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# **One Asset, Two Prices: The case of the Tsarist Repudiated Bonds\***

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## ***Abstract***

*Prices of repudiated bonds are insightful but scarcely observed. Based on an original daily database, this paper compares the price evolution from January 6, 1916 to August 31, 1919 of a cross-listed (Paris and London) Tsarist bond repudiated by the Soviets on February 8, 1918. After its repudiation, the bond exhibits an important geographic price differential. This phenomenon is attributed to the conjunction of war conditions excluding arbitrage and specific investors' expectations regarding bailouts by the French and British governments. Furthermore, data from the pre-repudiation period show that the impossibility for arbitrage is not sufficient for driving the pricing differences.*

Keywords: bonds, repudiation, sovereign debt, Russia.

JEL Classification: F34, G1, N24.

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## 1. Introduction

The no-arbitrage argument is a pillar of financial valuation techniques. According to this principle, cross-listed bonds should have the same value on all markets (up to effects due to the market microstructure). This note exhibits a notable historical exception which occurred during a rare conjunction of two special events: the impossibility of international arbitrage due to war restrictions and the repudiation of a sovereign bond by its issuer.

Sovereign bonds differ in some respects from corporate bonds. First, there exist no internationally agreed-upon bankruptcy procedures in case of default. Second, countries can unilaterally decide to repudiate their debt, mainly following extreme political outcomes like coups and revolutions. However, default and repudiation do not necessarily lead bond prices to drop to zero. Indeed, three potential scenarios may result in, at least partial, reimbursement. First, since the debtor countries continue to exist after the default or repudiation announcement, political and/or economic changes can make the authorities revise earlier statements. Second, international negotiations may lead to settlements. Lastly, for internal reasons, the bondholders' governments sometimes decide to financially intervene in favor of their homeland citizens. As a matter of fact, defaulted and repudiated bonds frequently remain quoted on financial markets for quite a long period after the issuer's decision to stop the payments (Borchard and Wynne, 1951).

During the 19th and early 20th centuries, the Russian Tsarist bonds were spread over several European financial bourses. By the beginning of the 20<sup>th</sup> century, Russia had become the largest borrower in the world (Ukhov, 2003). Liquid and convertible in various currencies,

Russian bonds were present in many investors' portfolios. In particular, and for political reasons, the French government strongly recommended them to the public after 1895.

WWI breakout forced most European markets to close. When they reopened, heavy local controls were imposed excluding *de facto* international arbitrage. Like other securities, the Tsarist bonds were then traded again. However, the emergence of political troubles in Russia led to a progressive price decline. The effective repudiation by the Soviets on February 8, 1918, did not change much this dynamics, probably because it was already incorporated in the agents' expectations. Eventually, on the French and British markets, the prices even rose from April, 1918 to October, 1919.

After the repudiation, the bond prices, quoted with respect to the par value, were mostly higher in Paris than in London, a phenomenon which cannot be attributed to exchange rates, since currency effects were offset by the fixed parities imbedded in the bond specifications. Nevertheless, from January 6, 1916 to August 31, 1919, the war conditions imposed on the French and British markets made geographical arbitrages impossible so that investors were unable to profit from the observed price differentials.

Compared to the British investors, the French viewed the Russian bonds as more valuable. This is probably linked to the earlier French government's attitude, which had, e.g., bailed out 50% of Mexican bonds following their repudiation in 1864 (Oosterlinck, 2003). Furthermore, from 1914 to 1917, France advanced funds to Russia. Markets viewed this action as a signal that France could support Russian bonds. The wide diffusion of Russian securities among the French public and their government's involvement in the flotation of

Russian values<sup>1</sup> strengthened the signal. The British government did also provide funds to its Russian ally but this help ended earlier, in March, 1918. Globally, regarding defaults, the British investors were less used than the French ones to get national support. As stated by Eichengreen and Portes (1989, p. 13), “French and German government officials were less committed to a stance of neutrality than their British counterparts”.

The arbitrage impossibility leading to the segmentation of the European market made it possible for governments to favor exclusively its homeland bondholders. In a way, the same Russian repudiated bonds held by French and by English investors became distinct non transferable assets. As time went by, the excess value observed in Paris with respect to London on *a priori* identical bonds exhibit a growing trend.

This note is organized as follows. Section 2 describes the markets organization during WWI leading to the arbitrage impossibility. Section 3 presents the original database and tests for the difference between the Russian bond prices in Paris and in London, first on the complete no-arbitrage period, then on the two sub-periods lying respectively before and after the repudiation announcement. Section 4 concludes.

## **2. The French and British bourses during WWI**

WW I had a dramatic impact on the functioning of the stock exchanges both in France and in Great-Britain. In order to avoid panic, the regulatory authorities first suspended the

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<sup>1</sup> Admissions on the exchange were subject to the authorization of the French finance minister and before WWI, the French government had strongly recommended that banks and businessmen financially support their Russian ally.

activities. The London Stock Exchange closed<sup>2</sup> on July 31, 1914 and the Paris Bourse on September 3, 1914. However, it shortly appeared that both countries needed to launch new state loans to cover war expenses. Therefore, different legislative steps were undertaken for the reopening of the London stock exchange on January 4, 1915 (Michie, 1999) and the Paris Bourse on December 7, 1914.

In order to prevent the collapse of the British financial system, the reopening of the London market was accompanied by a temporary moratorium on loans and the imposition of minimal prices on shares and bonds<sup>3</sup>. The trade with Germany was suspended and forward transactions and arbitrage were forbidden, not only to prevent large variations in the pound exchange rates, but also to avoid enemy trading. By December 1914, all foreigners were prohibited to sell securities in London. According to a contemporaneous *Financial Times*<sup>4</sup> article, the London stock exchange became “a more insular institution”. As stated by Michie (1999, p. 157), “as the war progressed the Treasury’s restrictions and activities, along with the ban on arbitrage, gradually destroyed much of the Stock Exchange’s international business”. During the war, minimal price restrictions on various assets were progressively lifted and finally abolished on July 3, 1916. However, several restrictions survived the war, and dealings in securities held outside the country would not resume before August 1919, whereas arbitrage possibilities came back in September (Michie, 1999). International arbitrage on Russian values had at least resumed by November the same year. Indeed, a *Financial Times*<sup>5</sup> article mentions the influence of trade with the continent on their prices in London.

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<sup>2</sup> Like in Amsterdam, Brussels, Berlin, and New-York closed (Vidal, 1919).

<sup>3</sup> On January 4, 1915 a list of fixed minimum prices for 52 foreign government bonds was published. Only those having an international market, and in which therefore, attempts might be made to effect sales on behalf of enemy holders were concerned. *Financial Times* January 4, 1915. It seems however that the 1909 Russian bond was not concerned by this measure, probably because it was traded either on Allied (Paris) or on neutral (Amsterdam) stock markets.

<sup>4</sup> *Financial Times*, January, 4, 1915.

<sup>5</sup> *Financial Times*, November 3, 1919.

In France, the authorities reacted similarly to the war outbreak. The Paris Bourse remained closed from September 8, until December, 7, 1914. When it reopened, only 50 securities out of 1330 were readmitted and forward trades would only reappear in January, 1920. A law passed on September, 20, 1915, forbade the introduction of foreign sovereign bonds on the French soil. After January 8, 1916, trading bonds and stocks belonging to foreigners or to French living abroad became impossible unless these bonds had been bought after August 1, 1914.

In summary, arbitrage was forbidden in France and UK during a period ranging from January 8, 1916 to August 31, 1919. Bonds traded on a market could no more be transferred to the other one. In the absence of arbitrage, prices of internationally traded bonds no longer reflected an average international consensus but were mainly affected by the expectations of each market. Therefore, local prices of Russian bonds could largely differ if expectations about their service were not the same in each country.

### **3. The empirical analysis**

The data series have been collected in the *Bulletin de la Cote de la Compagnie des Agents de Change de Paris*<sup>6</sup> and the *Financial Times*<sup>7</sup> from January 8, 1916 to August 31, 1919, that is, for the period during which arbitrages were materially unfeasible. The data (Figure 1) consists of the daily price series (expressed with respect to the par), on the Paris

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<sup>6</sup> The authors thank M. G. Gallais-Hamonno and Ms S. Bodilsen for their help when collecting the data respectively at the Université d'Orléans and at Euronext Paris.

<sup>7</sup> The authors thank the staff of the British Library (Newspapers section at Colindale) for their help during the data collection.

and London Stock Exchanges<sup>8</sup>, of a Russian long-term (40 years) bond issued in 1909 and supposed to pay a yearly 4.5% coupon<sup>9</sup>. This very liquid bond had a total nominal value of 1.4 billion francs at issuance, with 74% traded in Paris and the remaining in London<sup>10</sup> and Amsterdam (Freymond, 1995). Bondholders could get reimbursed at their will in Berlin, Brussels or Geneva at a fixed parity stipulated on the bonds<sup>11</sup>.

Table 1 provides descriptive statistics for the bond prices on the French and English markets over the entire observation period. Unfortunately, the closing episodes and some microstructure problems, mainly attributable to the troubled times, imply missing data. For example, the Paris Bourse experienced periods of very low activity, notably at the end of 1917, in March 1918, following German bombings, and in June 1918, when the evacuation of the Bourse was considered in view of the German advance towards Paris. The analyzed series thus concern the 665 dates for which both Paris and London provide quotations for the 1909 Russian bond.

Not surprisingly, the French and English prices lie under the nominal value during the complete period, the maximal price being, respectively, 81.5 and 83.5. The third column in Table 1 concerns the difference between the French and English quotations<sup>12</sup> during the full period without arbitrage possibilities. The test result shows that the mean difference is significantly different from zero (at the 1% level), indicating that the two prices diverge. However, this result is not sufficient to detect the effect of the debt repudiation by the Soviets as a factor influencing the spread. Indeed, as arbitrage opportunities did not exist over the

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<sup>8</sup> For the London data, mid-quote prices are used.

<sup>9</sup> Coupons were paid twice a year on January, 15, and July, 15.

<sup>10</sup> The nominal total value traded in London in January 1917 was estimated at 55,580,000 £ (Corporation of foreign bondholders, 1919).



whole observation period, different prices of any given asset in London and Paris can reflect different expectations driven by geographical specificities.

In order to determine, to which extent the repudiation plays a role, the data has been divided into two sub-samples: the pre-repudiation observations (from January 6, 1916 to February 8, 1918<sup>13</sup>) and the post-repudiation ones (from February 9, 1918 to August 31, 1919). Table 2 gives the descriptive statistics concerning each sub-period. If the repudiation was indeed a surprise, investors should have used a similar valuation before it while, after the announcement, local specificities, including the position of the French and British governments, could have affected expectations regarding the future payments.

The comparison of the descriptive statistics of the sub-samples confirms that the repudiation occurrence does explain the difference. Indeed, for the first sub-period, the bond prices are not significantly different on both markets. On the opposite, a statistically significant difference is noticed after the repudiation announcement. Moreover, the large average price difference (almost 3% of par value) must be put into perspective with the value of bonds themselves (mean value in London of 44.80% of par value).

The diverging reactions of Paris and London to the Soviet repudiation may be attributed to several causes. First, higher prices in Paris could be attributed to a volume effect since the bond was more liquid on the French market. But this argument should hold for the entire no-arbitrage period, which is not the case. Second, some pieces of information may not

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<sup>11</sup> The parity was: 500 francs = 19 £ 17 shillings = 239 Dutch guilders = 187 rubles 50 kopeks = 404 Reich marks.

<sup>12</sup> the London value minus the Paris value.

have reached both bourses simultaneously. However, nothing indicates that, following the repudiation, either French or British investors received better or faster news on Russia. Furthermore, the observed divergence lasted long after the repudiation announcement and, therefore, cannot be attributable to a short-living informational gap.

The most plausible explanation, confirmed by French contemporaneous sources<sup>14</sup> stems from French investors' expectations regarding their government's actions, comforted by politicians' speeches. On the one hand, the French financial involvement toward Russia lasted longer than the British one. On the other hand, the British government was known to refrain from intervening in conflicts opposing its citizens to foreign countries. A historical appendix describes in more details the political context that can rationally explain the French investors' optimism regarding the reimbursement of the Russian debt.

#### **4. Conclusion**

Geographical arbitrage is a basic financial operation (buy somewhere a given asset and sell it elsewhere at the same time at a better price) requiring only a simultaneous access to two markets. Even at the beginning of the 20th century, arbitrages could easily be implemented in practice. Troubled periods, like wars and revolutions, during which the financial markets are subject to heavy constraints excluding arbitrages, are exceptional and their observation is rare. The combination of a global war and a local revolution is even more exceptional. To our knowledge, this study based on an original database provides the first

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<sup>13</sup> Since rumors regarding the repudiation were circulating before the official announcement; this date might reveal posterior to the beginning of divergences between the French and British investors' views. Nevertheless, taking any earlier date might look quite arbitrary and would reinforce the empirical conclusion.

<sup>14</sup> See, for instance, the articles regularly published in 1919 in *Le Rentier*, an influential French financial journal pleading for a governmental intervention.

geographical comparison of financial prices during such a period. Its main findings may be summarized along two directions.

First, the fact that arbitrages are unfeasible, does not imply *per se* that the prices of the same asset quoted on two different places will be different. Indeed, before the repudiation, the Russian bond prices globally shared the same characteristics on the Paris and London markets even though the different trading mechanisms (market driven by the orders in Paris, market makers in London). The observation that the bond prices started diverging only when objective reasons appeared points in favor of the global rationality of financial actors, even in hard times and well before the emergence of the modern financial valuation methods. More work is still needed to establish the level of generality of this conclusion.

Second, sovereign debt defaults and repudiations remain a hot topic in the literature, especially since the developing countries repeated crises involving default announcements and debt renegotiation. Nevertheless, prices of repudiated bonds are scarce and studies do not generally focus on the nationality of the debt owners. While in a world where arbitrages are possible, the exact replication of the post-repudiation divergence is not imaginable as such, this paper puts forward the potential impact of the government's actions on the markets. Further studies could investigate to which extent these findings apply to recent crises.

## **Historical Appendix**

As repudiation rumors gained in intensity, the French government decided to guarantee the payment of the January 1918 coupon<sup>15</sup>. On January 31, 1918, M. Klotz, the French Finance Minister, declared that the government would also pay the February

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<sup>15</sup> *Le Rentier* December 27, 1917.

coupons<sup>16</sup>. However, he insisted on the measures' temporary nature, as discussions were held in order to achieve a common allied policy. Meanwhile, many voices claimed that France had a "moral duty" regarding the reimbursement<sup>17</sup>. The government soon realized that paying the Russian coupons was not sustainable on the long run. The separate peace signed between Germany and Russia at Brest Litovsk provided an excuse to stop the payment. Indeed, the coupons payments officially made helped support an allied country facing momentary internal problems. In view of Russia's withdrawal from the war, the French government decided to stop servicing the Russian debt. In reaction, part of the French financial press exhorted the investors to protest<sup>18</sup> and during August, many believed that the French parliament would come back on its decision and pay the second semester coupons<sup>19</sup>. Their hopes were met to some extent when, on September 19, 1918 the government passed a law allowing French investors to subscribe up to 50% of the new French Liberation loan by paying with the Russian coupons due from April to December 1918<sup>20</sup>. As late as May 30<sup>th</sup> 1919, in a speech at the Senate, the French Finance Minister suggested to reiterate the September 1918 operation; a proposal eventually rejected by the rest of the government. A law passed on July 25, 1919 provided privileges for the French holders of Russian bonds, who were either living in the French regions devastated by WWI or had fought during the same war. They were allowed to exchange their coupons to subscribe up to 50% of French National Defense Bonds (Reynaud 1924). This coupon exchange would be the last financial action undertaken by the French government even though there were high expectations that it would intervene again.

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<sup>16</sup> Quoted in *Le Rentier*, February 27, 1918.

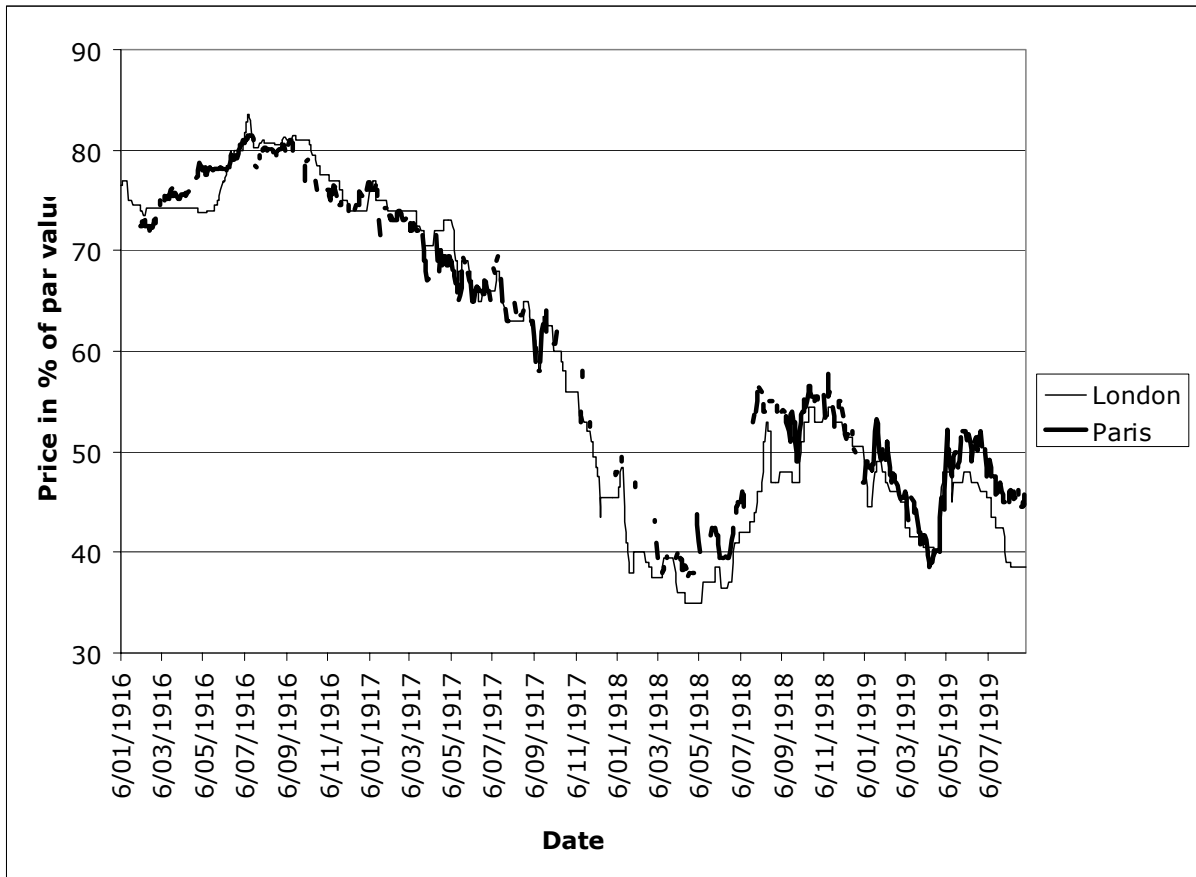
<sup>17</sup> Association Nationale des Porteurs Français de valeurs mobilières (1921).

<sup>18</sup> *Le Rentier*, February 27, 1918 and May 27, 1918.

<sup>19</sup> *Le Rentier*, August 27, 1918.

<sup>20</sup> This idea had already been mentioned in the September 14, 1918 issue of the *Revue des Valeurs Russes*. At the time, it competed with another proposition: a general buyback of the Russian bonds and shares by the French government, which as sole remaining bondholder, would then have to convince the Soviet to repay. The total amount subscribed through this way reached almost 265 millions (*Le Rentier*, June 17, 1919).

**Figure 1: The 1909 Russian bond price in London and Paris**



**Table 1:** Descriptive statistics for the bond price on the French and English markets and their difference (January 6, 1916 – August 31, 1919; N = 665)

	<b>London Bond prices</b>	<b>Paris bond prices</b>	<b>Difference (London minus Paris)</b>
<b>Mean</b>	60.00	61.26	-1.26***
	The mean difference is different from 0 at the 1% level of confidence.		
<b>Standard deviation</b>	15.37	13.93	2.70
<b>Median</b>	62.50	63.00	-1.00
<b>Minimum</b>	35.00	37.7	-10.75
<b>Maximum</b>	83.50	81.50	5.00
<b>Skewness</b>	-0.08	-0.08	-0.06
<b>Kurtosis</b>	1.43	1.52	3.43

**Table 2:** Descriptive statistics for the bond prices on the French and English markets and their difference (two sub-periods : January 6, 1916 – February 8, 1918 and February 9, 1918 – August 31, 1919)

	<b>Bond price before the repudiation</b>			<b>Bond price after the repudiation</b>		
	<b>London</b>	<b>Paris</b>	<b>Difference</b>	<b>London</b>	<b>Paris</b>	<b>Difference</b>
<b>Mean</b>	72.56	72.45	0.12	44.80	47.73	-2.93***
	The mean difference is not statistically different from 0.			The mean difference is different from 0 at the 1% level of confidence.		
<b>Standard deviation</b>	7.66	7.29	1.98	5.32	5.47	2.51
<b>Median</b>	74.00	74.15	0.50	46	48.5	-3.00
<b>Minimum</b>	40.00	46.00	-7.00	35	37.7	-10.75
<b>Maximum</b>	83.50	81.50	5.00	54.5	57.75	3.70
<b>Skewness</b>	-1.64	-1.36	-0.57	-0.08	-0.22	-0.45
<b>Kurtosis</b>	6.53	5.06	3.81	2.12	1.90	3.62

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