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Hope springs eternal... French bondholders and the Soviet Repudiation (1915-1919)

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ABSTRACT

By their extreme nature, repudiations rarely occur. History is therefore crucial to analyze their impact on bond prices. This paper provides an empirical study based on an original database: prices of a Tsarist bond traded in Paris before and after its repudiation by the Soviets. A structural vector autoregression is used to identify shocks to this bond that are orthogonal to shocks hitting a proxy for the Paris bond market, the French 3% *rente*. French market shocks are thus disentangled from repudiation specific shocks hitting the Russian bond. Consistent with expectations no major Russian shocks appears before the 1917 revolution. For 1918, shocks are mainly related with bailouts or hopes of partial bailouts. In 1919, however, the nature of shocks changes as they can be explained either by the negotiations with the Soviets or by the fate of the White Armies. In view of these elements, we argue that the bonds' value were subject to a "Peso problem". Their prices essentially reflected expected extreme events that never took place.

Keywords: repudiation, sovereign debt, secession, Russia, Soviet, war, country break-up.

JEL Classification: F34, G1, N24.

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1. Introduction

On February 8, 1918, a rumor feared by many investors became reality: an official Soviet decree repudiated all bonds issued by the Tsarist government. The day following the repudiation, a representative Russian bond, floated on the Paris² stock exchange in 1906, was still traded at 55% of its par value and the following week, the bond lost a mere 2.73%. Eventually, from this date up to end 1919, the bond price remained higher than 45% and almost two years later, on October 21, 1919, it increased to 62.5% of its par value. Thus, the repudiation neither halted trading in Russian bonds, nor did their price experience a sharp price decline.

This paper analyses the price evolution of a representative Tsarist bond from 1915 to 1919 with a specific focus on the two years following the repudiation (1918-1919). In order to determine to which events the Russian bonds react, a structural vector autoregression (VAR) is identified and estimated. The price of this Russian bond is influenced both by overall market reactions³ and by events specific to Russia and the repudiation. In order to disentangle the overall shocks happening on the Paris bourse from the others, we identify, using a structural VAR, shocks hitting Russian bonds that are independent of those shocks we identify hitting our proxy for the Paris bond market, the French 3% *rente*. The shocks are then analyzed by taking into account all events or news solely affecting Russia that could change the investors' expectations that the bonds would be at least partially repaid. Most interestingly, this leads to the consideration of the impact of several rare events: the repudiation of a foreign bond, the dismemberment of an empire (leading to the creation of new countries), a civil war and a world war (WWI). Before the empirical analysis and in order to see the problem in its true perspective, the sovereign debt issues, the impact on bond prices of rare events and the financial repercussions of the Soviet repudiation are briefly discussed.

In a survey on sovereign debt emphasizing the theoretical motivations to repay, Eaton and Fernandez (1995) put forward the importance of reputation, punishments, rewards and renegotiation. Eichengreen (1989) and Lindert and Morton (1989) analyze the long-term impact of defaulting and find that defaulting in the 1930's had no impact regarding credit terms in the 1970's. However, according to Özler (1993), "the spreads on rescheduled loans are more than twice those on new loans during the 1978-80 period". Claessens and Pennachi (1996) and Ureche-Rangau (2003) determine to which extent market prices provide information regarding the probability of default on sovereign bonds.

² At the time, Russian assets were actively traded on the Paris stock exchange and held by a large fraction of French investors. In order to strengthen diplomatic relations with Russia, the French government had, since the 1890's, helped to float Russian bonds. This led to a very large diffusion of Russian securities, mainly state and railway bonds, among the French middle class. In 1919, as the French government centralized the claims related to French interests in Russia, 1.6 million investors filled in a form. According to Girault (1974), the Russian section represented 33% of foreign securities and amounted to approximately 4.5% of French private wealth. Furthermore, France centralized most Russian financial assets at the beginning of the twentieth century and approximately 40% to 45% of Russian sovereign debts. Ukhov (2003) estimates that foreigners held 49.7% of Russian government debts in 1913. According to the *Office national des valeurs mobilières*, the amounts invested in Russian shares and bonds before WWI reached 15 to 18 billion francs ("Note sur la création d'un comité français de protection des intérêts français en Russie", Office national des valeurs mobilières, 22/1/1918, ANPFVM 440-A-17).

³ As France is at war during most of our sample, many war related shocks are affecting the market as a whole. For example, when the bourse is bombed all trades are affected in a similar way. As the study aims at understanding the impact of the repudiation, these shocks will not be incorporated in the analysis.

Few researchers have analyzed bond prices after their repudiation. Up to the nineteenth century, repudiations were rather common and as stated by Wells and Wills (2000) “history is replete with examples of sovereigns renegeing on their debts”. However, in order to avoid commercial retaliations, governments were usually reluctant to repudiate international debts. This explains why, before 1917, only a very limited number of countries had repudiated their foreign debt (Borchard, 1951). The French market had to cope, in 1834, with the Dona Maria government repudiation of Portuguese bonds issued by Dom Miguel during the civil war. These bonds were quoted on the Bourse until September 1837, by which time their price had dropped from about 400 francs for a par value of 1000 francs to 120 francs (Borchard, 1951). The Paris stock exchange remained nonetheless open to new Portuguese loans. However, as bondholders’ associations successfully lobbied to boycott Portuguese securities, French bankers could hardly market these loans. By 1890, the boycott had pushed the Portuguese government back to the negotiation table, leading to an agreement in 1891. In 1867, French investors faced another repudiation: the Mexican government led by Juarez refused to recognize Maximilian’s debts. The French government, which had largely helped to issue the loans on its markets, agreed to bail out its nationals to the extent of approximately 50% of the invested amounts.

By recognizing a moral duty to take over part of Maximilian’s debt, the French government created a precedent. Besides the “moral” aspect stemming from the high profile the French government had in the bond issue, it is likely that it reimbursed part of the Mexican debts in order to minimize the impact on French bondholders’ wealth. The French government position may have led to two kinds of moral hazard. In the Russian case, knowing that the French government would probably back them in case of trouble, French investors may have invested more heavily in Russian securities. On the other hand, if France was going to repay part of the debt, Soviets had no incentive to fulfill the Tsarist obligations⁴.

Academic research on repudiations has experienced a growing interest in a recent past. English (1996) analyzes the repudiation and default of US states during the 1840’s to address the relevancy of sanctions as incentives to repay the debts. He shows that military or trade sanctions were not driving repayment but that government eventually repaid their debts in order to be able to maintain access to capital markets. Wallis, Sylla and Grinath, (2004) provide new evidence on the reasons leading to these repudiations and defaults.

There is, to our knowledge, no study tracking the sovereign bond price evolution of a country which breaks up. When this happens, the public debt is to be partitioned. For example, all Spain’s former colonies in Central and South America, which achieved independence during the 1820’s, assumed a portion of Spain’s public debt (Hoeflich, 1982 provides the legal implications of this form of state succession; Marichal, 1989 analyzes the fate of these bonds following independence). The 1877-1878 Russian-Ottoman war led to the creation of many new countries seceding from the Ottoman Empire. The Treaties of San Stefano and Berlin (1878) discussed the allocation of the Ottoman Debt. The Treaty of Berlin recognized the principle of state succession and provided that a portion of the Ottoman debt should be assigned on an equitable basis to Bulgaria, Montenegro and Serbia. The Treaty of Lausanne (1924) settled the “equitable basis”. At the time, specialists in international law, (Bonfils, 1914), stated that each new country should take the interest burden in proportion to land, people or tax revenues. Hoeflich (1982) shows however that the United Kingdom and the United States of America had contested the legal grounds regarding state succession

⁴ This sort of moral hazard is nowadays subject to a debate regarding IMF’s role. For a recent survey on this debate see Jeanne and Zettelmeyer (2001).

during the nineteenth century. The Soviet episode would, in a sense, constitute a turning point in their position since both countries' interests dictated the assumption of the debts.

The impact of war events on bond prices has been studied in different contexts. Davis and Pecquet (1990) analyze the Confederate bond price reactions during the Civil War and find a link between their evolution and the Gettysburg defeat, the fall of Vicksburg and Atlanta. For the same war, Willard, Guinnane and Rosen (1996) study the Greenback's gold price movements and find a significant link between war events and bond prices. Weidenmier (2002) confirms this relationship for the Grayback market. Frey and Kucher (2000, 2001) analyze the monthly evolution of five European government bonds traded on the Swiss Bourse between 1928 and 1948. They find that some major events are not incurring any significant price change. Frey and Waldenström (2004) run the same analysis on the Stockholm Stock Exchange and conclude that there are large discrepancies between events considered as major turning points nowadays by historians and events perceived as important at the time. Oosterlinck (2003) shows that there is a premium for French bonds issued before versus during the war. The breakpoints on this premium are mainly linked to political changes and reassessments regarding the legitimacy of French rulers. Brown and Burdekin (2002) isolate structural breaks and turning points on German bonds traded in London during World War II. The outbreak of WWII and the D-Day invasion appear to be major turning points. Furthermore, these authors suggest that the bond prices anticipate Hitler's overthrow and the post-war settlement of bondholders' claim.

The economic literature dealing with the repudiation of the Tsarist debt focuses on macroeconomic aspects. The Russian monetary problems, stemming from the repudiation, have been studied extensively in the 1920's (Apostol and Michelson (1922), Comité des banques russes à Paris (1921), Raffalovitch (1922)). More recently, Freymond (1995) has provided a financial approach about the French investors' losses and feelings. He shows that the attitude towards the repudiated bonds differs according to the countries where they were traded: ranging from a small financial involvement (pay one or two coupons and then leave the investors to their fate), to full reimbursement. For bondholders located out of Russia, international pressures and potential negotiations enter into account. However, these negotiations are hampered by the size and political influence of the repudiating country; the Soviet Union being one of the main twentieth century powers. Oosterlinck and Szafarz (2005) show the importance of location by comparing the prices of similar Russian bonds traded in Paris and London; they conclude that bailout expectations were higher in France than in Great-Britain. Oosterlinck and Ureche-Rangau (2005) compare the repudiated Russian bonds prices with Romanian bonds subject to default and stress the relatively high value of the repudiated bonds.

This study differs from the previous approaches in at least two respects. First, it uses an original quantitative (bond prices) and qualitative (Archives from the ANPFVM⁵, Archives from the Prefecture de Police de Paris (APPP)) database to determine which events investors considered, at the time, as important. Second, it aims at showing, in the light of modern financial theory, why investors remained hopeful after the Soviet repudiation decree. Even after the repudiation, several potential payers remained. First, if the Bolsheviks were overthrown, a new Russian government would probably reimburse the debt. Second, newly created countries, such as Poland or the Baltic States were, according to international law, responsible for part of the debt. Lastly, as the French government had a large responsibility for the bonds' sale among the French public, investors could reasonably hope to see France

⁵ Association Nationale des Porteurs Français de Valeurs Mobilières.

fulfill part of the Russian obligations. The analysis seeks to determine to which extent each piece of information played a role in the bond valuation.

The remaining part of the paper is structured as follows. Section 2 gives the historical context and the competing hypotheses. Section 3 presents the data and the methodology. Section 4 addresses the news and market microstructure issue, Section 5 provides the empirical results and interpretations. Conclusions are drawn in Section 6.

2. Historical context and competing hypotheses

Even after the repudiation, investors could hope to get reimbursed by different governments: the Russian government (under Bolshevik regime or not), the French government (in case of bailout), the government of a newly created country or the German one (if forced by the WW1 Peace Treaty). This section provides an historical account of the position of the various Russian actors regarding the repudiation; of the evolution of the civil war fought in Russia; of the position of the French government towards a bailout and of the potential impact of the Versailles Peace Treaty on the bonds.

A Bolshevik repayment

During the Russian civil war, many new political actors arose⁶. *Ex post*, most of them had a short-lived influence on Russian politics. However, *ex ante* and especially for foreign investors, it was difficult to determine who would become or remain important. Therefore, any statement regarding the debt made by a potential future leader could have an impact on the Russian bond prices. Obviously, the Russian repudiation offers a good example where bond prices may be used to capture political expectations⁷.

As soon as January 13, 1918 rumors regarding the repudiation were circulating. According to the *Financial Times*⁸, at the London Stock Exchange: “Russian bonds were an outstanding feature of weakness owing to the reported drastic action of the Bolsheviks against foreign creditors (...). The Petrograd message announcing that the Supreme Council of the National Economy have drafted a decree declaring null and void all national bonds issued by the Imperial and Bourgeois Government, (...) which is held by foreigners, naturally had a bad effect on Russian bonds.” However, in its January 17, 1918 issue, the *Financial Times*’ journalist felt that “Russian bonds, the market for which was still weak, though from the extent of the fall in prices it was evident that the proposal of the present administration to repudiate foreign loans is not taken seriously as would be the case if the Government were considered a stable one”. The French investors had the same feeling towards the Soviet coup, and believed that the future Russian government would eventually take measures in order to service its debt⁹.

A few days after the repudiation, Western countries, represented by the US Ambassador M. Francis, expressed their protest and declared the repudiation decree null and void. This position was repeated regularly. In a letter dated, October 23, 1918¹⁰, the French

⁶ At the end of August 1918, there were no less than 30 governments operating on the former Tsarist Empire. (Salomoni, 1997).

⁷ See for example Ferguson (2001), which shows the impact of political events on British consols.

⁸ *Financial Times*, January 16, 1918.

⁹ *Journal Financier et Politique*, February 27, 1918.

¹⁰ ANPFVM 440-A-10.

Minister of Foreign Affairs threatened the future Russian government, which would be recognized “only if it takes over the obligations from its predecessor”. On May 30, 1919, the French Finance Minister reaffirmed that “We cannot accept as a right the repudiation of its debt by any country (...) otherwise no country in the world would be able to issue an international debt if a simple change in the government could annihilate the liabilities taken by the Nation”.

During the two years following the revolution, the Bolsheviks faced a strong military opposition. They never fully recognized the former debt but kept an ambiguous position using debt recognition as one of their favorite peace negotiating tools. For example, on March 27, 1918, an article published in *Novaya Zizhn*, Gorky’s journal, stressed the need to suppress the repudiation decree. In December 1918, Maxim Litvinov¹¹, interviewed by the *London Daily Mirror*, suggested exchanging economic concessions for a moratorium on Russia’s war debts (Thompson, 1966). On January 16, 1919, the Soviet government announced its desire to discuss the Russian foreign debt, a statement rendered public by President Wilson on January 20, 1919. The following day, Soviets claimed they would repay part of the repudiated debt, and eventually on February 4, 1919, recognized their obligations. During the Paris Peace conferences, the Soviet government suggested that it was “ready to do much for the sake of peace, whether that meant paying at least part of the repudiated foreign debt or granting news concessions to foreign enterprises” (Macmillan, 2003). On February 14, 1919, L. Nadeau, representing the French Minister of Foreign Affairs, met Lenin, who suggested using part of the Russian natural resources to reimburse the bondholders. On November 19, 1919, Chicherin, the Commissar for Foreign Affairs, offered to pay Russia’s debt. But on March 28, 1920, in a broadcasted speech, Krassine¹², the commissar for foreign trade, declared that the soviet government has suppressed the former debt and would never start talks regarding this issue. Contradictory statements were thus regularly made by the Bolshevik government. Besides real statements, rumors of negotiations often circulated in the Paris Bourse¹³. Nowadays it seems highly unlikely that the Bolsheviks ever considered seriously repaying the Tsarist debt. However, at the time, these changing signals could have impacted the bond prices.

Contrasting with the Bolshevik position, the various counter-governments appearing in Russia recognized the debt in order to get allied military support. For example, on November 21, 1918, the White Admiral Kolchak declared he would take over the debt burden, reaffirming his position on June 9, 1919. In France, Arthur Raffalovitch¹⁴ proposed a practical proposal to restart the debt service. However, after the Versailles Treaty, even the supporters of the Tsarist regime refused to recognize the whole-borrowed amount because Russia had not been invited to negotiate the war’s end. The various treaties were viewed as unfair to the White Russians who considered their country partially responsible for its debt¹⁵. Notwithstanding this position, on October 22, 1919, a British-American consortium issued a

¹¹ Soviet’s government representative in Britain.

¹² ANPFVM 440-A-18.

¹³ As testified by the contemporaneous press and the archives (APPP and ANPFVM).

¹⁴ Agent of the Tsar, Arthur Raffalovitch enjoyed a very respected and influential position in France up to 1922. When the Bolsheviks seized power in Russia, they made public Tsarist secret archives which contained Raffalovitch’s letters describing the bribes paid to journalists and politicians in order to praise Russian bonds. The publication of these by *L’Humanité*, the main French communist newspaper, in 1923-1924 created a huge turmoil in the French financial and political world.

¹⁵ Non-recognition concerned only the debt issued to support WWI’s military expenses. The repayment of the studied bond was never questioned as it had been issued before WWI.

short-term loan to the Omsk government worth \$ 40 000 000, backed by gold deposited in Hong-Kong¹⁶.

A Bolshevik defeat¹⁷

Since all the governments fighting the Bolsheviks favored resuming the debt-service, investors could hope to get reimbursed if the Bolsheviks were ousted. The two years following the October Revolution were, on the military point of view, extremely confused. Three main military forces fought the Soviets: Germany (as a continuation of WWI), White Russians and Allied troops. This section describes first the German operations, then the Allied interventions and lastly the White armies' actions directed against Soviet troops.

After the October events, revolutionary leaders expressed contradictory views regarding the war¹⁸. Peace negotiations with Germany started nonetheless in December 1917 with the Soviets pleading for a peace without territorial changes. According to Avenel (2001) the negotiations involved a first meeting on January 17, 1918, followed by a German ultimatum. In view of the Soviet refusal, a German offensive started a month later resulting in the invasion of a large part of Ukraine, Livonia and Estonia. On February 20, 1918, the Germans moved towards Reval, Petrograd, Moscow and Kiev, meeting little resistance, and occupy Hapsal and Minsk. On March 3, 1918, after these military drawbacks, the Soviet government signed the Brest Litovsk peace treaty leading to large territorial losses.

In the Allies' eyes, if the Bolsheviks were overthrown, Russia would again fight against Germany. Therefore, in the spring of 1918, British troops landed in Northern Russia. In Siberia, the Japanese army and the Czechoslovakian Legion¹⁹ would fight the Bolsheviks. With the hope to get Allied support to create an independent Czech state after WWI, the Czech legion decided, on May 25, 1918, to side along with them. At the end of May 1918, they invaded Vladivostok and on June 8, 1918 conquered Samara. On July 6, 1918 a Japanese occupation army, quickly backed by US troops, arrived in Siberia and secured Vladivostok on August 3, 1918. On July 16, 1918, French troops joined the Northern Russian Expeditionary Force at Murmansk and strengthened, on September 16, 1918 their position near Archangel. A few days later, on September 20, 1918 the Czech legion was defeated on the Volga. According to Salomoni (1997), May 1918 can be viewed as the first military attack against the Bolsheviks while August coincided with the climax of the Volga Army's action.

After WWI, the French and British governments kept troops in Russia, recognized the White general Denikin's authority and send additional men to support him. As stated by Churchill²⁰, "by the end of 1918 there were over 180 000 foreign troops on Russian soil and several White Russian armies receiving Allied money and Allied guns". On December 17, 1918, French troops landed in Odessa, which they were forced to partially evacuate on March 17, 1919. A few days later, in view of the difficulties experienced on both the Northern and the Southern fronts, the French and British governments decided to withdraw their forces

¹⁶ *The Times*, October 23, 1919.

¹⁷ The following section is mainly based on Avenel (2001), Footman (1961), Gleichen (1988), Mawdsley (1997), Pipes (1990 and 1995) and Salomoni (1997).

¹⁸ Whereas some, as Lenin, claimed that their participation to the war should be stopped in order to consolidate the revolution, others like Bukharin believed that the war could lead to a world revolution. Trotsky was in favor of a "wait and see" attitude as he expected revolutions to start in Austria and Germany.

¹⁹ This legion was composed of Czechs prisoner who had refused to fight for the Austro-Hungary Empire.

²⁰ Quoted in Macmillan (2003).

from Russia. Eventually, on April 8, 1919, Bolsheviks expelled the last remaining French troops from Odessa and on September 27, 1919, Allied troops left Archangel.

Foreign interventions represented but a part of the military offensives against the Soviets. Very soon Russian opposition to the Soviets emerged. As underlined by Mawdsley (1997), “The early centers of resistance were (...) places with a particular national or territorial identity or with conservative characteristics where the internal seizure of Soviet power did not apply”. Two main fronts quickly became crucial: one located in Southern Russian²¹, the other in Siberia²².

In Southern Russia, a few days after the October revolution, a Russian Volunteer Army was created. Even though all the parties involved in this creation were opposed to the Soviets, they had different goals ranging from the wish to recreate the Russian Empire as before WWI to the Cossacks hope to get a broad autonomy in a federated Russia. During the 1917-1918 winter, the Bolsheviks benefited from these discrepancies and accumulated military successes and on February 11, 1918, they conquered Rostov. From March to April, the White Armies retook the lost territories. According to Gleichen (1988), strong rumors of a counter-revolution in Russia reached Western Europe on April 30, 1918. Anti-Bolshevik troops conquered Sirzan on June 18, 1918, Ufa on July 1, 1918 and Ekatherinburg on July 20, 1918. Three days before, the Bolsheviks had executed the Tsar Nicholas II and his family.

After his power seizure in Omsk (Siberia), on November 18, 1918 Admiral Kolchak led the White fighting forces. In order to strengthen his power, he used repressive methods, which soon alienated the population’s support. On December 24, 1918, his army conquered Perm, an operation, which according to Avenel (2001), brought him a large prestige among the French and British governments. Following this event, they supported him actively. On February 6, 1919, General Wrangel defeated the Red Army in a fight for the Caucasian regions, and eight days later General Denikin started a major offensive in the South.

On March 13, 1919, Kolchak began a general attack in Siberia but encountered only short-lived successes. Facing a Bolshevik counter-offensive, he evacuated Samara in April 1919. End April 1919, Denikin and Kolchak resumed with victory. On May 9, 1919, Kolchak stopped the Red Army at the battle of Velikoniazheskaïa. On May 13, 1919 the Western press described the successful operations led by General Denikin in Southern Russia. On May 26, 1919 Denikin recognized Kolchak’s authority, as the latter got formal support from the Allies. However, whereas Denikin conquered Tsaritsyn²³ on June 16, 1919, and Kharkov on June 25, 1919, Kolchak was defeated on June 9, 1919. On July 3, Denikin moved to attack Moscow but was defeated first, on September 27, then on October 20, 1919. Meanwhile, his troops had reached Orel on October 14, 1919. On November 14, 1919 Omsk is taken over by the Bolsheviks and a month later, on December 24, 1919 an Anti-Kolchak revolt burst in Irkutsk where Kolchak is executed two months later. The last major 1919 offensive emerged from the Baltic States. From Estonia, the White general Iudenich launched an attack on Petrograd²⁴ but his army was eventually defeated on November 14, 1919.

In short, during 1919, White and Allied Armies’ fortunes may be summed up as follows: defeats at the begining of the year, victories in Southern Russia and Siberia from April to begin July, then drawbacks in August and September followed by an almost

²¹ First under Kaledin, then under Denikin and eventually under Wrangel command.

²² With as main military actors the Czech legion, Allied forces, and Kolchak’s troops.

²³ Later named Stalingrad, nowadays Volgograd.

²⁴ Formerly Saint Petersburg later named Leningrad, nowadays Saint Petersburg.

victorious offensive in October 1919 with Iudenich's Army fighting in Petrograd's suburbs and Denikin reaching Orel. Eventually, a very large retreat on all fronts after November.

Repayment by a seceding country

At the end of World War I several countries seceded from Russia²⁵, others acquired new territories. Referring to the Ottoman precedent, investors could hope to get at least part of their investment paid back by these countries. Poland declared its independence in 1918 and got Soviet recognition after the 1920-1921 Soviet-Polish war. In November 1918, Baltic States became independent²⁶ and, after a violent civil war, Finland achieved the same result²⁷. Most new countries' boundaries became definitive by the Versailles Treaty, which took place on June 28, 1919.

On January 22, 1918, a report from the *Office National des Valeurs Mobilières* warned that, if at the end of the war, some Russian regions became autonomous or left the Russian Empire, negotiations would be necessary to determine the responsibility of each newly created country regarding the Russian debt²⁸. A report²⁹ dated February 3, 1918, stressed that the secession of territories or the creation of new countries would make reimbursement more difficult for Western investors as reaching an agreement with many small countries would be more difficult than with just one large. Nonetheless, by helping the small countries to exist, their friendship could be gained for the future³⁰. On October 1918, the French Minister of Foreign Affairs expressed his position regarding the country break-up stating that, in view of the jurisprudence; Russia was but responsible for part of its debt³¹. Therefore, he would support the creation of an international organization to determine the amounts due by each country. Ironically enough, in the beginning of the 1920's the Bolshevik government, representing Russia, declared that newly created countries had no obligation regarding the Tsarist debt they had repudiated.

A temporary Ukrainian "government" recognized, in the 1920's, its responsibility for part of the Russian debt³², probably with the hope to get British or French military support. The creation of an independent Ukraine fueled the investors' hope to get, at least partially, reimbursed. Indeed, on September 26, 1918, the Ukrainian "Council of Ministers" promised an advance on the Tsarist coupons for the bonds held in Ukrainian banks before November 3, 1918. In its September 29, 1918, issue, *Finances et économies populaires* reported this news under the title "The Tsarists bonds are recognized"³³. Strategically, Ukrainian rulers reaffirmed very often their intention to repay³⁴ but the bondholders never received anything. This issue was settled at the end of 1918, when Ukraine came back under Soviet control.

²⁵ As for instance Ukraine, the Baltic States, Poland, Finland, Azerbaijan, Armenia, Dagestan or Georgia

²⁶ With a Bolshevik government up to October 1919 in Lithuania.

²⁷ These countries got Soviet recognition in 1920 by the Dorpat, Riga and Turku Treaties.

²⁸ "Note sur la création d'un comité français de protection des intérêts français en Russie", Office National des Valeurs mobilières, 22/1/1918, ANPFVM 440-A-17.

²⁹ "La situation industrielle en Russie", 3 février 1918, ANPFVM 440-A-14.

³⁰ A view shared by the French press, see for example *La gazette du commerce et de l'industrie* July 13, 1918.

³¹ Letter from Stephen Pichon, French Minister of Foreign Affairs, to the president of the Office National des Valeurs mobilières, October 23, 1918, ANPFVM 440-A-10.

³² Rumania would agree, in 1934, to repay part of the Akerman railway bonds which had helped develop the railway industry in Bessarabia, a province reattached to Rumania after WWI (Freymond, 1995).

³³ *On reconnaît les emprunts du Tsar*.

³⁴ For example, in a letter, dated June 22, 1920, Earl Tyszkiewicz, president of the Ukrainian delegation recognizes Ukrainian responsibility for 30% of the former Russian debt.

According to Delaisi (1930), Poland, Romania, the Baltic States agreed to recognize, in the 1920's, 25% of the former Russian debt but were unable to pay.

A French bailout

At WWI's outbreak, France and Great Britain agreed to open a credit line for Russia to fulfill its obligations regarding the coupons payment (Comité des représentants des banques russes à Paris, 1921). Thus, from 1914 to 1917, French investors got used to see France advance the funds for the Russian coupon payments, a signal that France could continue to support Russian securities. The wide diffusion of Russian securities among the French public and the involvement of the French government in the flotation of Russian securities³⁵ strengthened this signal. If Russia were to experience financial difficulties, French investors may have hoped that the French government would find a solution to protect their interests.

As rumors regarding the repudiation gained in intensity, the French government guaranteed the payment of the January 1918 coupon³⁶. It stressed, however, that this payment should not be interpreted as debt recognition, a statement not credible to many investors. On January 31, 1918, M. Klotz, the French Finance Minister, declared that the government would pay the February coupons³⁷. Again, 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 reimbursement³⁸. Besides the national turmoil created by the repudiation, the French government had, up to the end of WWI, an incentive to fulfill Russia's obligations to keep its financial influence in Russia. Furthermore, Lenin was for a long time viewed as a German agent and some actors on the Paris Bourse considered the repudiation as a German maneuver to destabilize the French economy. If this were the case, the French government would have to counter the German plot by paying the coupons³⁹.

Officially, the coupons payments were made to support an allied country facing momentary internal problems. Thus, as a result of the Brest Litovsk Treaty, France stopped servicing the Russian debt as it refused to help a country, which had signed a separate peace with Germany⁴⁰. In reaction, part of the French financial press exhorted the investors to firmly protest⁴¹. During August, many believed that the French parliament would change its decision and pay the second semester coupons⁴². 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 1918⁴³. As late as May 30th 1919, in a speech at the Senate, the French Finance Minister suggested to reiterate the

³⁵ According to the 1913 new stock exchange regulation regarding, new admissions were subject to the sole authority of the French finance minister: a measure passed in order to let the French government regulate the Russian securities and exchange their admission against military support (Girault, 1974). Furthermore, before WWI, the French government strongly recommended that banks and businessmen financially support their Ally.

³⁶ *Le Rentier* December 27, 1917.

³⁷ Quoted in *Le Rentier*, February 27, 1918. Rumors were already present on January 30, 1918, APPP, BA 1587

³⁸ Association Nationale des Porteurs Français de valeurs mobilières (1921).

³⁹ APPP, BA 1587, January 21, 1918.

⁴⁰ On January 27, 1918, the British government had agreed, to give British 12 years bonds in exchange of Russian Treasury Bills amounting at the time 10 000 000£.

⁴¹ *Le Rentier*, February 27, 1918 and May 27, 1918.

⁴² *Le Rentier*, August 27, 1918.

⁴³ This idea was already 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 securities 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 265 millions (*Le Rentier*, June 17, 1919).

September 1918 operation; a proposal eventually rejected by the rest of the government. However, a law passed on July 25, 1919 allowed the French holders of Russian bonds, who were either living in the French regions devastated by WWI or had fought during the same war to present their Russian coupons to subscribe up to 50% of French National Defense Bonds (Reynaud 1924). To our knowledge, this exchange was the last financial action undertaken by the French government. Notwithstanding, there were high expectations that it would intervene again.

French bondholders did not rely solely on their government. Very quickly, numerous bondholders' associations were created. On August 5, 1918 a *Commission générale pour la protection des intérêts français en Russie* was born, followed on September 28, 1918 by the *Comité de Défense des porteurs de Fonds d'Etat russes, de valeurs garanties par l'Etat russe et d'emprunts municipaux*, and by the *Comité de Défense des porteurs français de valeurs industrielles et bancaires russes* on April 5, 1919. In the meantime, unscrupulous individuals set up fake associations to steel money from credulous investors. At the end of August 1918, and following several scandals, financial journals warned investors. The official associations' action consisted mainly in collecting relevant information and lobbying in order to get reimbursed by the French government⁴⁴. Eventually, bondholders hoped, if lobbying proved unsuccessful, to gain something when Russia would come back on the French market. The threat of no access to foreign capital markets and a boycott of Russian securities were seriously considered.

Abroad, national reactions differed widely. As a consequence of the Brest-Litovsk Treaty, the Soviets recognized the bonds held by German nationals⁴⁵. An additional convention dated August 27, 1918 guaranteed the transfer of gold, for the payment of the coupons and the amortized bonds on October 14, 1918. In practice, German bondholders managed thus to secure the necessary gold to get reimbursed. In September 1918, the Austrian government tried unsuccessfully to obtain the same agreement⁴⁶. In view of the economic crises created by the suspension of the coupon service, most countries proposed at least partial settlements. The Italian, British and US governments exchanged Russian bonds with, respectively, Italian state bonds (for approximately 50% of par value), British and American Treasury Bills. The best outcome remained for the Japanese, who suffered no losses as their government bailed them out (Freymond, 1995).

Let the Germans pay

Due to the civil war raging in the country, no official delegation represented Russia at the Paris Peace conference, held in January 1919, during which the war settlement was negotiated. According to Macmillan (2003), while US President Wilson hoped to reshape Europe by giving to the populations the right for auto-determination, Clemenceau, the French Prime Minister, considered the conference as an opportunity to “make Germany pay”. The Russian absence created major difficulties as many new countries' boundaries were shared with the former Empire. On January 21, 1919, and despite a strong French opposition, President Wilson suggested meeting with a Soviet representative. This suggestion proved unsuccessful. The Russian issue, nonetheless, was not dropped. Article 116 of the future

⁴⁴ ANPFVM 440-A-10.

⁴⁵ In view of this, the French government feared that its citizens would sell their industrial securities at a low price to Germans. In a letter to M. Pichon, French Minister of Foreign Affairs dated May 10th 1918, the French ambassador in Sweden, M. Thiébaud, described this practice. ANPFVM 440A-10-24.

⁴⁶ *Messenger de Paris*, September 12, 1918.

Versailles Treaty, adopted by the council of Four⁴⁷, on May 3, 1919, provided three things: “first, Germany was required to recognize the independence of all territories that had been part of the pre-war Russian Empire; second, the Brest Litovsk Treaty and all related and associated treaties were abrogated; third, the Allied and associated powers reserved Russia’s right to obtain reparations from Germany” (Thompson, 1966). The last part of article 116 thus opened the way for reparations if the former Russian government was restored since it opened the way for Russians to use German wealth to repay part of the debt. It seems that, at the time, the German alternative was seriously considered. The financial press⁴⁸ stressed the importance of the Paris peace negotiations on the Russian section of the London Stock Exchange: “Russians were in some speculative favour (...) owing to the impression that the Peace conference will make an early start upon the re-settlement of affairs in Russia”, also holding for the Paris bourse: “the Russian funds have been uncertain, owing to the attitude which is to be adopted by the Peace conference as to the Russian problem”⁴⁹. On June 28, 1919, German representatives signed the Versailles Treaty, thus putting a definitive end to WWI.

3. Data series and methodology

Data series

The data series have been collected in the *Bulletin de la Cote de la Compagnie des Agents de Change de Paris*⁵⁰ on a weekly basis for a period stretching from January 1, 1915 to December 31, 1919. The data consists of the weekly price series (taken on Wednesday), on the Paris Stock Exchange, of a Russian long-term (50 years) bond issued in 1906⁵¹ and paying a yearly 5% coupon⁵² and of the French 3% *rente* (in financial terms equivalent to a British consol). Both bonds were liquid. The Russian bond was exchanged on several markets with serial numbers specific to a given stock exchange⁵³. According to Freymond (1995), 72% of the 1906 bonds were traded in Paris.

Table 1 provides the descriptive statistics of both bonds for the entire period, Table 2 for 1918 and 1919, thus after the repudiation. The Russian bond prices kept an average of 72.09% of par value (this is the “dirty price” usually quoted at the time), the French one of 63.03%. This difference is of course partly due to the difference in coupons of the bonds.

⁴⁷ In the last week of March 1919, a Council of Four was created in order to settle the major questions without unwished interferences. Clemenceau, the French Prime Minister, Lloyd George, the British Prime Minister, Orlando, the Italian Prime Minister, and the US President Wilson were the members of this council.

⁴⁸ *The Economist*, February 1, 1919.

⁴⁹ *The Economist*, March 1, 1919.

⁵⁰ I thank M. Gallais-Hamonno and Ms. Bodilsen for their help and availability when collecting the data respectively at the Université d'Orléans and at the SBF.

⁵¹ The 1909 Russian bond with a 4.5% coupon exhibits the same trend.

⁵² Due on May 1 and November 1, expressed in different currencies but based on a common gold reference.

⁵³ The series with a number between 1 and 273 were traded in Paris (with those between 241 and 273 also exchanged in Vienna), those between 274 and 339 in London and those from 340 to 350 in Amsterdam.

TABLE 1 Descriptive statistics: Bond price and weekly return (1915-1919)

	Russian 1906 Bond		French 3% rente	
	Bond Price	Weekly Returns (%)	Bond Price	Weekly Returns (%)
Mean	72.09	-0.18	63.03	0.02
Median	74.75	0.00	62.75	0.00
Maximum	94.75	13.04	73.5	3.49
Minimum	45	-9.80	56.75	-3.50
Standard deviation	15.16	3.05	3.76	0.85
Skewness	-0.14	0.52	1.30	0.27
Kurtosis	-1.51	5.67	1.21	5.74

Returns are computed as follows:

$$r_t = (P_{t+7} - P_t + D_t) / P_t,$$

with P_t the price at date t and D_t the dividend paid between date t and $t+7$.

TABLE 2 Descriptive statistics: Bond price and weekly return (1918-1919)

	Russian 1906 Bond		French 3% rente	
	Bond Price	Weekly Returns (%)	Bond Price	Weekly Returns (%)
Mean	56.49	-0.09	61.13	0.11
Median	56.75	-0.28	61.5	0.00
Maximum	66.25	13.04	65	3.49
Minimum	45	-9.80	56.75	-2.28
Standard deviation	5.52	4.03	1.95	0.86
Skewness	-0.3	0.55	-0.43	0.68
Kurtosis	-0.89	3.75	-0.47	5.31

For the repudiated Russian bond the mean value and the median are both very high: for instance, the mean of a German bond traded on the London Stock Exchange following the outbreak of WWII remained between 0 and 20% (Brown and Burdekin, 2002) during the war period. The minimum value (45%) is also in sharp contrast with this case.

Methodology

In order to quantitatively determine the impact of various shocks to the bond prices we use a structural vector autoregression (VAR) to identify a set of orthogonal structural shocks that impact the French 3% Rente and the Russian 1906 bond respectively. In using a VAR with the French 3% Rente and the Russian bond we are able to disentangle the effects of local news, events that impact the French markets in general, from Russian news on the price of the Russian 1906 bond.⁵⁴ Once a set of structural shocks are obtained it is then possible to

⁵⁴ This approach of identifying mutually orthogonal structural shocks has a long history dating back to Sims (1980). See Hamilton (1994, pages 318-336) for a review.

calculate variance decompositions and do a counterfactual “historical decomposition” analysis to determine the effects of each structural shock on the individual bond series.

Let the vector y_t be a (2×1) vector with the first element being the weekly return of the 3% Rente and the second element being the weekly return of the 1906 Russian bond.⁵⁵ The structural VAR that we wish to estimate is

$$(1) \quad A_0 y_t = \alpha + \sum_{j=1}^p A_j y_{t-j} + u_t, \quad u_t \sim N(0, I),$$

where $A_0 = \begin{bmatrix} 1 & a_{0,12} \\ a_{0,21} & 1 \end{bmatrix}$ is the contemporaneous relationship matrix for the endogenous variables of the system and $u_t = (u_{f,t} \ u_{r,t})'$ are orthogonal (structural) errors with unit variance. The structural VAR, (1), can be re-written in reduced form as

$$(2) \quad y_t = \mu + \sum_{j=1}^p B_j y_{t-j} + \varepsilon_t, \quad \varepsilon_t \sim N(0, \Sigma),$$

where $\mu = A_0^{-1} \alpha$, $B_j = A_0^{-1} A_j$, $\varepsilon_t = A_0^{-1} u_t$, and $\Sigma = A_0^{-1} A_0^{-1'}$. The reduced form VAR in (2) can then be consistently estimated using equation by equation ordinary least squares (OLS). Once (2) is estimated then the OLS residuals from (2) are consistent estimates of the reduced form errors ε_t in (2).

The reduced form errors, ε_t , have no structural interpretation so in order to estimate the structural errors, u_t , we need to consistently estimate the contemporaneous relationship matrix A_0 . The structural identification that we use in this study is that $a_{0,12} = 0$. That is, the structural shock that impacts the Russian bond does not contemporaneously affect the Rente. Using this identification it is possible to consistently estimate A_0 and hence consistently estimate a set of orthogonal (structural) shocks using

$$(3) \quad \hat{u}_t = \hat{A}_0 \hat{\varepsilon}_t,$$

where the “hat” symbol refers to an estimate of the particular parameter or error. The structural errors that are identified using (3) can be interpreted as follows: The first element of u_t is an amalgam of shocks that directly impact the Rente⁵⁶. Given the time period that we are studying it is reasonable to expect that the majority of shocks in the first element of u_t would be due to events surrounding WWI with a direct impact on France. The second element of u_t is then an amalgam of shocks that impact the weekly return for the Russian 1906 bond that is orthogonal to the first shock (the shock to the Rente) and which does not immediately

⁵⁵ Standard unit root tests indicate that these two return series are stationary so that the VAR can be consistently estimated with the return series entering the VAR in levels.

⁵⁶ Note that we are implicitly assuming that there are only two independent shocks impacting that system. As noted in Sims (1988) there is no reason to believe this to be necessarily true. The actual number of true independent shocks could be many more than two. The two structural shocks that we identify are therefore potentially combinations of many structural shocks actually impacting the system.

impact the weekly return of the Rente. It is reasonable to expect that most of these shocks would be due to events outside of France, and hence having no immediate impact on France's economic performance, that directly impact Russia. Clearly, this second shock would include good and bad news from the Russian revolution.

Using the above identification we can estimate the structural version of the model, (1), by noting that

$$(4) \quad \Sigma = A_0^{-1} A_0^{-1'}$$

Given that A_0 is a lower triangular matrix, we can then uniquely identify A_0 using the fact that a positive definite matrix can be factored into a lower and upper triangular matrix using the Cholesky factorization. Once we obtain an estimate of A_0 , (3) is used to obtain consistent estimates of the structural errors impacting the system.

The next step in this analysis is to quantify the impact the identified structural shocks have on the individual times series on the weekly returns of the Rente and the Russian 1906 bond. To do this we construct a set of counterfactual historical decompositions.⁵⁷ The counterfactual return series are constructed as follows: Using the structural shocks we can construct (counterfactual) reduced form errors using the following formulae,

$$(5a) \quad \tilde{\varepsilon}_{1t} = \hat{A}_0^{-1} \begin{pmatrix} \hat{u}_{1t} \\ 0 \end{pmatrix}$$

or

$$(5b) \quad \tilde{\varepsilon}_{2t} = \hat{A}_0^{-1} \begin{pmatrix} 0 \\ \hat{u}_{2t} \end{pmatrix}.$$

The counterfactual shock calculated in (5a) are the reduced form shocks if the only structural shock hitting the system is u_1 , the structural shocks directly impacting the Rente. The counterfactual shock calculated in (5b) are the reduced form shocks if the only structural shocks hitting the system are the shocks directly impacting the Russian bond returns that are orthogonal to the shocks hitting the Rente.

The counterfactual historical decomposition series are then obtained using the estimated version of (2) with the shocks obtained from (5) instead of the actual residuals we obtained from the estimation. Actual returns are used for the first p values of the historical decomposition return series and for the first p values of the historical decomposition series after a period of missing values.

⁵⁷ An example of the use of historical decompositions using structural residuals can be found in Bordo, Landon-Lane and Redish (2004).

4. News and market microstructure

Before presenting the empirical results, two elements must be stressed. First, the interpretation of the bond prices reactions clearly depends on the investors' perception at the time. The perceived importance of events do not necessarily match the importance historians attribute them nowadays. Willard, Guinane and Rosen (1996) stress this point for the US Civil War. In the Russian case, the military situation remained extremely complex and even today scholars do not agree on what were the most relevant events. In this context of uncertainty, rumors were prone to be spread on the Paris bourse. It is therefore crucial to determine which news was available to the investors but also the emphasis it had in the contemporaneous press or letters. Second, recorded prices are mainly relevant if they reflect the ability to really exchange bonds at this given price. During most of our analysis, France is at war, an element clearly impacting the volumes of trades. Furthermore, as uncertainty concerning the future of Russia was so high, traders could be unwilling to exchange their bonds. When this happened, the market was extremely thin and the validity of the recorded prices may be questioned. These two issues are discussed hereafter.

News and Market microstructure

For the period following the October revolution, Russian news or telegrams could take days or weeks to reach their destination (Macmillan, 2003). In order to know which news were available to the French brokers, the analysis will rely both on records from the French and British financial press, but also on the archives from the French Corporation of Foreign Bondholders (ANPFVM) and the archives from the Prefecture de Police Paris (APPP). In view of the large amounts invested by Frenchmen in Russian bonds, the French Corporation of Foreign Bondholders set up in 1917 a detailed documentation center dedicated to Russia. Its aim was to collect any relevant news related to this country. Some members were influential enough to get direct (and probably not public) information from the French government. The archives used from the Prefecture de Police de Paris cover the period December 1917-May 1919. To get an idea of the feelings of the Paris population, obviously considered as especially important during war, the *Préfet de Police*⁵⁸ created a special force meant to provide him with the "pulse of the city" (*la physionomie de Paris*). His agents submitted daily reports on rumors or discussions overheard in public spaces (pubs, markets, and the Paris Bourse). Thanks to this, a daily description of the Paris bourse is available for most of the studied period⁵⁹.

For very troubled periods, it is interesting to determine to what extent the recorded prices corresponded to real trades. From 1917 to 1919, the Russian section of the Paris Stock Exchange experienced some periods of very low activity. Unfortunately, no archive mentions the daily volumes. The *Bulletin de la Cote de la Compagnie des Agents de Change de Paris* gives the number of price changes, which provides an indication of the market activity. For the studied bonds, there is, most of the time, more than one change a day, implying that several trades took place. However, the volume of these trades is unknown, thus numbers of trades must be taken with caution. For the *rente*, the volumes remained high. The French and

⁵⁸ Head of the Paris police competent for the security on the stock exchange.

⁵⁹ These archives are an interesting complement to the French financial press, which at the time was subject to the censor.

British financial press⁶⁰ as well as the Archives provide a record of the periods of low activity for the Russian bond which are summarized for 1918 and 1919 in Table 3

TABLE 3: Russian section activity on the Paris stock exchange

Jan. 1918 Jul. 1918	Aug. 1918 Oct. 1918	Nov. 1918 Apr. 1919	Apr. 1919 Aug. 1919	Sept. 1919	Oct. 1919	Nov. 1919 Dec. 1919
Low activity	Renewed activity	Low activity	Renewed activity	Low activity	Renewed activity	Low activity

5. Empirical results

This section first describes the empirical results, then analyzes the structural shocks hitting the Russian 1906 bond.

The VAR in (2) was estimated using equation by equation OLS with the number of lags, p , set equal to 7⁶¹. The lag length was determined using likelihood ratio lag exclusion tests that are reported in Table 5 of Section A.1 of the Appendix. The estimates of the reduced form parameters in (2), given in Table 6 of Section A.2 of the Appendix, were then used to identify A_0 by taking the Cholesky decomposition of the estimated variance covariance matrix obtained from the least squares residuals in (2). Given the residuals from (2) and our estimate of A_0 we then use (3) to obtain consistent estimates of the structural shocks.

Figures 1 – 5 in Section A.3 of the Appendix depict the structural shocks for each year of the sample. In each Figure there are two panes. The first depicts the structural shock directly impacting the Rente while the second pane depicts the shock directly impacting the Russian 1906 bond that is orthogonal to the first shock. By construction, these shocks come from a distribution with standard deviation equal to 1. We therefore consider large shocks to be shocks that are greater than two standard deviations in size. The first shock, the one directly impacting the Rente, can be interpreted as domestic shocks while the second shock can be interpreted as being the combination of foreign shocks.

In order to determine the impact of domestic and foreign shocks on the return to the Russian 1906 bond we look at variance decompositions and historical decompositions. In Table 7 of Section A.2 of the Appendix the variance decompositions are reported. Here we see the contribution of each shock to the forecast error for forecasts from 1 to 10 periods ahead. We see that the 99% of the 1-step ahead forecast error for the Russian 1906 bond is due to the foreign structural shock while at the 10 period horizon the foreign shock contributes 96% of the forecast error. This is clear evidence that the biggest contribution to the variance of the Russian 1906 bond is from foreign shocks as identified by our VAR.

Figures 6 – 10 in Section A.4 of the Appendix depict the historical decompositions for each return series under the two different hypothetical cases. The first case being that the only shock the impacts the system is the identified first shock (u_1) and the second case being that the only shock hitting the system is the second identified structural shock (u_2). If an historical decomposition closely tracks the actual series, then we interpret this to mean the shock that was used to compute the historical decomposition is the main contributing factor to the actual

⁶⁰ Mainly *Le Bulletin de la Cote de la Compagnie des Agents de Change de Paris, Le Rentier, Le Journal des Valeurs Russes*, reports from the correspondent in Paris of *The Economist* and Archives (ANPFVM, and APPP).

⁶¹ In the case of missing observations the sample was kept balanced by omitting observations for both variables.

series. Conversely, when the historical decomposition is close to 0, the unconditional mean of the return series, then the shock that was used to construct the historical decomposition has little or no influence on the actual series. In Figures 6 -- 10 , for the most part, the structural shock (u_1) drives the Rente return series while the structural shock (u_2) drives the Russian 1906 bond return series. Given how the two structural shock series were obtained this further suggests that the shocks hitting the Russian bond return series are mainly due to external factors and are not due to internal conditions of the French economy. With this in mind we analyze the shocks that hit the Russian 1906 bond series from an historical perspective.

Structural shocks

The historical decomposition shows that shocks hitting the Russian bond series are mainly due to Russian factors. We therefore focus on news linked solely to Russia when interpreting the shocks hitting the Russian bonds (conditional on those hitting the French market). The analysis focuses on the large shocks (larger than two standard deviation), which may be found in Figure 1-5, in Section A.3 of the Appendix. Table 4 provides the dates as well as the sign and suggested explanations for these shocks.

TABLE 4: 1906 Russian bond main structural shocks

<u>Date</u>	<u>Sign</u>	<u>Suggested Explanation</u>	<u>Nature</u> ⁶²
May 16, 1917 – May 23, 1917	+	20 May 1917: Russian Provisional Government recognizes debt of honor to Allies and repudiates peace talk.	DR
August 29, 1917 – September 5, 1917	-		
January 16, 1918 – January 23, 1918	-	January 17, 1918: Peace negotiations between Soviets and German January, 21 1918: Soviet Central Committee repudiates the Tsarist debt	MR DR
January 30, 1918 – February 6, 1918	+	January 31, 1918 France will pay the February coupons	DB
July 24, 1918 – July 31, 1918	+	July 25, 1918: Ekatherinburg conquered July 26, 1918: French troops join the Northern Russian Expeditionary Force at Murmansk. Talks about a Japanese intervention. July 25 and 26, 1918: Expectations of French government action	MR DB
October 2, 1918 – October 9, 1918	+		

⁶² Events are sorted according to their nature: DR (Statements regarding the debt recognition), DB (debt bailouts or hope of debt bailouts), MR (Military events in Russia), VT (Versailles Treaty).

January 15, 1919 – January 22, 1919	+	January 14-16, 1919: British-Soviet meeting in Stockholm, Soviet government ready to compromise on Russia's foreign debt (Statement made public by Wilson on January 20, 1919) January 21, 1919 Soviet government ready to repay part of repudiated debt and US President Wilson suggests a meeting with Soviet representative January 16, Declaration of Russian bonds requested	DR DB
April 23, 1919 – April 30, 1919	+	April 23-25, 1919 Denikin and Kolchak victories April 25, 1919 Bolshevism considered as dead April 28, 1919, rumors: Lenin fled in Budapest April 25 outbreak of Soviet Polish war April 26, 1919 Rumors of Bolshevik proposals to resume negotiations regarding the bonds	MR DR
April 30, 1919 – May 7, 1919	+	May 2, News that Bolsheviks need to evacuate Petrograd May 3, Good news regarding the decreasing power of the Bolsheviks May 3: Versailles Treaty	MR VT
May 7, 1919 – May 12, 1919	-		
May 12, 1919– May 19, 1919	+	May 13, 1919 Successes by General Denikin in Southern Russia. Meanwhile, Estonian army moves on Petrograd May 15, Rumors Bolsheviks have left Petrograd	MR
October 15, 1919 – October 22, 1919	+	October 14, 1919 Denikin troops reach Orel October 16 Iudenich offensive against Petrograd	MR
December 24, 1919 – December 31, 1919	-	December 24, 1919 Anti-Kolchak revolt in Irkutsk	MR

Identifying the impact of precise events in the Russian case is extremely hard as many events happened simultaneously. Thus, the positive impact of some event may be cancelled by a simultaneous negative shock. For some dates, no specific event was found to provide a convincing explanation. This is by no means uncommon for this kind of analysis (Cutler, Poterba, Summers, 1989, and Siegel, 2002). Also, some events that one would expect to play an important role do not lead to large changes in returns. For example, neither the February nor the October revolutions created large shocks. Reassuring statements regarding the debt reimbursement were quick to follow the February revolution. The Tsar abdicated on March 15 and on March 31st, 1917 Kerenski, the Minister of Justice for the Provisional government at the time, expressed his intention to honor all existing debts. This may explain the absence of a large shock following the February revolution. Regarding the October revolution, there is in fact a large shock, leading to almost a change of two standard deviations, and it is thus reflected in bond prices. The shock was however not large enough to be included in table 4. It seems to indicate that French investors did not immediately and entirely assess the importance of the October revolution.

During the years 1915 and 1916 there are no major pure Russian shocks. This is consistent with expectations since bad war news from Russia would have had an overall impact on the market. For the rest of the analyzed sample, thirteen large shocks were found, two in 1917, four in 1918 and seven in 1919. We were able to identify one or more plausible explanations for all but three of the shocks. For five dates, competing hypotheses were present.

Of the potential explanations, we do not find any major shock linked to the repayment by a seceding country. During 1918, hopes of a French bailout and statements made by the Bolsheviks regarding the debt repayment both play a major role. Most shocks are related to military news (or rumors) from Russia, which for 1919 are almost the only events leading to large price changes. The impact of the Versailles treaty (and the option of a German reimbursement) cannot be ruled out. The day the Treaty was signed coincides with important White Armies victories. However, press clips and reports from the Bourse do not mention its impact on Russian bond prices but stress the enthusiasm created by the victories. A detailed description of the shocks, sorted by nature, follows.

Position of the Russian government

Four statements made by the Russian rulers explain some of the large identified shocks. Most of the statements have been described above and will thus only be briefly summarized.

The first identified positive shock follows the February revolution and predates the repudiation. It occurs during May 1917 and may be attributed to a statement by the Russian Provisional government, in which it stressed that debt would be honored and that Russia would keep on fighting on the Allied side. This statement probably lifted part of the apprehension French investors may have had regarding the revolution.

The other shocks are linked to statements made by the Bolsheviks or to rumors on the Paris bourse. The January 1918 shock reflects the repudiation itself. On January 21 1918, the Soviet Central Committee decided to repudiate the Tsarist debt. Rumors regarding the repudiation were circulating since December 1917 and would be confirmed by a Decree passed on February 8, 1918. Even though, the Bolsheviks suggested a few times during 1918 that they would repay the bonds, it seems that up until January 1919, French bondholders did not view these as credible. This changed on January 1919, when a series of declarations were viewed favorably and interpreted as enhancing the likelihood of being reimbursed.

Indeed, the shock identified during the third week of January, 1919 probably stems from the negotiations held between Soviet and Western representatives. In the framework of a secret British-Soviet meeting in Stockholm, the Soviet government recognized its readiness to compromise on Russia's foreign debt. This statement was made public by the US president Wilson on January 20, 1919. The day after, the Soviet government stressed once more its willingness to repay part of the repudiated debts and President Wilson suggested a meeting with Soviet representatives. The reports⁶³ from the Paris bourse mention that investors were hoping for some Russian intervention, even though they did not know which form it would take.

Rumors regarding a Bolshevik repayment resumed on April 26, 1919. Following a series of Bolshevik military drawbacks, rumors began to be spread on the bourse. Brokers were heard saying that the Bolshevik had made a proposal to resume negotiations with the French

⁶³ APPP (BA 1588)

government regarding the bond's repayment. According to the rumors, the Bolsheviks were willing to give raw goods to repay part of the coupons due⁶⁴.

A French debt bailout

On four dates, the hopes of a bailout by the French government led to extreme returns. They first stemmed from the actions undertaken by the British and French governments to service the Russian debt during January 1918. The coupon reimbursement declaration made by M. Klotz, the French Finance Minister on January 31, 1918 probably created the large shock identified on the last week of January.

The other shocks linked to a potential debt bailout by the French government were mainly caused by rumors on the Paris Bourse. On July 25, 1918⁶⁵ the Préfet's "spy" records that Russian bonds were sought because investors expected some intervention from the French government. The following day, rumors were more precise: investors had the impression that the French government had concluded a deal with the Committee representing the Russian bondholders.

During 1919, the French government made few statements regarding the debt. An explanation could be that the French government was less inclined to show signs of a bailout whenever the likelihood got higher that the White Armies would win⁶⁶. However, hopes of a French bailout did not disappear completely. The January 1919 shock, which coincides with the secret negotiations mentioned previously, could also be partly due to an action undertaken by the French government: On January 16, it requested French investors to declare their Russian bonds. This measure was at first greeted with outright animosity since it forced holders of Russian bonds to make public their wealth by registering their bonds (an element going against the highly loved bearer form, which allowed French bondholders to easily hide the taxable incomes). However, after a few days, the investors' position became more favorable⁶⁷.

Military news from Russia

Military news from Russia had probably the most influence on the Russian bond prices. In 1918, they certainly play an important role and, during 1919, they contribute almost solely to the large identified shocks.

The first shock, observed on January 1918, can be attributed to the Soviet Central Committee repudiation decree but could also reflect the peace negotiations held between Soviets and Germany. Up to July 1918, no military events played an important role on the Russian bonds. The shock at the end of July 1918 probably reflects renewed hopes that the Soviets would be ousted. A series of good military news began on July 25, 1918 with the conquest of Ekatherinburg. The following day, the French troops joined the Northern Russian Expeditionary Force at Murmansk. Meanwhile, rumors were running on the Paris bourse about a Japanese intervention in Russia⁶⁸.

⁶⁴ APPP (BA 1588)

⁶⁵ APPP (BA 1587).

⁶⁶ The authors thank an anonymous referee for this point.

⁶⁷ APPP (BA 1588)

⁶⁸ APPP (BA 1587)

The shock occurring between April 23 and April 30 is likely to reflect either the offensive of the White Armies at the time or the outbreak of the Polish-Soviet war. By the middle of April 1919, White troops had conquered considerably large territories with Kolchak's army almost reaching the Volga (Pipes, 1995, p. 78). On April 25, 1919 Polish troops invaded Ukraine. On the Paris stock exchange, both movements were greeted with enthusiasm. The report dated April 25, 1919⁶⁹ stressed that Bolshevism could be considered as dead and that soon a large front would open from the Red Sea to Arkangel. The following day rumors maintained that the British intervention would destroy Bolshevism. Two days later, rumors were circulating: Lenin was supposed to have fled to Budapest with 15 millions rubles and had no intention to come back to Russia.

Another large positive shock is observed for the following week. Then again rumors were circulating on the Paris bourse. On May 2, the reports mentioned news that Bolsheviks needed to evacuate Petrograd⁷⁰, and on May 3, it stressed the good news regarding the decreasing power of the Bolsheviks. The contemporaneous economic press confirms this view. During May 1919, *The Economist* attributed "the appreciable improvement in Russian (...) on the news of the fresh successes by Anti-Bolshevik troops"⁷¹.

The positive shock identified between May 12, and May 1919 probably also reflects military successes on the Russian front. On May 13, 1919 Iudenich's Army, which was located in Estonia, crossed into Soviet territory launching an offensive against Petrograd (Pipes, 1995, p. 93). On the French bourse, the offensive was quickly transformed as a victory and rumors were heard stating that the Bolsheviks had evacuated Petrograd⁷². At the same time, General Denikin was again experiencing military success in Southern Russia.

The large shock observed between October 15 and 22nd, 1919 coincides with the great offensive launched simultaneously by Denikin in Southern Russia and Iudenich close to Petrograd. On October 14, 1919 Denikin's troops reached Orel, only 300 kilometers from Moscow. At the same time, Iudenich was launching its second offensive against Petrograd, reaching the suburbs of the city on October 16. The Red situation in Petrograd was so bad that Lenin was considering leaving the city to the White Armies. Only Trotsky's opposition to this plan prevented its conquest. On October 21, the Red Army had managed to pierce the White lines bringing an end to the Petrograd offensive. The last identified shock is attributed to the Anti-Kolchak revolt in Irkutsk happening on December 24, 1919.

As a whole military news (or rumors) related to Russia played a major role on the bond prices. The importance of the civil war on the Russian section is further assessed by the fact that high volume and periods of renewed activity usually match White military successes.

5. Conclusion

The paper analyzes to which events repudiated Russian bond prices reacted. Five competing hypotheses were suggested: a debt recognition by the Soviets, a Soviet overthrow, a bailout by the French government, a bailout by the government of a seceding country or a repayment by defeated Germany, which could be viewed as a war reparation. The analysis

⁶⁹ APPP (BA/1588)

⁷⁰ APPP (BA 1588)

⁷¹ *The Economist*, May 3, 1919.

⁷² APPP (BA 1588)

shows that up to January 1919, expectations of a French bailout and Soviet statements regarding the debt repayment were mainly driving large price changes. After January 1919, military news from Russia, which up to then had had a minor impact become the main news driving bond prices.

During the period under study, statements regarding the new countries recognition made either by French politicians or by the French press had almost no impact on the, reimbursement perception. Two factors explain this: first, most of the countries were created after the studied period (or at its very end), second there were few changes in political positions thus few investors' reactions. Notwithstanding, the possibility that a least one new country would assume part of the debt burden could partly explain why prices remained high up to end 1919.

The Soviet repudiation gives an insight on actual issues regarding sovereign debts. The analysis emphasizes the importance of statements' credibility. Bond prices reacted to the Soviets' first proposals to recognize the debt. However as no concrete actions backed these allegations, investors stopped trusting the Soviet announcements. Furthermore, the paper confirms the results of previous studies showing the impact of war events on national bond prices.

Even though French bondholders did not receive any form of payment during 1919, Russian bond prices remained relatively high. In a sense, the Soviet repudiation may be viewed as a unique example of a multidimensional peso problem⁷³, for which several events of different nature had at some point a non-negligible likelihood to become reality. These positive events were numerous and included: the Soviet overthrow, a Soviet withdrawal of the repudiation decree, a foreign partial reimbursement (by a newly created country for example) or a reimbursement by the French authorities. Investors' rationality should not be questioned: prices integrated the fact that *ex ante* it was reasonable to assume that at least one of these events would happen. In fact, investors made rational expectations and considered the probability and the potential impact of each of these events. The study suggests that in the Russian case, investors mainly hoped that either the French government would takeover the debt or that the Soviets would be defeated and that the new Russian government would honor its obligations.

Epilogue

Russian bonds remained traded on the Paris stock exchange up to the 1990's with, however, an almost insignificant volume of transactions. During the 1920's prices could still experience large shifts. Notably, they seem to have reacted to news from the civil war (mainly following the successes of Wrangel in 1920), the Polish-Soviet war (1920-1921), the Genoa conference (in 1922 during which the Soviets offered to recognize the debt in exchange of new credit and the cancellation of Russia's WW1 debt) and the commission de Monzie (hopes were fuelled once more in February 1925, when a French delegation led by Anatole de Monzie resumed negotiations with the Soviets). Interestingly, all these episodes confirm the previous results: importance of the war, of a potential reopening of negotiations with the Soviets (under the supervision of the French government). Actually, hope never completely disappeared and periodically there was feverous activity on the Russian section of the Paris

⁷³ Goetzmann and Jorion (1999) have argued that the high risk premium of stock returns may be explained by the fact that investors expected the stock market to experience a major event (closure...) that never happened.

Stock Exchange. In 1954, the price of the 4.5% Russian bond issued in 1909 got multiplied by 60 as an important Franco-Soviet agreement was signed (Freymond, 1995).

Historians have the opportunity to study a specific problem in a large time window. In fact, if one extended the analysis up to today, one of the expected events eventually took place. As a consequence of WWII, the number of repudiated bonds increased dramatically as many countries fell under the Soviet sphere of influence and mimicked the Soviet position. Nonetheless, in 1993, the French government resumed negotiations with Russia, which agreed to partially reimburse French bondholders. In 1996, France and Russia reached an agreement by which Russia would pay 400 million USD as settlement for all the Tsarist debts.

APPENDIX: Empirical Results and Structural Shocks

A.1 VAR results

Table 5: Joint Lag Exclusion Tests for VAR

	Lag 1	Lag 2	Lag 3	Lag 4	Lag 5	Lag 6	Lag 7	Lag 8
Wald Statistic	5.858	4.080	3.606	12.190	2.408	5.918	12.091	5.158
p-value	0.210	0.395	0.462	0.016	0.661	0.205	0.017	0.271

Note: The Wald statistic is distributed χ^2 with 4 degrees of freedom.

Table 6: VAR Estimates

Regressors	Equation	
	RENTE	RUS06
Rente _{t-1}	0.085 (1.238)	0.107 (0.396)
Rente _{t-2}	-0.081 (-1.214)	-0.211 (-0.803)
Rente _{t-3}	-0.053 (-0.799)	-0.049 (-0.187)
Rente _{t-4}	-0.197 (-3.003)	0.159 (0.617)
Rente _{t-5}	0.017 (0.250)	0.135 (0.514)
Rente _{t-6}	-0.110 (-1.671)	0.217 (0.840)
Rente _{t-7}	-0.040 (-0.603)	-0.636 (-2.411)
Rus06 _{t-1}	0.024 (1.365)	-0.123 (-1.765)
Rus06 _{t-2}	0.024 (1.339)	0.017 (0.239)
Rus06 _{t-3}	0.030 (1.665)	0.000 (0.003)
Rus06 _{t-4}	0.024 (1.327)	0.090 (1.275)
Rus06 _{t-5}	-0.026 (-1.458)	-0.020 (-0.280)
Rus06 _{t-6}	-0.017 (-0.922)	0.067 (0.939)
Rus06 _{t-7}	0.049 (2.695)	0.108 (1.512)
Constant	0.001 (1.566)	-0.003 (-1.475)
R ²	0.147	0.079
Adj. R ²	0.084	0.012

Note: The numbers in braces are t-statistics.

A.2 Variance Decompositions

Table 7: Variance Decomposition

Period	Forecast Standard Error	Variance Decomposition of Rente		Forecast Standard Error	Variance Decomposition of Rus06	
		RENTE	RUS06		RENTE	RUS06
1	0.0078	100.00	0.00	0.0308	0.40	99.60
2	0.0079	99.11	0.89	0.0310	0.43	99.57
3	0.0080	98.33	1.67	0.0311	0.70	99.30
4	0.0080	97.23	2.77	0.0311	0.71	99.29
5	0.0082	96.79	3.21	0.0313	0.93	99.07
6	0.0082	95.35	4.65	0.0313	1.02	98.98
7	0.0083	94.76	5.24	0.0315	1.39	98.61
8	0.0084	92.17	7.83	0.0320	3.70	96.30
9	0.0084	92.19	7.81	0.0320	3.70	96.30
10	0.0084	92.18	7.82	0.0320	3.70	96.30

Note: The variance decomposition reports the percentage of the forecast standard error attributable to each error.

A.3 Structural Shocks for Rente/ Rus06 system

Figure 1: Structural Shocks: 1915

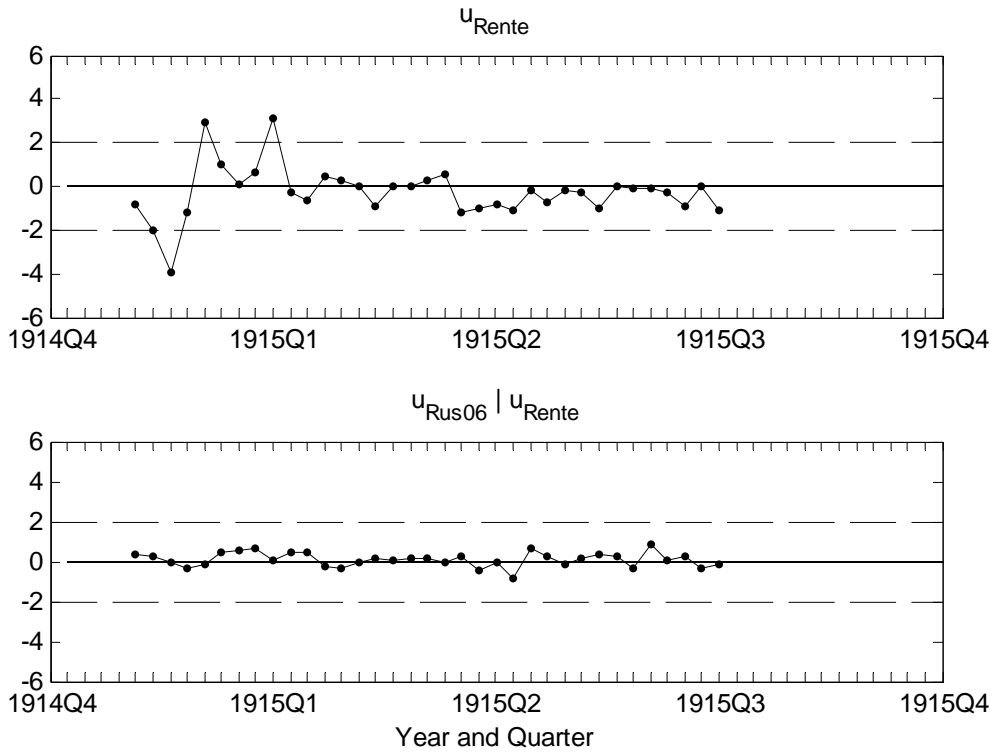


Figure 2 Structural Shocks: 1916

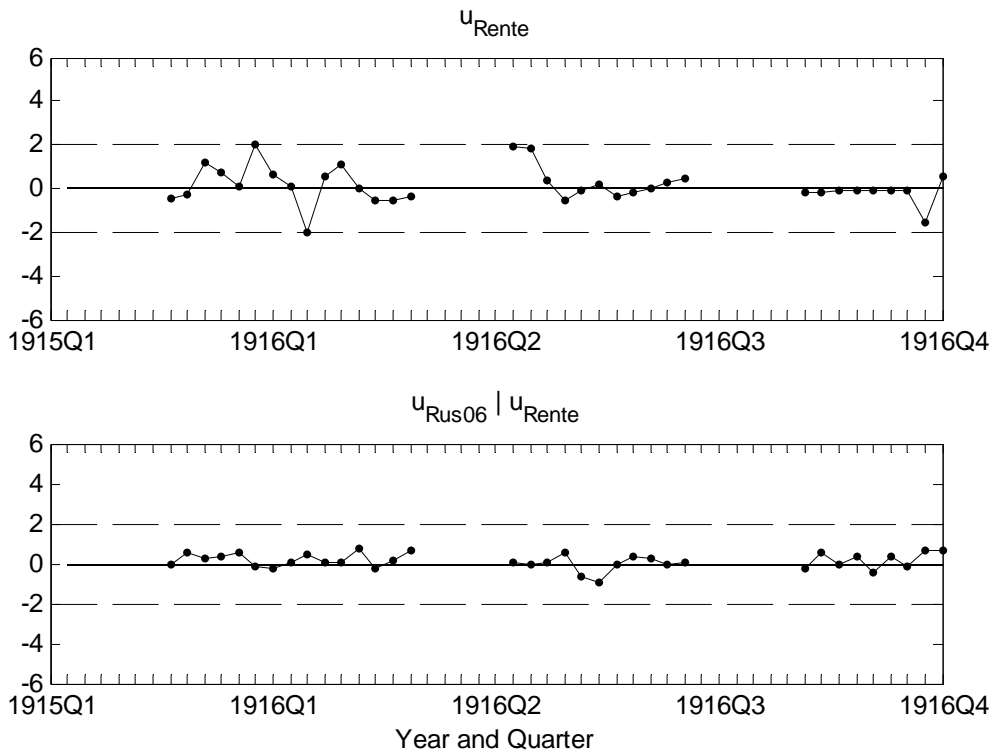


Figure 3: Structural Shocks: 1917

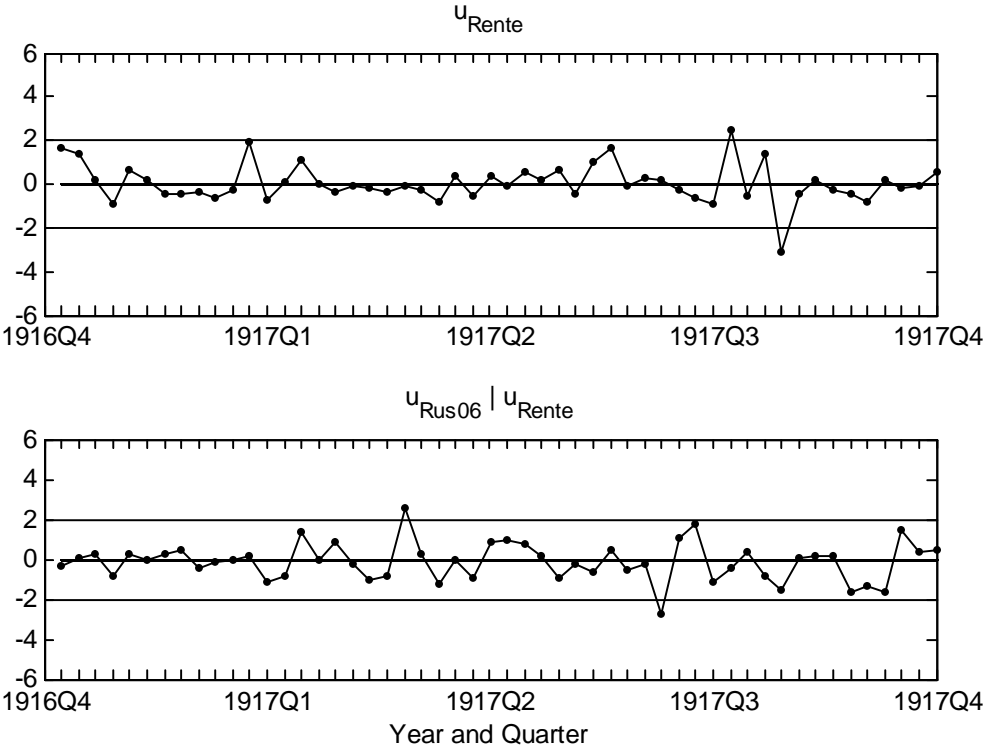


Figure 4: Structural Shocks: 1918

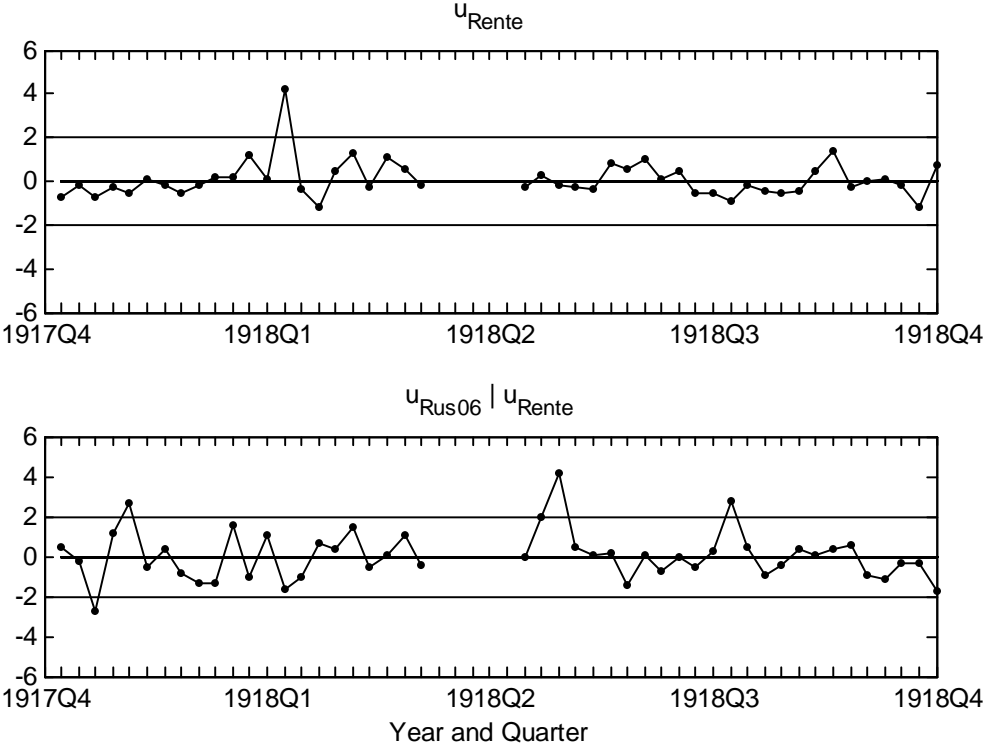
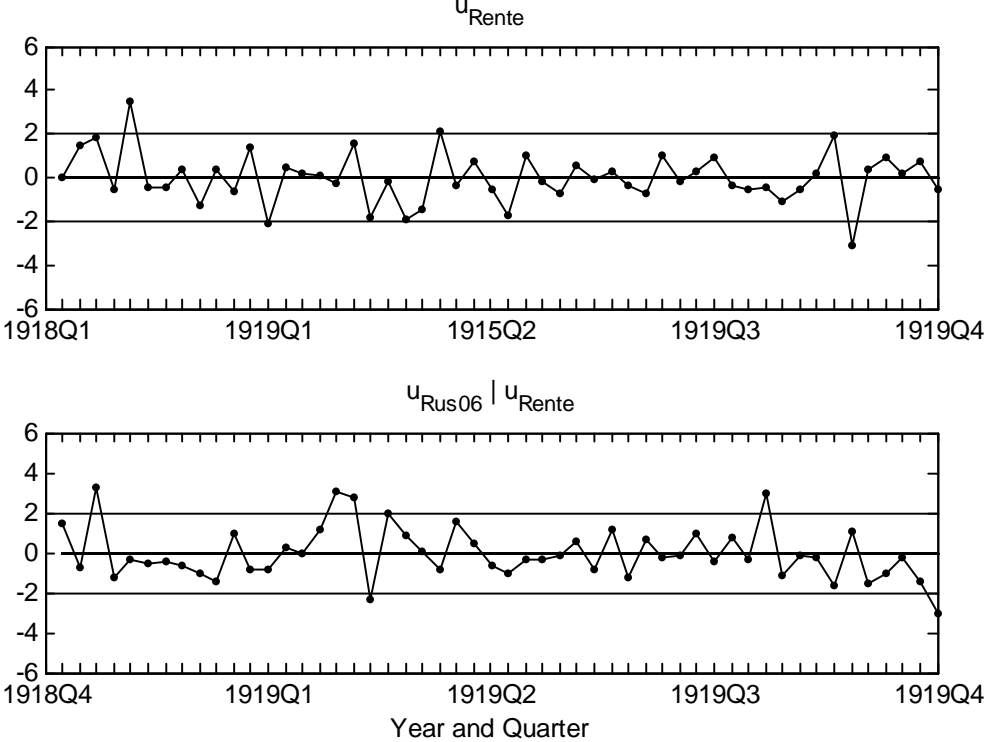


Figure 5: Structural Shocks: 1919



A.4 Historical Decompositions

The following figures depict the historical decompositions for each year of the sample. In all figures the following rules apply: The solid line with the solid dot depicts the actual weekly returns for each series. The solid line with the 'plus' (+) sign depicts the historical decomposition when the first structural shock (u_1) is used to compute the counterfactual series. The solid line with the 'cross' (X) depicts the historical decomposition when the second structural shock (u_2) is used to compute the counterfactual series.

Figure 6: Historical Decomposition: 1915

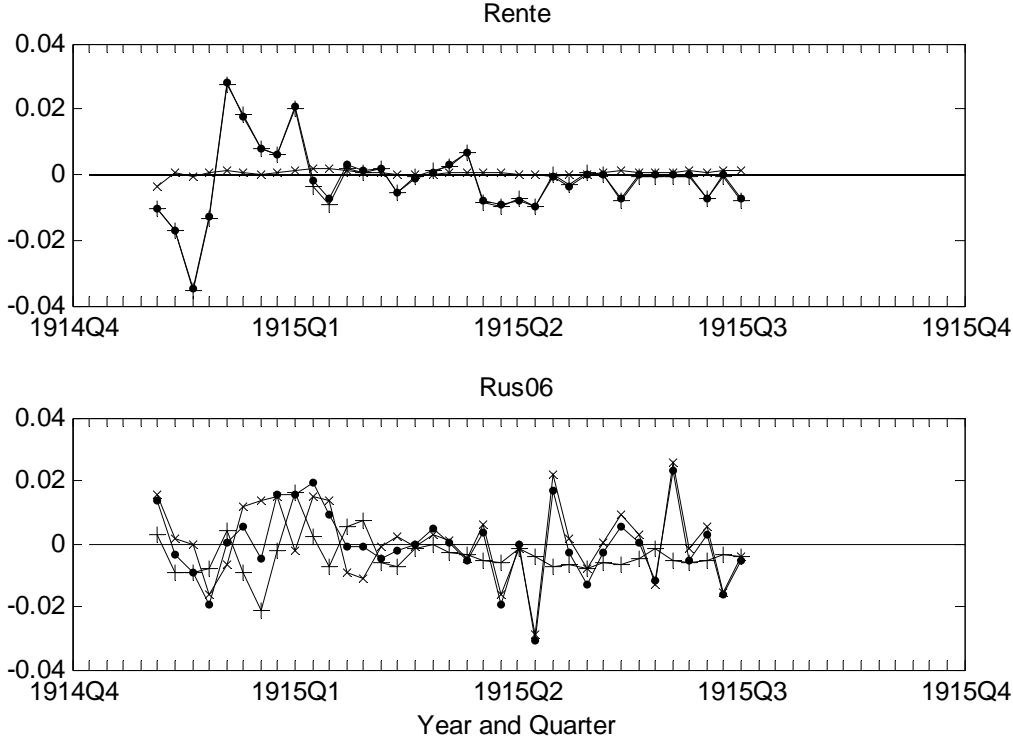


Figure 7: Historical Decomposition: 1916

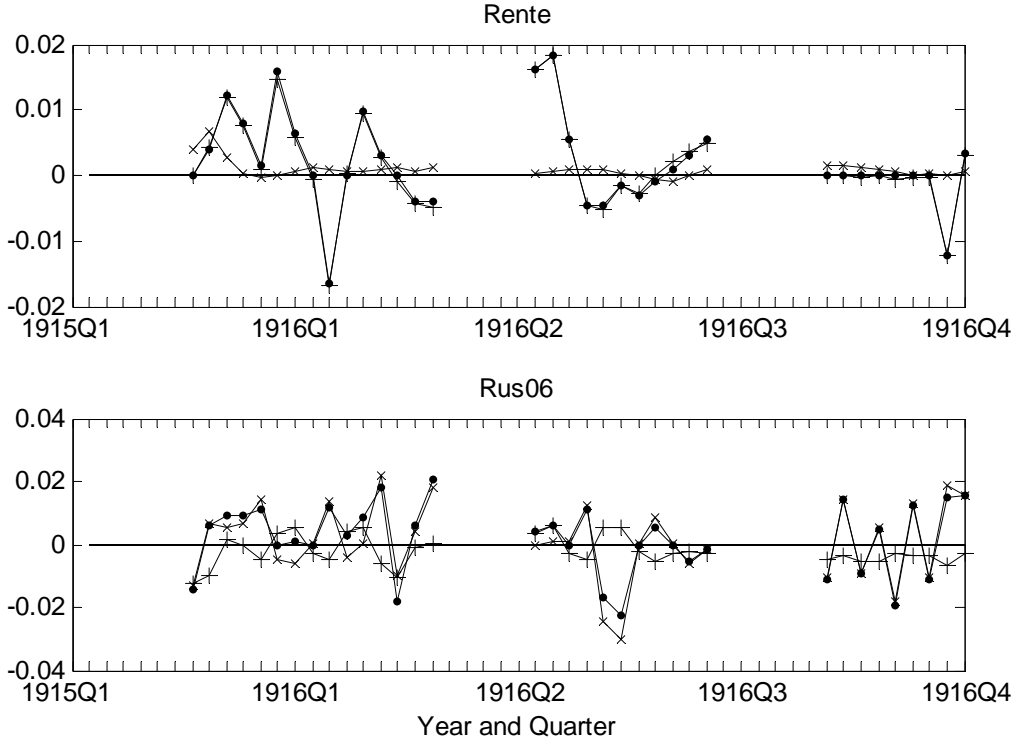


Figure 8: Historical Decomposition: 1917

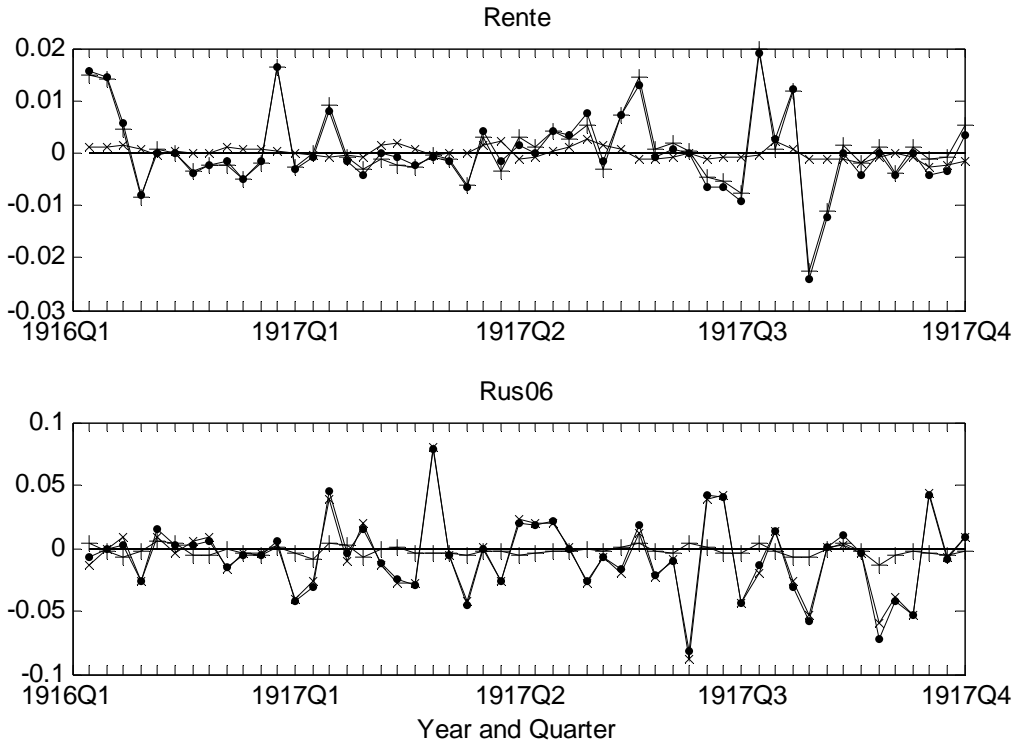


Figure 9: Historical Decomposition: 1918

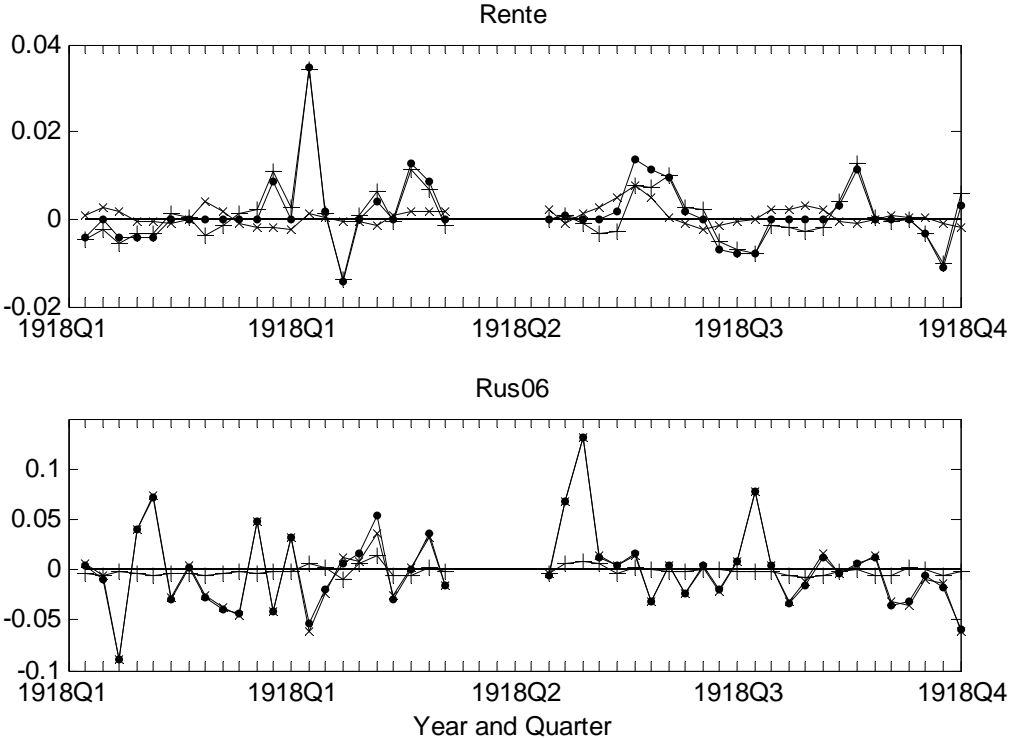
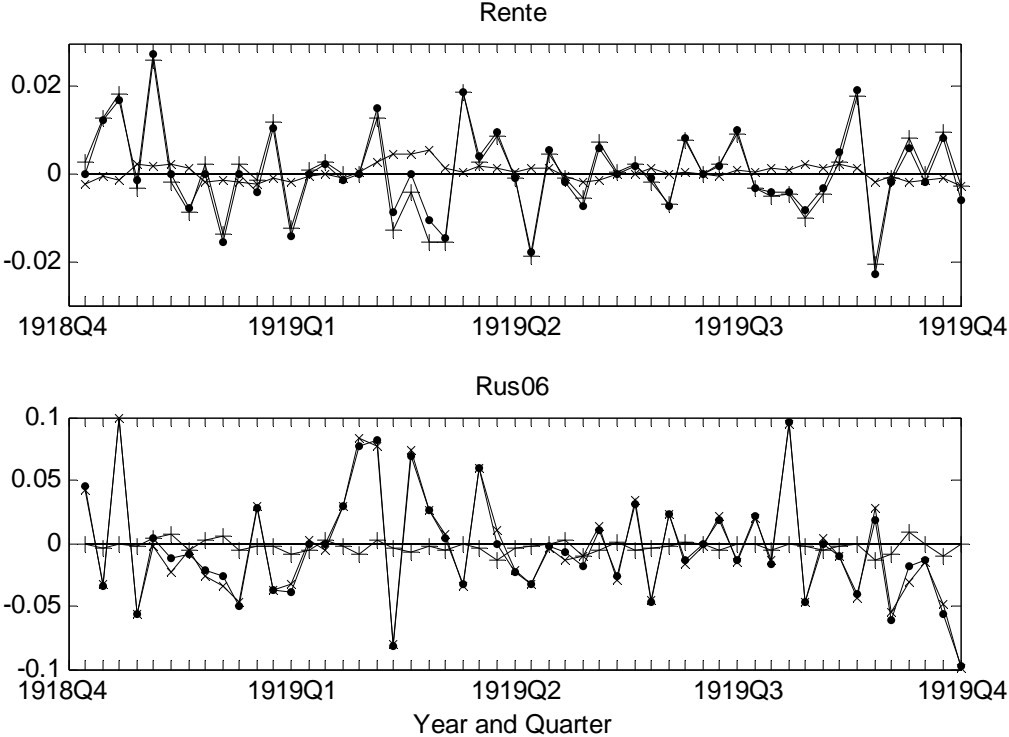
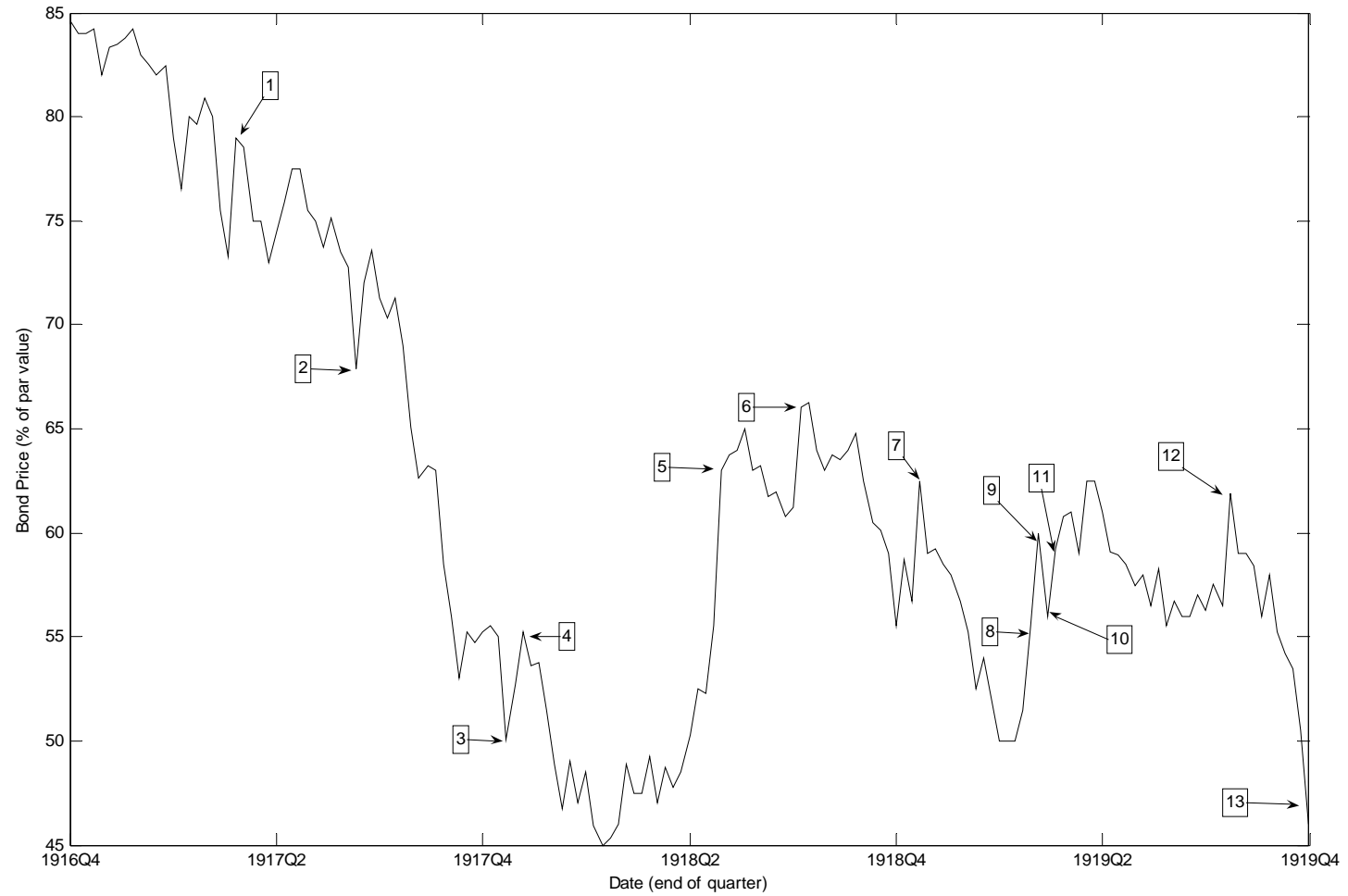


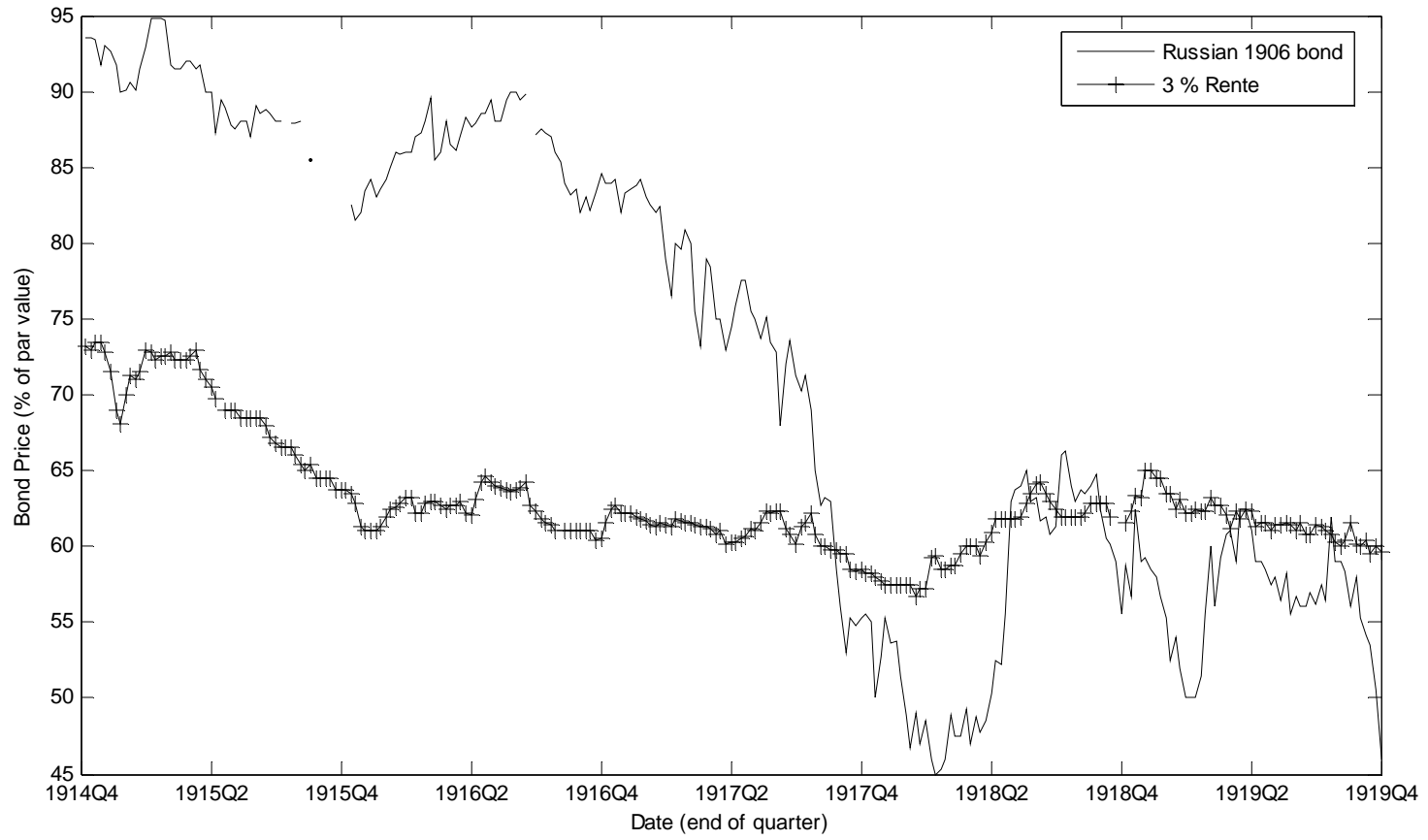
Figure 10: Historical Decomposition: 1919



Bond Prices 1917-1919



Bond Prices 1915-1919



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