could imply that the probability of the outbreak of Turkish resistance could have been slight at the beginning. Another explanation may be that investors could have misestimated the importance, or these events may not be as crucial as historians believe. Moreo-

\textsuperscript{96} Hanedar et al., Dissolution; Hanedar/Hanedar/Torun, The End.

\textsuperscript{97} See Willard/Guinnane/Rosen, Turning Points; Smith/Smith, Greenback-gold; Weidenmier, Turning Points in the US Civil War.
ever, the occupation might have been visible prior to the provocative events as the Lira had already depreciated. Third, in 1921, the traders still thought that the state was not likely to survive, while the convertibility of the Lira was suspended. Traders regarded the Allies’ attacks as detrimental to determining the outcome of the war. On the other hand, the magnitude of decrease over the breakpoints is lower from the first break to the last ones. This indicates investors’ positive response to the Turkish victories in 1921, increasing the probability of return to the gold standard. Last, when the new government was established, the investors expected the economy to be under control. There was increasing support to create a more stable Lira. This increase was mitigated by the political problems that the new regime experienced in 1924.

Our study is the first to assess the outcomes of the prolonged military action of the Allies in Anatolia between 1919 and 1923 from the gold market perspective. Our paper has implications for policymakers and the literature on the effects of wars on financial markets. We observe that peace is useful for decreasing political uncertainty, but it does not necessarily mean fast economic recovery and a better management power of the government on the economy. We found prompt reactions of investors to the political shocks after the new regime, having the ability to stabilize the exchange rate. Moreover, our analysis opens a path for future historical research on the Turkish War of Independence. This is because traders in a war-torn economy cannot respond to crucial political events strongly, which were interpreted as disastrous or important by historians. Future research can be carried out if more economic and financial data are obtained on traders’ behaviour and profiles. More work on the details on the exchange rates in İstanbul is warranted. It should be noted that our methodology and data have some drawbacks. The method detects sudden changes in case of unanticipated information on the political event. This comes from the efficient market hypothesis, as the Bai-Perron test could not provide evidence that information quality is high, and traders were rational. During this period, newspapers were censored and shut down, affecting information quality.
5 Appendix: Test Results and Fitted Breaks

Tab. A1: Bai-Perron Test Results.

<table>
<thead>
<tr>
<th>Breaks</th>
<th>Sum of Sq. Resids</th>
<th>F-statistics</th>
<th>SIC</th>
<th>LWZ</th>
</tr>
</thead>
<tbody>
<tr>
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<td>--</td>
<td>9.904+</td>
<td>9.915+</td>
</tr>
<tr>
<td>1</td>
<td>4735644</td>
<td>3677.813+</td>
<td>8.503+</td>
<td>8.537+</td>
</tr>
<tr>
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<td>1998983</td>
<td>2198.455+</td>
<td>7.654+</td>
<td>7.712+</td>
</tr>
<tr>
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<td>50.476+</td>
<td>7.582+</td>
<td>7.663+</td>
</tr>
<tr>
<td>4</td>
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<td>7.582+</td>
<td>7.686+</td>
</tr>
<tr>
<td>5</td>
<td>1804974</td>
<td>7.055+</td>
<td>7.594</td>
<td>7.721</td>
</tr>
</tbody>
</table>

Notes: To estimate standard errors, we allow heterogeneous error distribution and use white heteroskedasticity-consistent covariances. * indicates statistically significant break point at 5 percent.

Fig. A1: The Value of Gold Against Lira and Fitted Break Points. Notes: This figure indicates changes in the value of Lira and fitted values based on the break points identified by different methods, i.e., F, SIC, and LWZ.

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**Bionote**

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