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Ottoman stock returns during the Turco-Italian and Balkan Wars of 1910 -1914

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Abstract:

In this paper, we use new historical data on the most popular stocks traded at the İstanbul bourse between 1910 and 1914, to examine the effect of wars on stock market prices. During this period, the Ottoman Empire was involved in the Turco-Italian and the Balkan wars, leading to massive land losses before the First World War. The data are manually collected from the available volumes of two daily Ottoman newspapers, Tercüman-ı Hakikat and Tanin. Our findings are quite surprising, as we observe only a temporary and small drop of prices, indicating little perceived risk by stock investors of the İstanbul bourse.

Keywords: The İstanbul stock exchange; stocks; the Turco-Italian war; the Balkan wars; Structural breaks

JEL Classification: G1; N25; N45

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Introduction

How do stock market investors view military conflicts? Many researchers on financial economics have contributed to answering this question, creating a large literature on how developed economies are affected by political uncertainties, and addressing mixed findings. Wars are often perceived as bad news which are related to increasing risks for investors. This leads to fluctuations in volatility and sees stock prices fall due to expected macroeconomic costs such as higher inflation and lower production, which are correlated with significant reductions of companies' activities and expected returns. On the other hand, if wars' outcomes were perceived as unimportant for companies' activities and expected returns, then there would be no significant changes in stock prices and volatility. Previous studies show that the negative impacts of wars are positively correlated with their durations. Moreover, the industry, origin of investors, and the financing methods matter for matter for the reaction of stock markets (Amihud and Wohl 2004; Schneider and Troeger 2006; Choudhry 2010; İkizlerli and Ülkü 2012; Le Bris 2012; Hobbs et al. 2016).

As this literature on transition and emerging economies is limited (See Önder and Şimga-Muğan 2006), a historical examination of the İstanbul bourse during the Turco-Italian and Balkan wars can shed important light on the effects of conflicts on stock returns. To do so, we use unique data on stock prices of 9 popular domestic joint-stock companies in the Ottoman Empire between 1910 and 1914. This is the first study to provide a historical narrative explaining the changes of Ottoman stock returns due to the wars that took place on the eve of the First World War (WWI). Although this period provides an interesting case to study the risk perceptions of investors, as the conflicts caught the Ottoman Empire unprepared (Hall 2000: 14; Erickson 2001: 3; Childs 2008: 72; Giolitti 2012: 59), which could have led to higher uncertainty on the stock exchange market, the effects of the Turco-Italian and Balkan

wars on the Ottoman economy have not been empirically investigated in the historical literature.

If stock investors expected that hostilities would disrupt the activities of companies in the Ottoman Empire, then stock prices would fall and the volatility of stock returns would increase, reflecting higher risk. To this end, we focus on sudden changes in the volatility of stock returns for the İstanbul bourse, using the framework of Inclan and Tiao (1996). We observe only small reactions to the Turco-Italian war and only for three stocks out of ten examined. This result is interesting as previously Hanedar et al. (2015) pointed out a strong relationship between war-related events and Ottoman government bond prices. This is not true for stock returns of the same period and wars, as suggested by our findings. Accordingly, we conclude that the investors related the war threats to the government bond market, but that the same risks did not affect the perceived value of their stock investments.

The remainder of the paper is organized as follows; Section 2 discusses the related literature. Section 3 provides information on the Turco-Italian and the Balkan wars. Section 4 shortly discusses the İstanbul bourse. Section 5 explains our data, while Section 6 covers the methodology applied. Section 7 presents the empirical results. Section 8 discusses these results, and finally section 9 concludes.

Literature review

Many financial studies address the negative reactions to political risks on different stock markets. Zussman et al. (2008) focus on asset prices during Israeli-Palestinian conflicts since the late 1980s and find that asset prices in both Israeli and Palestinian markets increase when a peace initiative takes place and decrease in case of conflicts. Similarly, Franck and Krausz (2009) show that the conflicts between 1945 and 1960 were strongly reflected on the Israeli Stock Exchange, as the end of conflicts was approaching. Choudhry (2010), Charles and Darné (2014), Hudson and Urquhart (2015), Mathy (2016), and Urquhart and Hudson (2016)

point out lower prices of US and British Stocks due to news during the Second World War. Rigobon and Sack (2005), Schneider and Troeger (2006), Kollias et al. (2010), and Dimic et al. (2015) indicate the presence of higher risk for stock exchanges in various countries during many conflicts after 1990.

Several papers show that the impact of political risks on stock markets is correlated with various factors. Recently, Hobbs et al. (2016) show that the negative impacts of wars vary by industry of the stocks traded on the US Stock Exchange from 1963 to 2012. Amihud and Wohl (2004) indicate that the negative relationship between the Iraq War and stock prices on the US Stock Exchange was related to the lengths of these conflicts. Le Bris (2012) implies that the correlation between wars from 1870 to 1945 and the volatility in the stock prices at the French Stock Exchange depends on the financing methods of wars, which could lead to higher public expenditures, inflation, and disruptions of the public services.

There are a couple of recent studies about the impacts of political risks on the İstanbul Stock Exchange. Önder and Şimga-Mugan (2006) consider the effects of political and economic news on the volatility of stock returns and the trading volume in Turkey and Argentina from 1995 to 1997, and address the presence of a statistically significant relationship between stock market indicators and political risks. Based on data from Turkey between 1995 and 2008, İkizlerli and Ülkü (2012) point out that the negative effect of political risks on stock market outcomes depends on industry and the origin of investors.

Another strand of the literature provides conflicting evidence about the impact of wars on stock markets. Cutler et al. (1989) show that relatively small movements in prices of stocks traded on the US Stock Exchange coincided with war-related news between 1941 and 1987. Corallo (2007) finds that the increase in the risk for the Iraq war of 2003 had an immediate negative impact on stock prices in both the Italian and the US Stock Exchanges, while the Iraq War of 1990 did not create such an effect. Furthermore, Guidolin and La Ferrara (2010)

discovered conflicting results for the impacts of the wars between 1874 and 2003 on various stock markets, while the US Stock Exchange positively responded to the wars. Kollias et al. (2013) show the significant effect on the covariance between oil prices and the stock markets prior to the outbreak of wars, based on data from major stock exchange markets between 1986 and 2008. However, this impact disappears when the conflicts actually break out. Brune et al. (2014) do not find persistent impacts for historical conflicts on the US Stock Exchange. Charles and Darne (2014) show that investors did not perceive several important war events as risky during a period of high volatility at the US Stock Exchange.

Historical background for the Turco-Italian and the Balkan wars

During the period from 1910 to 1914, the Turco-Italian and the Balkan wars, preceding WWI and its catastrophic results for the Ottoman economy, broke out. The Turco-Italian war began on 29 September 1911, as the First and Second Balkan wars broke out on 17 October 1912 and 29 June 1913, respectively.

Using data for Ottoman trade with several of its trading partners between 1830 and 1913, Hanedar (2016) shows that the Balkan wars had a significant negative impact on Ottoman exports, whereas the Turco-Italian war had no such disruptions on Ottoman foreign trade. Geyikdağı (2011: 54) and Geyikdagi and Geyikdagi (2011: 388–389) state that stores and commercial ships were damaged, as business activities, railway traffic and operations were disrupted. The Ottoman state commandeered carriages for commercial transportation, as lighthouses did not work, while many trade routes and ports were damaged (Quataert 1996: 767–768; Quataert 2005: 126). Beehler (1913: 69, 72–73) provides information on complaints from foreign traders because of restrictions on shipping imposed by the Ottoman state and its adversaries, which could have led to lower trade for the Ottoman Empire. On the other hand, Geyikdagi and Geyikdagi (2011) argue that the effects of wars on political risks for firms

were negligible due to political and economic support of their home countries and concessions provided by the Ottoman state.

Al and Akar (2014: 296–297) address positive reactions at the İstanbul Bourse while the Turco-Italian and Balkan wars were reaching an end. Before the outbreak of the Turco-Italian war, a commentary in *İkdam*, a widely read Ottoman newspaper, reported that Italy's desire to occupy Libya, resulted in a negative response on the İstanbul bourse, while several companies announced bankruptcy (İkdam 25 September 1911: 1). Another commentary of *İkdam* pointed out price fluctuations at the İstanbul bourse because of the news about the Italian occupation in Libya expected in a short time (İkdam 29 September 1911: 1). Hanedar et al. (2015) evince that the outbreak of the Turco-Italian and Balkan wars were correlated with a lower likelihood of Ottoman debt repayments, using data on two Ottoman government bonds traded on the İstanbul bourse.

The stock exchange at the İstanbul bourse

To regulate the informal trading of bonds and stocks in the Ottoman Empire, the İstanbul bourse was founded in 1866 and different decrees in 1871 and 1873 were issued to regulate the market. In 1870, only one firm's stock (i.e., the Ottoman Bank or *Şirket-i Umumi-i Osmani Bankası*) was being traded on the İstanbul bourse and there was no regulation to force foreign companies to quote their stocks on the İstanbul bourse until 1873. Until 1909, the foundation of joint-stock firms by Ottoman citizens was not allowed. In 1906, new regulations on the registration of companies to the İstanbul bourse were announced. At a time when the number of foreign banks and their branches was increasing in the Ottoman Empire after 1908, many domestic joint-stock firms were established, leading to a higher number and volume of securities traded (Kazgan 1995: 61–63, 67; Kazgan et al. 1999: 344; Fertekligil 2000: 44–45; Al and Akar 2014: 113). As a result, stocks of domestic companies started to be traded, but the stocks of foreign companies, such as the Laurium mining company, were also very

popular among investors. In 1914, 114 securities were being actively traded on the İstanbul bourse, and 81 joint-stock companies were being quoted (Fertekligil 2000: 44–45; Al and Akar 2014: 120–127).

Data

To examine the impact of the wars on the eve of WWI, we use the closing prices of 10 stocks traded on the İstanbul bourse from 1910 to 1914. As the prices might not be stationary, we estimate the stock returns the following way:

$$R_t=ln(P_t/P_{t-1}) \qquad (1)$$

where P_t is daily price of each stock at time t.

The stocks in sample were issued by the Ottoman General Insurance company (*Osmanlı Sigorta Şirket-i Umûmiyesi*) (OGI), the Regie (Tobacco) company (*Tütün Rejisi*) (R), the Imperial Ottoman Bank (*Bank-ı Osmanî-i Şâhâne*) (IOB), the Balya-Karaaydın mining company (*Balya-Karaaydın Maden Şirketi*) (BK), the Kesendre mining company (*Kessendre Madenleri Osmanlı Anonim Şirketi*) (KM)[1], the Ereğli mining company (*Ereğli Şirketi*) (EM), the Anatolian Railway company (*Anadolu Demiryolu Şirketi*) (AR), the İstanbul Ferry company (*Şirket-i Hayriyye*) (IF), and the Dersaadet Tramway company (*Dersaadet Tramway Şirketi*) (DT).

All these companies played a crucial role for the Ottoman economy and operated in the most attractive sectors, i.e., banking, mining, agriculture, and transportation. IF and DT were the oldest joint-stock companies in the Ottoman Empire, established in 1856 and 1869 respectively. IF and DT were jointly owned by local investors and the Ottoman state, while the other companies were founded by foreigners and non-Muslim citizens of the Ottoman Empire (Kazgan et al. 1999: 340–342; Akyıldız 2011; Yılmaz 2012). In 1899, the value of stocks issued by the IOB was the largest, i.e., 4,490,000 Liras, as compared to other

[1] KM had two different stocks traded at the İstanbul bourse, KM1 and KM2.

companies. R issued 2,464,000 Liras of stocks. Other firms such as OGI and DT issued relatively lower amounts of stocks, i.e., 164,000 and 200,000 Liras, respectively (Fertekligil 2000: 44–45; Al and Akar 2014: 120–127).

Our data sources are *Tanin* and *Tercüman-ı Hakikat*. *Tercüman-ı Hakikat* is our main source of data. It was a widely circulated daily Ottoman newspaper in İstanbul since 1878 (Karpat 2002: 269–270). When several issues of *Tercüman-ı Hakikat* are not available or the stock prices are not reported, we use *Tanin* as an alternative data source. As a pro-government newspaper, *Tanin* was established in 1908. The National Library of Turkey and the Beyazıt State Library have digital copies of these newspapers. The prices of 6 stocks are denominated in the Turkish Liras, while those of KM, EM, and AR are reported in French Francs.[2] Although there are other stocks traded on the İstanbul bourse, such as the Ottoman Navigation company (*Osmanlı İttihad Şirketi*), the ten stocks that we use are the most important stocks in terms of book value. Moreover, data for other stocks were not continuously available to allow econometric analysis.[3]

Table 1 shows the descriptive statistics for stock returns from 1910 to 1914. Jarque-Bera and kurtosis statistics indicate that all series have asymmetric leptokurtic distributions. AR, IF, EM, DT, and R's stock returns have right tailed distribution, as those of the other companies show left tailed distributions.

Table 1. Descriptive statistics for stock returns, 1910–14

	Mean	Maximum	Minimum	Std. Dev.	Skewness	Kurtosis	JB	Obs.
OGI	0.00066	0.52	-0.50	0.05	0.00	52.97	49002.13	471
R	0.00013	0.23	-0.27	0.03	0.07	32.89	17459.83	469

[2] The Ottoman Empire and France adopted gold standard by the outbreak of WWI, leading to stability in the foreign exchange rates (Pamuk 2000: 216–221; Tuncer and Pamuk 2014: 182–183).

[3] There can be several reasons for these non-available observations. There could be no transaction for the stock whose price is not reported, or the newspaper could not have enough space to report the price of a negligible stock.

IOB	-0.00050	0.08	-0.15	0.02	-1.71	21.60	6986.76	469
BK	0.00002	0.31	-0.46	0.06	-1.44	30.74	13967.98	431
KM1	-0.00100	0.23	-0.22	0.03	-0.09	15.70	3093.82	460
KM2	-0.00090	0.21	-0.22	0.04	-0.41	14.42	2510.95	460
EM	-0.00053	0.46	-0.46	0.05	0.51	55.33	52859.13	463
AR	-0.00025	0.33	-0.32	0.05	0.04	34.30	17755.72	435
IF	-0.00022	0.42	-0.40	0.04	0.44	96.68	107885.50	295
DT	0.00187	0.53	-0.53	0.06	0.06	42.50	22555.32	347

Notes: All Jarque-Bera (JB) statistics are statistically different from zero at %1 percent.

Methodology

To examine the reactions of stock investors at the İstanbul bourse to the possibility of wars leading to disruptions on companies' activities, we use an Iterative Sums of Squares (ICSS) approach proposed by Inclan and Tiao (1994). In contrast to alternative methods developed by Bai and Perron (1998, 2003), ICSS is a method to identify sudden breaks in the volatility of financial assets' outcomes and does not impose an assumption on the exogenous selection of a maximum number of break points. To estimate the number of breaks and the changes in volatility or variance, ICSS estimates the cumulative sum of squares as follows:

$$D_k = (C_k / C_t) - k/T, \quad k = 1,...,T \text{ with } D_0 = D_k = 0 \qquad (2)$$

where $C_k = \sum_{t=1}^{k} \varepsilon_t^2$ is the cumulative sum of squares, starting from the beginning of the series to the k_{th} point in time. As a sudden change exists in variance, the plot of D_k locates out of specified boundaries. If the absolute value of D_k is greater than the critical value, the null hypothesis for absence of the sudden change in variance would be rejected.

Results

Table 2 indicates break times in volatility of the stock returns and corresponding changes in the stock prices. Almost none of the break points are related to the dates of the wars on the days before WWI.

Table 2. Structural break dates and corresponding price changes, 1910–14

OGI			R			IOB			BM		
Break dates	**One day change**	**Change over longer period**	**Break dates**	**One day change**	**Change over longer period**	**Break dates**	**One day change**	**Change over longer period**	**Break dates**	**One day change**	**Change over longer period**
11.11.1910	0	0.87	27.05.1911	0	0.15	08.11.1910	0	-1.03	30.12.1910	4	2.90
17.11.1910	0.62	0.99	10.07.1911	0.75	0.45	06.12.1910	0.25	-0.81	16.01.1911	0	5.45
17.12.1910	0	0.92	26.07.1911	-0.50	0.55	06.01.1911	0	-0.84	12.03.1911	-6	18.08
			26.09.1911	-0.10	1.01	31.05.1911	0	-1.71			
			30.09.1911	-1	1.08	01.07.1911	0	-1.85			
			25.02.1913	0	2.46						
Obs	471		469			469			434		

KM1			KM2			EM		
Break dates	**One day change**	**Change over longer period**	**Break dates**	**One day change**	**Change over longer period**	**Break dates**	**One day change**	**Change over longer period**
06.10.1911	-2	-35.55	19.12.1910	-1	-32.47	20.12.1910	0	-9.54
12.10.1911	-12	-35.18	14.04.1913	-3	-35.83	03.02.1911	-3	-7.98
25.03.1912	0	-29.97	02.06.1913	0	-36.25	22.04.1911	0	-7.30
21.06.1912	-9	-29.94	19.07.1913	8	-35.38	13.06.1911	0	-6.34
23.08.1912	3	-29.72	09.01.1914	-1	-36.91	22.09.1911	0	-1.74
01.03.1913	1	-31.28	02.03.1914	-4	-37.21			
Obs	460		460			463		

AR			IF			DT		
Break dates	**One day change**	**Change over longer period**	**Break dates**	**One day change**	**Change over longer period**	**Break dates**	**One day change**	**Change over longer period**
14.09.1911	0	-1.30	22.04.1911	-0.50	-1.21	15.04.1911	-0.10	7.93

16.01.1912	0.02	-0.93	06.06.1911	0	-1.18	18.04.1911	0.40	7.89
01.02.1913	0.80	-0.27	18.02.1913	0.50	-0.30	10.07.1911	1.65	6.48
13.09.1913	0.30	-0.02				04.03.1912	0.30	5.57
14.11.1913	0.08	-0.02				11.05.1912	0	5.81
30.12.1913	-0.03	-0.17						
Obs	435			295			347	

Notes: One day change reflects the changes in the stock prices in break times, relative to one day before. Change over longer period is the difference between the stock prices after and before the break times.

We observe two break points in return of the stock issued by the R on 26 and 30 September 1911, leading to a lower price before the outbreak of the Turco-Italian war. Additionally, there is a break in the volatility of AR's stock return two weeks prior to the outbreak of the Turco-Italian war, resulting in a long-run fall in its price. This implies that investors for R and AR's stocks expected higher risk, as the outbreak of the Turco-Italian war was approaching. During September 1911, there was increasing tension between Italy and the Ottoman Empire, and *Tanin* and *Tercüman-ı Hakikat* disseminated many news about campaigns that the Italian government, press, and diplomats were conducting for the invasion of Libya (Tercüman-ı Hakikat 12 September 1911: 1; 18 September 1911: 1; Tanin 12 September 1911: 1; 19 September 1911: 1; Hüseyin Cahid 22 September 1911: 1).

We identify three break points in the volatility of the return of KM1 on 6 and 12 October 1911. These two dates correspond to two months after the outbreak of the Turco-Italian war. Another break is observed on 21 June 1912, which was six months before the end of the Turco-Italian war and again six months before the outbreak of the First Balkan war. These breaks brought lower prices both in the short- and long-run. On 6 and 13 October 1911, different commentaries in *Tanin* reported great disappointment and reactions of the Ottomans against Italy because of the Ottoman defeat (Hüseyin Cahid 6 October 1911: 1; Tanin 13 October 1911: 1), while Italy occupied Tripoli few days after the outbreak of the war (Beehler 1913: 20). On 21 June 1912, *Tanin* disseminated news about the new taxes that the Ottoman government imposed to finance the increasing war expenditures (Tanin 21 June 1912: 1). This finding suggests higher risk for KM1 because of events during the Turco-Italian war.

Table 2, however, suggests that the falls in the prices of the stocks following the break dates were not persistent over time. For R and KM1, the decrease in prices becomes smaller after the war-related events. For AR, there is no short-run price fall, as the break led to a lower price only over time and the decline is not larger after the break date. This implies that

these specific negative impacts created by the conflicts were perceived as temporary by investors.

Empirical implications

We would have expected large falls in stock prices, if the stock investors believed that the conflicts had catastrophic consequences for their investments. Our findings indicate falls in stock prices for R and AR corresponding with volatility changes in their stock returns around the outbreak of the Turco-Italian war. The R was founded in 1883 with the cooperation of foreign investors and enjoyed a monopoly position in tobacco, salt, and alcohol. The AR was a railroad company established to construct the railways between İstanbul and Baghdad in 1888 and was owned by the Deutsche Bank (Akyıldız 2011: 112, 118). We also find breaks corresponding with lower prices for KM1 during the course of Turco-Italian war, a company established in 1893 by local entrepreneurs to operate mines in Rumelia[4] (Yılmaz 2011: 321–325).

The Turco-Italian war affected many ports in the Ottoman Empire. However, Hanedar (2016) shows that these disruptions on Ottoman foreign trade activities were not statistically significant, which could explain the temporary nature of stock price declines. Geyikdagi and Geyikdagi (2011) state the absence of significant political risk increases for several joint-stock companies during the wars by 1919 due to home countries' supports and firms' privileges. We can argue that investors might have believed that the war would not be that harmful for the non-governmental economic and financial sectors, because there companies were either established or supported by foreign investors. Major European powers[5] protected their home countries' investments both economically and politically. The companies obtained revenue guarantees and privileges from the Ottoman state, making the investors' investments

[4] The land of the Ottoman Empire in Europe.

[5] The UK, France, Germany, Italy, and Austria-Hungary.

secure. Major countries that invested in the Ottoman Empire were expecting its demise soon. Therefore, investors were likely to invest in the companies just for the sake of having territorial claim without much consideration of risk (Geyikdağı 2011: 54–55; Geyikdagi and Geyikdagi 2011: 395–398; Hanedar 2013). In addition, as Amihud and Wohl (2004) imply, negative effects of wars depend on their durations and stock market investors might have expected a short duration of the war, as the Ottoman army began to be defeated within a short period of time (Beehler 1913: 20). The presence of immediate impacts of the Turco-Italian war is in line with Corallo (2007), Franck and Krausz (2009), and Kollias et al. (2013), suggesting short-run effects for different war-related events. Hanedar et al. (2015) showed a temporary reduction in the prices of Ottoman government bonds traded on the İstanbul bourse due to the outbreak of the Turco-Italian war.

The absence of a statistically significant impact of war-related news on prices of many of the companies in the sample is in line with the strand of literature[6] that finds no evidence for a negative and persistent effect of hostilities. There is another aspect supporting the findings, as our sample includes such industries and companies that may not be affected by conflicts, since as İkizlerli and Ülkü (2012) and Hobbs et al. (2016) showed, the negative effects of wars varies by industries. Investors, therefore, expected few losses due to the conflicts. This result is in line with Hanedar (2016), who suggested that the Balkan wars only hurt Ottoman exports from the export-oriented farms of Rumelia. It is important to note that there was some loss of data during the First Balkan war, which could have led to lower information about the extent of economic disruptions.

[6] See Cutler et al. (1989), Corallo (2007), Franck and Krausz (2009), Brune et al. (2014), and Charles and Darne (2014).

Conclusion

Because of data unavailability, the finance literature on the impacts of political risks on financial markets does not examine historical cases on the Middle Eastern countries to see the effects of war threats on stock markets. Likewise, no previous empirical research focuses on the impact of increased likelihood of war outbreaks for the İstanbul bourse. We study the impacts of the Turco-Italian and the Balkan wars on the stocks traded at the İstanbul Bourse, using novel data which are manually collected from the daily Ottoman newspapers. We extend the previous literature by providing empirical evidence on the stock market, as the paper could be refined with future researches using additional data on other stocks, volume of trade, and investor profile, which seems to be non-existent at this time.

Our empirical results identify that many breaks in the volatility of stock returns were not correlated with war related events. There were falls in stock prices of export oriented monopoly, mining, and railroad companies only for a short time period during the Turco-Italian war. In contrast to the relatively timid responses of stock market investors to war-related risks, Hanedar et al. (2015) indicated higher responsiveness of government bond prices during the same period. So, it seems that government bondholders were more sensitive to the war-related risks, as the conflicts were highly related to government survival. To sum up, the risk of wars perceived by government bond investors seem to have been associated with higher uncertainty regarding the Ottoman state's fiscal position rather than increasing costs of life within the whole country. During the nineteenth century, the Ottoman state had financial problems, leading to higher budget deficits and debt burden. Wars were important sources of the solvency problem (Kıray 1995: 213–221), which could explain the sensitivity of government bond prices to the conflicts studied here.

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