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Russia: Central Bank Bonds, 1998[1]

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Abstract

Russian financial markets came to a halt on August 17, 1998, after the Russian government and Central Bank of Russia (CBR) issued a joint statement announcing a ruble devaluation and the suspension of payment on ruble-denominated government treasury bonds maturing before 2000—commonly referred to as "GKO-OFZ" bonds. In September, without a functioning treasury market and with many domestic banks unable to make payments, the CBR began issuing its own short-term, zero-coupon bonds (OBRs) as an alternative financing instrument to provide liquidity in the Russian banking system. OBRs held maximum maturities of three months and the CBR set an upper limit on the total volume that it would issue at RUR 10 billion (USD 1.6 billion). The CBR exchanged OBRs for restructured, illiquid ruble treasuries held by banks with outstanding debts to the CBR. The banks could then use the OBRs as collateral for the CBR's Lombard standing lending facility and to obtain overnight loans from the CBR. Banks could use the relatively liquid OBRs to regulate their own liquidity through interbank markets. Additionally, the CBR began conducting repurchase operations (repos) using OBRs with banks on November 12, 1998, and by the end of the year, 214 dealers were registered in the OBR market. The CBR made the first of 12 issuances of OBRs on September 30. Of these 12 issues, five were placed by auction and seven in transactions within the secondary market. All but four issues were redeemed by year-end, leaving RUR 2.3 billion of OBRs outstanding that would be redeemed by February 1999.

Keywords: broad-based, CBR, emergency liquidity, OBR, repurchase agreements, repos, ruble crisis, Russia

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Overview

Between 1996 and 1998 Russian authorities gradually lifted barriers to foreign investment in the GKO-OFZ government bond (ruble treasury) market which precipitated a greater reliance on foreign capital by the Russian government and domestic banks once the crisis developed (Antczak 2001). As a consequence, the ruble treasury market experienced spillovers from other crises in 1997 as foreign investors sold Russian ruble treasuries out of pressures to meet their own domestic liquidity needs and concerns over Russia's economic position (Pinto and Ulatov 2010). Tasked with defending the ruble's fixed exchange rate, the Central Bank of Russia (CBR) shed almost USD 6 billion[3] (RUR 37.2 billion) of its foreign reserves in November 1997; this marked the first in a series of speculative attacks on the ruble which culminated in August 1998 (Chiodo and Owyang 2002). Between the end of 1997 to August 17, 1998, the CBR maintained an exchange rate corridor; the CBR set a midpoint of 6.2 rubles (RUR) to the US dollar (USD), allowing for the exchange rate to fluctuate 15% above or below the midpoint (CBR 1999).

In May 1998, domestic markets suffered the next major shock and foreign investors began liquidating their GKO-OFZ holdings (CBR 1999; Antczak 2001). In response, the CBR chose to tighten monetary policy and increased the refinancing rate[4] to 150% in defense of the fixed ruble exchange rate (Chiodo and Owyang 2002). Beginning in May, the CBR also began updating its existing lending facilities to

Key Terms

Purpose: OBRs were "used as security for loans to banks and in repo operations with banks" in order "to manage banking liquidity" (CBR 1999)

Launch Dates	First successful OBR auction: September 30, 1998; First repo auction: November 12, 1998
Expiration Dates	Last OBR auction: End of 1998; All issues redeemed: February 1999
Legal Authority	Disputed (See Key Design Decision No. 2)
Peak Outstanding	Unspecified; limit of RUR 10 billion; RUR 2.3 billion by end of 1998
Participants	214 dealers in OBR market by end of 1998
Rate	Auction
Collateral	OBRs exchanged for GKO-OFZs; Repo pre-default: government bonds; Repo post-default: OBRs
Loan Duration	Maximum OBR maturity of three months
Notable Features	Liquidity instrument created to keep other liquidity facilities operational
Outcomes	Issues suspended due to controversies over legality

[3] Based on the 6.2 rubles (RUR) per US dollar (USD) midpoint of the exchange rate corridor (CBR 1999).

[4] The CBR uses its refinancing rate to anchor domestic interest rates (CBR 1998b, footnote). The CBR historically kept the refinancing rate as the minimum rate for CBR credit (Baliño, Hoelscher, and Horder 1997).

accommodate banks' growing liquidity challenges. In 1998, the CBR operated three main liquidity facilities: (1) Lombard, (2) overnight/intraday, and (3) repurchase operations (repo) (CBR 1999). Of these three facilities, this case follows the developments of repo lending throughout the crisis; (Hoffner 2022) discusses the two other facilities (1-2).

On May 28, 1998, the CBR—to support banks' liquidity needs—expanded the list of banks eligible to participate in CBR repurchase operations (repo) with government bonds and introduced an overnight repo facility. However, as a result of the increasing illiquidity of the GKO-OFZ market, the new facility's overnight repo deals with ruble treasuries virtually came to a halt by the end of June (CBR 1999).

Foreign outflows escalated rapidly in mid-August, and panic in the Russian stock market resulted in the Moscow Stock Exchange halting trading days before the Russian authorities announced a series of drastic measures (Antczak 2001). In a joint statement with the CBR published on August 17, 1998, the Russian government announced the suspension of payments on GKO-OFZ with maturities before December 31, 1999, and the suspension of trading in all government bond issues in the secondary market. This effective default on GKO-OFZ eliminated the primary instrument used to facilitate interbank financing. In the same joint statement, the CBR announced a widening of the ruble corridor (6.5 - 9 RUR to USD) before eventually floating the currency on September 2, 1998 (CBR 1999).

Following the default on ruble treasuries, interbank lending effectively froze. The CBR sought to introduce new financial instruments for standby liquidity support and, starting in September, it issued its own non-coupon debt instruments (OBRs) with maximum maturities of three months and a limit on the total potential volume at RUR 10 billion.[5] The CBR exchanged OBRs with banks for frozen GKO-OFZ bonds to make markets for secured interbank lending. The CBR made the first of 12 issuances of OBRs on September 30. Of these 12 issues, five were placed by auction and seven in transactions within the secondary market (CBR 1999). All but four issues were redeemed by year-end, leaving RUR 2.3 billion of OBRs outstanding (CBR 2000; CBR 1999).

Additionally, following the August default, the CBR expanded the eligible collateral for the Lombard and overnight facilities to include OBR instruments; these facilities had also relied on the government securities as collateral. Market frictions and technical problems delayed the launch of repo operations using the new OBRs, and as a result, the volume of liquidity provided by OBRs through repos in 1998 was relatively low, totaling approximately RUR 1.3 billion in repo during the last two months of the year (CBR 1999).

Summary Evaluation

Before the creation of OBRs, the changes to the CBR's repo operations during 1998 found limited success in extending liquidity to Russian banks. By the end of June 1998, just one

[5] OBRs were most commonly referred to by a colloquialism, *beavers*, arising from the Russian acronym for *zero-coupon bonds of the Bank of Russia* (Ladygin 1999).

month after its introduction, overnight repo lending became largely inactive as a result of the illiquidity of the corresponding collateral, ruble treasuries (CBR 1999).

The CBR's introduction of OBRs in September 1998 succeeded in creating a more liquid collateral instrument to the then-illiquid ruble treasuries to be used in the CBR's lending facilities (Lombard, overnight, and repo). As evidence, yields on OBRs during the fourth quarter of 1998 were reliably lower than the yields on government bonds had been in the months leading up to the August default. However, few banks had surplus funds with which to bid on OBR auctions, making it difficult to develop a market for the instruments. The limited market size as well as slow administrative processes delayed the launch of new repo lending against OBRs until mid-November 1998 (CBR 1999). By that time, the CBR had started to wind down its lending operations, having already extended substantial liquidity support through other facilities, notably the Lombard facility and overnight loans (Owen and Robinson 2003, 31). Consequently, the CBR provided only a limited sum of liquidity through OBR repo loans, totaling RUR 1.3 billion in 1998 (CBR 1999).

Given the exigent circumstances, the initial rollout of OBRs had been done in advance of an official legal process, prompting substantial criticism over their use (Mazurin 1998b). As a result of such concerns, the CBR opted to discontinue all OBR operations by the beginning of 1999 until the passage of relevant federal laws cleared the way for the resumption of OBR issues by year-end (CBR 2000). The CBR held the first OBR auction after the passage of the new laws in December 1999 but decided to cancel placements after receiving low bids on the instruments (Ladygin 1999). In light of the failed auction at the end of 1999, the CBR explained that "banks were not particularly enthusiastic about these bonds because a limit was set on the period during which the Bank of Russia could issue OBR and the bonds' fate in 2000 was not clear" (CBR 2000). Further legal obstacles prevented additional attempts by the CBR to place OBRs the following year (CBR 2001).

Context: Russia 1998–1999	
GDP (SAAR, nominal GDP in LCU converted to USD)	$318.1 billion in 1998 $193.1 billion in 1999
GDP per capita (SAAR, nominal GDP in LCU converted to USD)	$1,835 in 1998 $1,331 in 1999
Sovereign credit rating (five-year senior debt)	Moody's Ca in 1998 Moody's Ca in 1999
Size of banking system	$67.2 billion in 1998 $38.4 billion in 1999
Size of banking system as a percentage of GDP	21.3% of 1998 GDP 19.9% of 1999 GDP
Size of banking system as a percentage of financial system	100% of financial system assets in 1998 100% of financial system assets in 1999
Five-bank concentration of banking system	81.6% of assets in 1998 58.4% of assets in 1999
Foreign involvement in banking system	Data not available
Government ownership of banking system	Data not available
Existence of deposit insurance	None in 1998 None in 1999
Sources: Bloomberg; World Bank Global Financial Development Database; World Bank Deposit Insurance Dataset.	

Key Design Decisions

1. **Purpose: Due to the frozen treasury market, the CBR issued its own bonds to banks as a means of providing temporary liquidity and facilitating interbank lending.**

Russian authorities initially responded to the 1998 ruble crisis through abundant liquidity assistance (Steinherr 2004). The liquidity support provided by the CBR fit into its broader economic policy agenda to address the crisis, which was "focused mainly on keeping the payment systems operational" after August 17, when the government announced a default on ruble treasuries—widely known as "GKO-OFZs"—maturing before 2000; the government's default accompanied a ban on secondary market trading for these ruble treasuries, which served as the principal security for loan operations (CBR 1999; Stavrakis et al. 1999). Although later in the month the Russian government outlined a long-term plan to restructure the defaulted ruble debt, the absence of a secondary market rendered the ruble treasuries an ineffective financing tool (Stavrakis et al. 1999). Therefore, foreign exchange currencies offered the only reliable source of financing, placing further downward pressure on the ruble (CBR 1999).

Since 1996, the CBR had conducted repurchase operations (repos) with ruble treasuries to manage banking liquidity in conjunction with the two other legacy facilities: Lombard and overnight primary dealer loans—replaced by the overnight facility in 1998 (Baliño 1998).[6] Prior to the August default, repo lending underwent two major changes to provide banks with additional liquidity resources. The CBR introduced overnight repo loans and also gave ordinary dealers access to repo auctions, expanding eligibility beyond primary dealers of government securities (CBR 1999).

Once the government defaulted on ruble treasuries in August 1998, all three of CBR's existing liquidity facilities (Lombard, overnight, and repo lending) stopped functioning, as government bonds were the primary collateral used in them. In need of a new, credible financing mechanism, the CBR in September 1998 began offering to domestic banks its own zero-coupon debt instrument (OBRs). The CBR thereafter amended its Lombard and overnight lending facilities to accept the OBRs as collateral, creating an avenue for banks to acquire liquidity. Finally, in November 1998, the CBR also reintroduced repo lending to domestic banks accepting OBRs as collateral (CBR 1999).

2. **Legal Authority: The CBR's issuance of OBRs was done without explicit authority and faced significant legal challenges.**

Article 75 of the Russian Constitution gave the CBR a monopoly on currency issue and operational independence to carry out the primary mandate of "protecting and ensuring the stability of the ruble" (Russian Federation 1993). Since the beginning of 1998, up until

[6] See Hoffner (2022) for more details on the operations of the Lombard and overnight facilities which provided short-term and overnight loans, respectively. Loans under the two programs were primarily collateralized by government bonds.

August 17, the CBR pursued this mandate through a tight exchange rate corridor which allowed the ruble to vary within 15% of a central exchange rate, RUR 6.2 per USD. With the devaluation of the ruble on August 17, 1998, via a widening of the exchange rate corridor, followed by a free float at the start of September, the CBR's monetary policy changed significantly. The CBR's new temporary goal of restoring liquidity to the banking system concentrated policy efforts toward more expansive tools without needing to defend a fixed exchange rate (CBR 1999). Although the Russian Constitution clearly defined currency stability as the CBR's primary legal mandate, Article 4 of the Federal Law on the Central Bank (Central Bank Law) established precedent for the CBR to act as "creditor of last resort" in support of the domestic banking system (CBR 1998d).

However, the CBR did not have explicit legal approval to issue its own debt instruments, OBRs. On September 1, 1998, prior to the first OBR auction, Dmitry Vasiliev, the chair of the Federal Commission of Securities Market (FCSM), the securities regulator, launched a campaign to ban OBR issues (Mazurin 1998b; IMF 1999). At a press conference, Vasiliev admonished market participants against accepting OBRs, asserting that the issues were illegal since all government securities had to be registered with the FCSM pursuant to the Federal Law on the Securities Market (Securities Market Law) (Mazurin 1998b; Babaeva and Dokuchaev 1998). The CBR responded to Vasiliev's objections by citing the Russian Constitution and the Central Bank Law, which granted the CBR operational independence from interference by other governmental bodies (Mazurin 1998b). The CBR noted that proceeds from OBR transactions would be taxed on the same basis as private securities (Mazurin 1998b). In another correspondence, the CBR noted that the Central Bank Law implied that the OBRs, unlike treasury bonds, could only be traded with banks and not individuals or other entities (Kommersant 1998a).

In response to the initial controversy, Bella Zlatkis, the chair of the Securities and Financial Market Department of the Finance Ministry, offered support for OBRs. Zlatkis reasoned that OBRs would not interfere with the issue of government securities since OBRs were fundamentally a short-term liquidity instrument, similar to other CBR tools (Mazurin 1998b). With the default on GKO-OFZs, OFZ-PDs (OFZs maturing after 1999) were the only ruble treasury instrument whose market had not been suspended (CBR 1999). However, in light of the default, the market for these long-term government bonds was completely illiquid and, absent an alternative, OBRs could be used as a functional liquidity instrument (Mazurin 1998a; 1998b).

Although the CBR issued OBRs and conducted repo operations with banks in 1998, the CBR drafted a proposal to create an interdealer repo market that year but could not follow through due to "legal problems" (CBR 1999). These legal challenges resulted from the FCSM's decision (under Vasiliev) to revoke the general license of the CBR at the beginning of December 1998. The removal of the CBR's general license rendered the CBR unable to license dealers in the securities market (Kommersant 1998d).

Vasiliev continued to challenge the legality of OBRs and submitted complaints to the prosecutor general in October 1998; he objected to OBRs being traded on the Moscow Interbank Currency Exchange (MICEX) platform without any proper registration

(Kommersant 1998c). In January 1999, the prosecutor general sided with Vasiliev and ruled OBRs illegal for three main reasons (Goncharov 1999):

- OBRs were not registered with the FCSM.
- The CBR could not simultaneously issue bonds and act as the depository body for said bonds; rather, deposited OBRs should be held by an independent institution.
- In the initial documentation of OBRs, the CBR never specified a source of funds for which banks would receive upon redemption of OBRs.

The office of the president accepted the prosecutor general's ruling and pursuant to Article 168 of the Russian Civil Code, any future OBR transactions would be invalid until the passage of proper legislation for the bonds (Goncharov 1999).

The CBR noted in its 1999 annual report that at the beginning of the year, "placement of new issues [of OBRs] was suspended as the legal basis of the Bank of Russia issuing its own bonds was questioned" (CBR 2000). It was only after the passage of an amendment to the Central Bank Law, effective July 8, 1999, that the CBR received legal approval for issuing OBRs. The amendment set a specific limit on the amount of outstanding OBRs proportionate to commercial banks' required reserves. The government also delivered a resolution in accordance with the July amendment that regulated the procedure for issuing OBRs. The CBR received full legal authorization to issue OBRs once the Finance Ministry ruled on the OBR's unsettled tax status on November 27, 1999 (CBR 2000). However, in 2000, legal challenges resurfaced, preventing the CBR from carrying out any further operations with OBRs (CBR 2001).

3. **Part of a Package: The CBR deployed OBRs alongside loans to systemically important banks, reductions in reserve requirements, and deposit protection schemes.**

When stress began to impact Russian banks, the CBR first provided liquidity under its two standing facilities, (1) the Lombard facility, which provided secured loans up to 30 days to banks, and (2) an unsecured overnight loan program offered to primary dealers. The CBR replaced the unsecured overnight loan program with a secured lending facility in June 1998. The collapse of government bonds in August 1998 froze interbank lending and made the CBR lending programs ineffective, as government bonds had been the dominant form of collateral in all of these activities. By issuing the OBRs and allowing them to be used as collateral in its two lending facilities, the CBR created a means to restart liquidity provision (CBR 1999).

Beginning in August 1998, the CBR also offered a long-term lending program, extending loans of up to one year at below market rates, to banks that were systemically important to the country's payment system (CBR 1999). These loans, often referred to as rehabilitation loans, were secured by 75% plus a share of the bank's equity (Antczak 2001).

Additionally, the CBR modified reserve requirements for banks in order to free up liquidity for interbank lending (IMF 1999). Lastly, to combat runs on commercial banks, the CBR administered a program that transferred retail deposits from commercial banks to the state-owned bank, Sberbank, which, unlike commercial banks, held an implicit government guarantee on deposit accounts. See Hoffner (2022) for more discussion of these related programs.

4. Management: The CBR managed auctions of OBRs and subsequent repo operations, while banks could transact in secondary markets using OBRs to regulate interbank liquidity.

Prior to the government's default, the CBR managed revised repo operations (including overnight repo loans provided to ordinary dealers) along similar terms as the Lombard and overnight liquidity facilities. CBR repo operations with OBRs began in November 1998. The CBR's board of directors set rates for repo loans and dictated eligible collateral; before the inauguration of OBR repos, ruble treasuries were the only eligible collateral in repo loans (CBR 1999).

5. Administration: The CBR issued OBRs to banks through auctions and placements in the secondary market; starting in November 1998, banks could use their OBRs to secure short-term loans through repo auctions.

The CBR held daily repo auctions at the start of each business day. Primary dealers could borrow on a short-term basis using government securities as collateral (CBR 1998a). The CBR set rates for repo lending every day (CBR 1999).

The August 17, 1998, announcement—ceasing all trading in the secondary treasury market—discontinued repo transactions, as there was no available collateral (CBR 1999).

Subsequently, the CBR issued OBRs as a new liquidity instrument that would enable the CBR to lend to banks through repos (CBR 1999). The CBR held the first auction of OBRs on September 2, 1998, with a volume of RUR 1 billion for bonds that matured in 14 days; however, demand was minimal and the CBR placed no bonds. The CBR offered four additional auctions in September for OBRs of maturities between 14 and 86 days that were also unsuccessful; its first successful auction, on September 30, placed just RUR 18.9 million (USD 3 million) in bonds. Banks had little demand for OBRs because they had virtually no spare funds (CBR 1998b). To facilitate the placement of OBRs, the CBR's Credit Committee on September 10, 1998, allowed certain banks to exchange their frozen ruble treasuries for OBRs. This exchange specifically concerned banks with outstanding liabilities with the CBR (CBR 1999). In addition to auctions, the CBR also issued OBRs directly through the secondary market in seven trading sessions (CBR 1999). After the CBR failed to place OBRs in the inaugural auction on September 2, the CBR decided to go directly to the secondary market to issue OBRs (Kommersant 1998a).

Banks that had acquired OBRs could then use them to obtain secured loans through the CBR's Lombard and overnight lending facilities. The CBR began conducting repo operations with OBRs on November 12, 1998 (CBR 1999).

6. Eligible Participants: Pre-default, the CBR expanded eligibility for repo lending beyond primary dealers to a broader group of dealers.

Pre-default, repo auctions had traditionally been exclusive to a small group of 23 primary dealers. Beginning July 23, 1998, the CBR invited a broader group of dealers to participate in repo auctions. However, the expanded eligibility for repo lending coincided with the increasing illiquidity of the ruble treasury market, which was rendered completely illiquid the following month with the default on August 17, 1998 (CBR 1999).

Post-default, the CBR registered a total of 214 dealers for the OBR market by the end of 1998 (CBR 1999). The CBR noted that the OBR dealers were much more geographically diverse throughout Russia than the old, heavily Moscow-based ruble treasury dealers had been:

> Unlike the dealer structure of the GKO-OFZ (ruble treasury) market, where Moscow-based participants accounted for nearly 95% of turnover, the dealer structure of the OBR market was more diverse geographically. The most active OBR market players were medium-sized regional banks, which were less affected by the crisis, preserved their clients, and, consequently, had enough spare funds at the time (CBR 1999).

Banks eligible to participate in OBR repo auctions as registered dealers were required to possess a minimum of RUR 10 million market value worth of OBRs, which constituted a decrease from the RUR 100 million minimum requirement for the original repo operations with government securities (CBR 1999).

In addition to Russian commercial banks, the CBR issued OBRs to Donau-Bank, a CBR subsidiary bank domiciled in Vienna; by the end of 1998, these OBR issues amounted to RUR 2.2 billion (CBR 1999).[7]

7. Funding Source: The Bank of Russia financed its OBR issues partly in exchange for restructured, illiquid ruble government bonds.

When introducing OBR bonds in 1998, the CBR limited the total issue volume to RUR 10 billion (CBR 1999). The CBR noted that the framework of monetary policy—namely preventing ruble devaluation—motivated the CBR to limit the maximum issues of OBRs (Kommersant 1998a). The CBR initially financed these bonds by auctioning them off, similar to ruble treasury auctions, and by trading them for restructured ruble treasuries (GKO-OFZs) held by banks in debt to the CBR (CBR 1999). Functionally, OBRs held by banks constituted

[7] Donau-Bank was one of five banks owned by the CBR and domiciled abroad. The CBR owned 49% of Donau-Bank's shares directly, with the remaining 51% owned by Vneshtorgbank—another subsidiary, of which the CBR possessed 97% ownership (CBR 1999, footnote). In its 1998 annual report, the CBR separated year-end figures for OBR issues into two categories: ruble-denominated OBRs and OBRs issued as aid for Donau-Bank (CBR 1999). It is unclear if this "ruble-denominated" distinction implied that Donau-Bank's OBRs were denominated in local, Austrian currency (CBR 1999). Regardless, our discussion on OBR operations excludes the bonds issued to Donau-Bank and, like the CBR's reporting, treats domestic OBR issues as a separate instrument altogether.

a component of the monetary base; thus, the issuance of OBRs was an expansion of the monetary base when they were exchanged for illiquid treasuries (CBR 1999).

We have not been able to identify any predetermined allocation amount for the lending programs.

8. Program Size: The CBR limited maximum issues outstanding to RUR 10 billion, and by the end of 1998, RUR 2.3 billion remained outstanding.

In 1998, the CBR capped the maximum issuance of OBRs at RUR 10 billion. Research could not determine either the total volume of OBRs issued or the peak outstanding in 1998. However, beginning on May 28, 1998, through August, the CBR provided a total of RUR 5 billion in overnight repo loans. Further, of 12 total issues of OBRs—both in the primary and secondary placements—eight were redeemed, leaving RUR 2.3 billion (0.9% of broad money) outstanding by the end of 1998 (CBR 1999).

In 1999, an amendment to the Central Bank Law—legally authorizing OBR issues—dictated a new limit to the maximum volume of OBRs outstanding at any given time. The CBR described the limit as the difference between the maximum level of surplus reserves (20% of commercial bank liabilities) and the current aggregate amount of reserves placed with the CBR (CBR 2000). However, since the CBR did not issue OBRs following this amendment, the limit was not relevant to OBR operations during the crisis.

9. Individual Participation Limits: The CBR did not appear to establish participation limits in OBR liquidity operations.

Following the introduction of OBRs in September 1998, banks used OBRs as collateral in the Lombard and overnight lending facilities, which did not normally stipulate participation limits. Starting on November 12, the CBR began repo auctions with banks registered as OBR dealers (CBR 1999).

10. Rate Charged: OBRs were non-interest-bearing collateral instruments that banks could use to borrow against CBR lending facilities; the CBR manually set interest rates for its facilities according to the exchange rate policy and banks' liquidity needs.

Before the government's default on August 17, 1998, and subsequent floating of the ruble, the CBR managed interest rates on lending facilities by tying them to a central policy rate, the refinancing rate. During that period, the CBR controlled the rates on its lending operations to maintain the fixed exchange rate for the ruble. The CBR raised rates on repo lending and other facilities in the first half of 1998 where the overnight repo rate ranged between 80.3% in June and 151.8% in the final days of May, when overnight repos were introduced (CBR 1999).

Post-default, the CBR issued OBRs as non-coupon bonds and therefore did not pay out interest to banks holding the securities. However, OBR yields varied through the end of 1998 in the secondary market. The CBR noted that OBR average monthly yields in the secondary market were lower than ruble treasury (GKO-OFZ) summer yields pre-default (CBR 1999). These lower yields indicate the value provided by OBRs as a more liquid financing instrument to ruble treasuries (prior to the suspension of the secondary treasury market) (CBR 1999). Figure 1 presents OBR volumes and yields by month, as given in the CBR's 1998 Annual Report.

Figure 1: OBR Operations, by Month (1998)

Month	OBR outstanding volume*		Secondary trade turnover		Monthly average OBR market portfolio index**		Monthly average OBR turnover index***		Average OBR market portfolio duration
	at par	at market value	at par	at market value	simple	effective	simple	effective	
	billion rubles				% p.a.				days
September	1.63	1.55	1.86	1.74	80.13	116.64	63.13	89.99	27.8
October	1.94	1.87	1.97	1.90	54.92	71.12	52.28	68.44	34.7
November	1.98	1.92	1.54	1.50	40.82	49.58	41.32	50.30	24.9
December	2.27	2.20	3.05	2.93	48.10	60.15	50.79	64.13	20.5

** Outstanding volume as of last day of month.*
*** Average yield weighted by maturity and outstanding issue volume at market value.*
**** Average yield weighted by maturity and secondary market turnover.*

Source: CBR 1999.

The CBR also charged interest on loans to banks secured by OBRs through its traditional Lombard and overnight facilities. Before the pivot in monetary policy on August 17, 1998, the CBR's commitment to a fixed ruble exchange rate corridor heavily influenced the rate charged on lending to banks (CBR 1999). When the ruble finally floated at the start of September 1998, the CBR no longer needed to maintain high interest rates to defend the exchange rate. As a result, the CBR lowered annual interest rates on its overnight facility from 250% in August (pre-default) to just 40% in September—later increasing to 55% in December 1998 (CBR 1999). While very high, these post-default interest rates were well below the rate of inflation (CBR 1999).

In an October 1998 interview with the Russian newspaper *Kommersant*, Andrew Kozlov, the CBR's first deputy chairman, opined on the central bank's interest rate policy post-default. Kozlov, who believed that the CBR ought to focus monetary policy on normalizing interest rates, endorsed the CBR's significant reduction in overnight loan rates to 40% (Kommersant 1998b). He juxtaposed these affordable loan rates against those charged in August, when many banks could not repay loans requiring the CBR to accept the collateral. In the same remark, Kozlov expressed optimism over the declining yields of OBR, an indication of falling rates in the banking system (Kommersant 1998b). It appeared that CBR's decision to exchange OBRs for frozen ruble treasuries as well as maintain artificially low interest rates on its lending programs (namely, the overnight facility) supported the development of OBRs as liquid financing instruments. The assurance of affordable CBR loans secured by OBRs facilitated demand for these instruments, as evidenced by the declining yields. Moreover, the greater liquidity of OBRs complemented the CBR's efforts to restore functioning to the interbank market.

In a response to Kozlov's interview in Sujata Rao (1998), a staff writer for the *Moscow Times*, presented a more critical perspective on Kozlov's assessment of the CBR's accommodative lending policy. Rao argued that the combination of charging 40% interest rates on overnight loans and paying out yields of 70% on OBRs amounted to undisciplined liquidity injections into various lucky banks—as alleged by an analyst at the Russian Information Center[8] (Rao 1998). According to the article and market participants surveyed by Rao, the 40% rate charged on overnight loans was "arbitrarily" set by the CBR in the absence of functioning financial benchmarks following the default. Furthermore, the post-default overnight lending program (accepting OBR collateral) did not in practice offer overnight loans as borrowers lacked funds necessary to promptly redeem overnight loans and thus the CBR routinely rolled over the credits (Rao 1998).

11. Eligible Collateral: The OBRs were exchanged for restructured ruble treasuries; banks could then use the OBRs as collateral for CBR lending facilities.

Prior to the default, repo loans and loans under the CBR's other lending facilities, the Lombard facility and overnight loans were collateralized by ruble treasuries. After the default, when the CBR decided, at the end of August 1998, to introduce OBRs, Russian banks had limited liquidity. Traditional auctions funded by bank ruble reserves were not a viable option for creating an OBR market. Later in September, the CBR decided to exchange illiquid, restructured ruble treasuries of banks in debt to the CBR for OBRs. OBRs could then be used as collateral for borrowing under the CBR's Lombard and overnight facilities (CBR 1999). Beginning on November 12, 1998, the CBR established repo operations with eligible banks so that they could secure loans from the CBR with OBR collateral (CBR 1998b, 55, 139).

12. Loan Duration: The CBR limited the maximum maturities of OBRs to three months.

The CBR held an initial auction for OBRs on September 2, 1998, but did not place any issues until the end of the month, owing to lack of demand (CBR 1998b). The first successful auction for OBRs took place on September 30, with issues that matured in 28 days (CBR 1999; CBR 1998b). Additional OBRs issues held maximum maturities of three months (CBR 1999).

The CBR extended repo loans of two-day maturities and added single-day, overnight maturity auctions starting May 28, 1998. Within a month, however, demand for overnight repos deteriorated with the increasing illiquidity of the facility's financing instrument, ruble treasuries (CBR 1999). When ruble treasuries became increasingly illiquid in June, banks' demand for overnight repo lending dried up along with the facility's operations.

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[8] The Russian Information Center was an independent financial data provider in Moscow and at one point was used by the CBR in financial reports (Spicer and Pyle 2003).

13. Other Conditions: Along with expanding liquidity resources, the CBR added new supervisory measures to more closely monitor domestic banks.

The development of the ruble crisis in 1998 exposed a severe lack of prudential oversight, which had allowed many domestic banks to take on excessive risk, avoid transparent reporting, and engage in various illegal activity (Ippolito 2002). Moreover, the CBR's 1998 annual report identified inadequate banking supervision as a leading cause of the crisis (CBR 1999). Throughout 1998, the CBR attempted to address such regulatory weaknesses through reforms. The CBR unified various fragmented monitoring and licensing departments under a single supervisory committee (Owen and Robinson 2003, 141). The CBR also increased the number of bank inspections over the year and placed supervisory teams in the branches of several distressed Moscow banks (CBR 1999).

14. Impact on Monetary Policy Transmission: While the CBR's liquidity injections contributed to inflation, deflationary fiscal dynamics helped sterilize the intervention.

Although government bond placements would typically be considered disinflationary, the CBR exchanged many OBRs with banks for their holdings of illiquid treasuries. In this way, OBRs would have expanded the money supply. The CBR limited the aggregate issuance of OBRs to RUR 10 billion, amounting to roughly 4% of the monetary base (CBR 1999). See Hoffner (2022) for further information on how CBR liquidity provision influenced monetary policy transmission more broadly.

15. Other Options: Due to the absence of a treasury market following the default, the CBR had no liquid ruble financing instrument until it introduced OBRs; in 1999, the restructuring of treasuries provided the CBR additional options for managing liquidity.

Between the default on treasuries and the end of 1998, the secondary market for ruble treasuries was not operational. The CBR therefore resorted to issuing its own collateral instrument, OBRs, to provide liquidity to the dysfunctional Russian banking system (CBR 1999). In 1999, the Finance Ministry oversaw the process of restructuring defaulted ruble treasuries (GKO-OFZs), which took place between January and April of 1999. This procedure restarted functioning of the secondary market for government treasuries, which facilitated the restoration of interbank lending (CBR 2000). Therefore, in 1999, the CBR could conduct liquidity operations with liquid treasury collateral, which were absent when OBRs were initially introduced.

16. Similar Programs in Other Countries: Various programs offered in the aftermath of the Global Financial Crisis present similar but imperfect comparisons to the CBR's issuance of OBRs.

The OBR program appears to be highly unusual in that Russian government securities had been compromised and swapped for the OBRs, which could then be used as collateral to provide liquidity. We have not identified a similar program in other countries. Government securities were similarly compromised in the Greek sovereign debt crisis, but the solutions differ (Runkel 2022). In 2010, Greek government bonds became illiquid for use under the ECB standing liquidity facilities; the ECB granted a waiver that permitted their continued use as collateral. But that waiver became ineffective when Greek banks' balance sheets came under scrutiny, rendering them ineligible to borrow under any ECB standing facility. At that point the Central Bank of Greece applied for Emergency Liquidity Assistance funding from the ECB, which it could then lend to solvent but illiquid Greek banks (Runkel 2022).

Similarly, during the Global Financial Crisis, several central banks exchanged liquid government securities for private securities that had become illiquid, so that the banks could then use the government securities as collateral for interbank borrowing. Examples include the Norway Covered Bond Swap Program (exchanging covered bonds for government bonds) (Fulmer 2022a), the United Kingdom Discount Window Facility (exchanging a wide range of securities for gilts) (Fulmer 2022b) and the US Term Securities Lending Facility (lending US treasuries against illiquid securities) (León Hoyos 2019).

17. Communication: The CBR communicated various changes to monetary operations on its website and through media interviews.

Prior to the default in 1998, the CBR updated new monetary policy measures on its website, including changes to interest rates, reserve requirements, and the operations of liquidity facilities (CBR 1998c). As reported through a news article on August 29, 1998, the CBR announced its plans to introduce OBRs through an initial auction of RUR 1 billion. The CBR's management communicated that OBRs would provide the banking system with additional tools to manage liquidity (SPB Vedomosti 1998).

On September 1, days after the initial announcement, the chair of the FCSM held a press conference describing OBRs as illegal because, unlike other government securities, they had not been registered through the FCSM (Mazurin 1998b; Babaeva and Dokuchaev 1998). These comments generated a public dispute between the FCSM and the CBR; a department chair of the Finance Ministry, who mostly sided with the CBR, emphasized that such public conflicts between authorities were especially damaging since they were the only agencies who could provide stability to the banking system (Mazurin 1998b).

In an interview with *Kommersant* on September 2, the CBR's director of the open market operations department, Korishchenko, identified two crucial differences between OBRs and ruble treasury bonds (Kommersant 1998a). Korishchenko noted that unlike treasury bonds, OBRs could only be legally traded with banks and that OBRs had no risk of default. On the latter of these two differences, Korishchenko stated that the CBR could always print rubles to repay OBRs, whereas the Ministry of Finance had a limited budget (Kommersant 1998a).

18. Disclosure: The CBR provided little disclosure related to the OBRs and corresponding repo lending.

The CBR disclosed information on monetary operations through monthly reports, the Bulletins of Banking Statistics, published on its website, which detailed developments in its liquidity facilities including repo lending (CBR 1998b). The identities of borrowers in CBR lending were not disclosed in these bulletins. Research was able to access only the bulletin for September 1998 and not the bulletins for the final months of 1998; therefore, we rely largely on the annual reports for details on OBRs and subsequent repo operations. In the 1998 annual report, the CBR did not disclose the total volume of OBRs outstanding or peak liquidity of repo lending against OBRs.

The CBR was required to disclose changes to monetary operations to parliament; however, according to Johnson (2018, 75), it often failed to do so. Several media outlets remarked on the CBR's lack of communication in the post-default period, expressing uncertainty over the CBR's operations. An article in the *Moscow Times* specifically addressed OBRs and how market participants uninformed about the specifics of the lending arrangements secured by OBRs in the months after default. The article explained how critics claimed to have no knowledge of when the CBR began rolling over overnight loans given the absence of official communications (Rao 1998).

19. Stigma Strategy: Given the unique circumstances of the 1998 liquidity operations, stigma did not appear especially relevant.

Research could not identify stigma as a relevant concern for repo lending and OBR operations.

20. Exit Strategy: The CBR's exit from OBR operations was dictated by the rehabilitation of the ruble treasury market and legal challenges to the OBR.

Toward the end of 1998, the CBR attempted to establish an interdealer repo market for OBRs. However, the low volume of OBRs and the legal questions inhibiting further issuance prompted the CBR to delay its introduction as well as stop issuing OBRs. It appeared that the restructured ruble treasuries (GKO-OFZs) served the same purpose and a similar interdealer repo market for these bonds was to be launched in 1999 (CBR 1999). With banks able to borrow against GKO-OFZs, there seemed to be little need for OBRs. By February of 1999 the CBR had redeemed the RUR 2.3 billion in OBRs that were outstanding at the end of 1998 (CBR 2000).

In 1999, the CBR did not issue any additional OBRs due to controversy over the unsettled legal status of the instrument. OBRs received full legal authorization after an amendment to the Central Bank Law in July 1999 and the subsequent tax registration by the Finance Ministry in late November 1999. In mid-December 1999, the CBR attempted to issue a total of RUR 6 billion through three separate auctions for the new OBRs with three-, four-, and five-month maturities. However, the CBR noted that the auctions were "declared invalid as the participants' bid rate exceeded the rates on other Bank of Russia instruments" (CBR 2000).

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