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Sweden: Commercial Paper Purchases¹

Carey K. Mott²

Yale Program on Financial Stability Case Study July 15, 2022

Abstract

In March 2020, governments took measures to curb the spread of the COVID-19 pandemic that significantly impacted corporate revenues. The uncertainty surrounding the pandemic drove investors out of corporate securities and into safe assets, complicating the ability of Swedish nonfinancial corporations to finance their operations. As the volume of commercial paper issuance dropped, the Sveriges Riksbank (Riksbank) announced on March 19, 2020, it would purchase commercial paper and corporate bonds as part of a much larger bondbuying scheme that included Swedish government, municipal, and covered bonds. It authorized the program under Chapter 6, Article 5 of the Sveriges Riksbank Act. The Riksbank said in March that it would limit its purchases of commercial paper to a nominal SEK 4 billion (about USD 0.5 billion), but it raised the limit to SEK 32 billion in May. The program purchased kronor-issued, investment-grade commercial paper on the secondary market with maturities of less than six months. Purchases peaked at SEK 2.3 billion the week of April 3, 2020. After four extensions to its original expiration date of May 31, 2020, the program expired on December 31, 2021.

Keywords: commercial paper, COVID-19, market liquidity, Sveriges Riksbank, Sweden

¹ This case study is part of the Yale Program on Financial Stability (YPFS) selection of New Bagehot Project modules considering market support programs in response to COVID-19. Cases are available from the *Journal of Financial Crises* at https://elischolar.library.yale.edu/journal-of-financial-crises/.

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Overview

Sweden, like other countries, responded to the COVID-19 pandemic by restricting travel, cancelling events, and discouraging public gatherings. The sudden decline in the supply and demand for goods and services caused a large share of corporate revenues to disappear. In financial markets, risk premia rose as investors offloaded corporate securities in exchange for safer assets (Hansson and Birging 2021; Gustafsson and von Brömsen 2021).

With investors unwilling to hold risky assets, reported difficulty companies issuing commercial paper on the primary market. Liquidity on the secondary market deteriorated significantly. With credit markets nonfinancial frozen, many corporations turned to banks to obtain new and strengthen their liquidity loans (Gustafsson and von Brömsen 2021). Large investment-grade corporations tapped bank credit lines. This limited the bank funding available for small and mid-sized companies, which were more vulnerable to the demand shortfall and less able to provide the adequate collateral to secure bank loans (Riksbank 2020n; Gustafsson and von Brömsen 2021). Many of these smaller companies also lacked a credit rating, making it difficult for them to source market financing amid the market distress (Wollert 2020; Gustafsson and von Brömsen 2021; Riksbank 2020n).

To manage further deterioration in credit _____

Key Terms

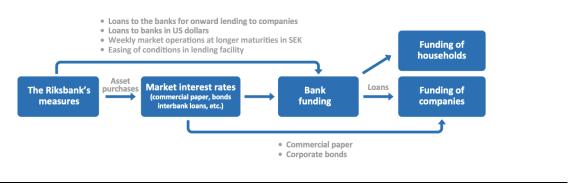
Purpose: "...[to] keep companies' funding costs down and reinforce the Riksbank's capacity to act if the credit supply to companies were to deteriorate" and "to improve market functionality and thus improve credit supply to companies and the impact of monetary policy on the economy" (Riksbank 2020r; Riksbank 2020k)

Launch Dates	Authorized: March 16, 2020 Announced: March 19, 2020
Operational Date	April 2, 2020
End Date	December 31, 2021
Legal Authority	Chapter 6, Article 5 of the Sveriges Riksbank Act
Administrators	Sveriges Riksbank
Overall Size	Originally a nominal SEK 4 billion, raised to SEK 32 billion
Purchased Assets	Commercial paper with remaining maturity of up to six months, issued in Swedish kronor by Swedish non-financial corporations
Peak Utilization	SEK 2.3 billion during the week of April 3, 2020

lending, the Riksbank announced it would intervene in corporate credit markets by purchasing both commercial paper and corporate bonds (Riksbank 2020f). The Riksbank said that it hoped to absorb larger companies' demand for bank loans and prevent them from crowding out small and

medium-sized enterprises (Gustafsson and von Brömsen 2021) (see Figure 1). On March 26, 2020, the Riksbank announced its intent to purchase up to a nominal SEK 4 billion³ in investment-grade commercial paper issued in Swedish kronor by Swedish nonfinancial corporations (Riksbank 2020g). On April 3, 2020, it expanded this limit to SEK 32 billion (Riksbank 2020i). It focused on short-dated commercial paper to provide relief to Swedish companies needing to refinance loans maturing over the coming months (Riksbank 2020k). Commercial paper comprises only a small fraction of Sweden's corporate debt market⁴ (Wollert 2020). The Riksbank began to purchase corporate bonds in September 2020, five months after commercial paper purchases, under a SEK 13 billion limit (Riksbank 2020r; Riksbank, n.d.g).





Source: Gustafsson and von Brömsen 2021.

All purchases were made on the secondary market through reverse auctions conducted with the Riksbank's monetary policy counterparties (Riksbank 2020g). The Riksbank's purchases were initially limited to commercial paper with remaining maturities of up to three months. In May 2020, the Riksbank expanded that limit to six months⁵ (Riksbank 2020k; Riksbank, n.d.f).

Cumulative commercial paper purchases reached SEK 12 billion in August 2020. Holdings (net of maturities) peaked at SEK 6 billion in May 2020 and stood at less than SEK 1 billion in December 2020. By August 2021, nearly all of the Riksbank's commercial paper holdings had matured (Riksbank, n.d.f). After initially setting the end date to May 31, 2020, the Riksbank extended its purchases of commercial paper, as well as the other assets in its

³ Per Yahoo Finance, USD 1 = SEK 10.06 on March 26, 2020. The Riksbank calculated its holdings of bonds in "nominal" terms; that is, based on the bond's principal amount without including any interest payments (Riksbank, n.d.b).

⁴ In May 2020, the outstanding volumes of commercial paper and corporate bonds stood around SEK 134 billion and SEK 1.25 trillion, respectively (inclusive of kronor and other currencies) (Riksbank 2020n, 20). (For more information on the Riksbank's corporate bond purchases, see Mott 2021.)

⁵ Average original maturity was about five months for outstanding commercial paper issued in Swedish kronor by nonfinancial corporations as of April 2020 (Riksbank 2020n).

purchasing program, first to September 30, 2020, then to June 30, 2021, and once more to December 31, 2021 (Riksbank 2020g; Riksbank 2020i; Riksbank 2020m; Riksbank 2020k; Riksbank 2020w).

Summary Evaluation

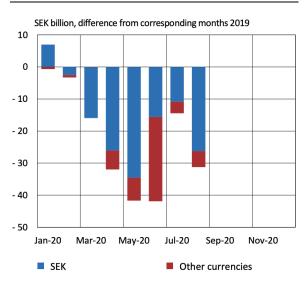
The Riksbank observed that yields on corporate securities fell slightly and market functioning improved in the weeks after the government announced it would purchase corporate bonds and commercial paper (Riksbank 2020h). Already the risk premia for investment-grade corporate bonds relative to government bonds had fallen to 1.6 percentage points by May 11, 2020, from 2 percentage points at its peak in early April (Riksbank 2020j).

By May 8, 2020, just over one month after it launched commercial paper purchases, the Riksbank noted that the discrepancy between purchase and sale prices of commercial paper had decreased, and more companies had issued new commercial paper and corporate bonds. It also observed that the commercial paper market had gradually stabilized, resulting in lower interest rates and better functionality (Riksbank 2020k).

However, volumes of commercial paper issuance remained substantially below the corresponding months in 2019 (see Figure 2). Companies that were able to issue commercial paper had to do so at higher costs than before (Wollert 2020) (see Figure 3). Between January and August 2020, the market for commercial paper had shrunk by almost one third, from SEK 165 billion to SEK 113 billion in nominal volumes⁶ (Gustafsson and von Brömsen 2021). A Riksbank Staff Memo found that some companies had replaced this market financing with other funding, such as bank loans facilitated through the Riksbank's program to on-lend to nonfinancial corporations (Wollert 2020; Riksbank 2020n). In November 2020, the Riksbank stated that financial markets "remain sensitive" and dependent on central bank support measures. It extended its purchasing program to December 31, 2021 (Riksbank 2020w).

⁶ The percentage downturn was slightly smaller for certificates issued in Swedish kronor, which made up close to 80 percent of outstanding volumes in August 2020 (Gustafsson and von Brömsen 2021).

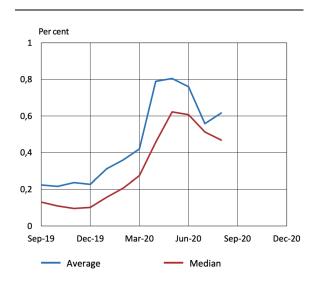
Figure 2: Monthly volumes of commercial paper issued by Swedish companies



Data retrieved from Riksbank and Statistics Sweden (SVDB). Note: refers to gross issue volumes.

Source: Wollert 2020.

Figure 3: Yield for commercial paper in SEK issued by Swedish companies



Data retrieved from Riksbank and Statistics Sweden (SVDB). Note: The mean value is unweighted. Some commercial paper with no reliable information is excluded from the chart; therefore, this sample is incomplete.

Source: Wollert 2020.

Interest rates⁷ on newly issued commercial paper increased slightly between February and August 2020. By February 2021, rates returned to near pre-crisis levels, but issuance remained low (Gustafsson and von Brömsen 2021; Riksbank 2021e).

⁷ A three-month moving average of the interest expense for amounts issued during the month.

Context: Sweden 2019–2020				
GDP (SAAR, nominal GDP in LCU converted to USD)	\$534.30 billion in 2019 \$543.09 billion in 2020			
GDP per capita (SAAR, nominal GDP in LCU converted to USD)	\$51,939 in 2019 \$52,274 in 2020			
Sovereign credit rating (five-year senior debt)	Data for 2019: Moody's: Aaa S&P: AAAu Fitch: AAA Data for 2020: Moody's: Aaa S&P: AAAu			
Size of banking system	Fitch: AAA \$744.12 billion in 2019 \$822.56 billion in 2020			
Size of banking system as a percentage of GDP	139.27% in 2019 151.46% in 2020			
Size of banking system as a percentage of financial system	100% in 2019 100% in 2020			
Five-bank concentration of banking system	77.37% in 2019 77.09% in 2020			
Foreign involvement in banking system	Data not available for 2019 Data not available for 2020			
Government ownership of banking system	Data not available for 2019 Data not available for 2020			
Existence of deposit insurance	Yes in 2019 Yes in 2020			
Sources: Bloomberg, World Bank Global Financial Bank Deposit Insurance Dataset.	Development Database, and World			

Bank Deposit Insurance Dataset.

Key Design Decisions

1. Purpose: The Riksbank initiated commercial paper purchases to maintain the orderly function of financial markets during the COVID-19 pandemic.

The Riksbank purchased commercial paper "to improve market functionality and thus improve credit supply to companies and the impact of monetary policy on the economy" (Riksbank 2020k).

The central bank also said that buying corporate bonds would indirectly help smaller companies that didn't have access to the bond market. Banks provide two-thirds of corporate funding in Sweden. Larger companies facing distress at the onset of the pandemic initially sought bank funding, which is the source of two-thirds of corporate funding in Sweden. As a result, it became difficult for smaller companies to borrow from banks. Restoring functionality to the corporate debt markets for larger companies would therefore help smaller companies regain access to bank funding (Gustafsson and von Brömsen 2021; Riksbank 2020s).

The Riksbank announced a corporate bond purchase program at the same time (Riksbank 2020f; Riksbank 2020r). In Sweden, the market for commercial paper is one-tenth the size of the market for corporate bonds, but some smaller companies without credit ratings issue commercial paper to fund operations (Wollert 2020). The Riksbank's commercial paper purchases began soon after announcement, but corporate bond purchases did not begin until September 2020 (Riksbank 2020f; Riksbank 2020p).

2. Part of a Package: Commercial paper purchases were part of a larger assetpurchase program designed to support market functioning.

Corporate debt purchases were included in a much larger bond-purchasing program announced on March 16. The broad program was initially set at SEK 300 billion through June 30, 2021, and was ultimately expanded to SEK 700 billion through December 31, 2021 (Riksbank 2020r; Riksbank 2021d; Riksbank 2021f). This program purchased nominal and real government bonds; bonds issued by municipalities and regions and by Kommunivest i Sverige AB, Sweden's local government funding agency; and covered bonds by Swedish institutions (Riksbank 2020m) (see Figure 4).

	2020			2021			
	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Other Support							
Government Bonds	11.5	23.5	39.5	50.7	62.8	71.0	79.8
Municipal Bonds	11.3	25.3	35.3	49.3	71.2	83.5	90.9
Covered Bonds	90.0	140.0	189.0	238.0	298.0	340.0	380.0
Treasury Bills	-	-	-	3.0	13.5	17.5	17.5
Corporate Support							
Commercial Paper	5.7	1.48	0.9	0.4	0.3	0.3	0.0
Corporate Bonds	-	0.15	1.8	4.4	7.7	10.0	11.6
Corporate lending program*	161.5	164.5	164.5	164.5	31.0	16.0	16.0

Figure 4: Riksbank Asset Purchases 2020-2021, Aggregate Holdings (SEK billions)

*Separate from its asset purchases, the Riksbank initiated a bank lending scheme to support corporate credit. (For more information on this lending scheme, see Riksbank 2021b.)

Source: Riksbank Monetary Policy Reports, 2020-2021.

Six days prior to announcing corporate debt purchases, the Riksbank offered loans to large banks against collateral totaling SEK 500 billion on particularly favorable terms if they increased lending⁸ to non-financial corporations operating in Sweden (Riksbank 2020j). Because small and medium companies in Sweden are typically customers of smaller, local savings banks rather than the major banks, the Riksbank also provided temporary access to the program for more counterparties than usual (Gustafsson and von Brömsen 2021).

Other state agencies provided support to businesses negatively affected by the pandemic. On March 26, Almi Företagspartner, a state venture capital program, received a capital injection of SEK 3 billion to increase lending to small- and medium-sized businesses whose operations were adversely affected by the pandemic (Gustafsson and von Brömsen 2021; Regeringskansliet 2020). On April 3, the Riksgälden, the Swedish National Debt Office, issued loan guarantees for bank loans extended to affected businesses, up to SEK 75 million per borrower (Riksgälden 2020). On April 11, the European Commission approved SEK 5 billion worth of credit guarantees offered to airlines, including SEK 1.5 billion for Scandinavian Airlines, the flag carrier of Denmark, Sweden, and Norway (EC 2020a; EC 2020b). Beginning in June 2020, Skatteverket, the Swedish tax agency, granted support to companies whose revenue for March and April 2020 was less than 70% of their revenue compared to March and April 2019, and who could prove the decline was due to effects of the pandemic (Skatteverket, n.d.b; n.d.a).

⁸ Bank lending has been the traditional means of funding for corporations in Sweden, as in other EU countries. But in the last decade, low funding costs for corporations and interest from investors searching for yield have combined to make wholesale funding more favorable for companies (Wollert 2020; Riksbank 2020n; Ingves 2021). This is particularly true for Sweden, whose banks have a "deposit deficit" of over SEK 3 trillion, meaning that bank deposits are insufficient to fund bank lending, with the remainder (deficit) covered by wholesale funding (Eidestedt, Forsman, and Ünlü 2020).

To support the Riksgälden's programs, the Riksbank and Finansinspektionen, the financial supervisory authority responsible for financial regulation in Sweden, reduced the countercyclical capital buffer rate requirement from 2.5 to zero percent (FI 2020a). According to Finansinspektionen, the reduction released capital for large and mid-size Swedish banks, corresponding to about SEK 900 billion in increased lending potential (FI 2020b).

By acting as 'buyer of last resort,' the Riksbank's purchases enabled companies to issue new commercial paper and bonds⁹ (Gustafsson and von Brömsen 2021). In conjunction with the central bank's efforts to facilitate bank lending to corporations, purchases made it "easier for robust companies to fund their operations, either by bank loans or via the financial markets" (Gustafsson and von Brömsen 2021; Riksbank 2020n). The Riksbank characterized its market-supporting measures "as a kind of insurance, so that banks and companies can be sure there is solid funding at a reasonable cost" (Riksbank 2020h).

3. Legal Authority: Commercial paper purchases were authorized under Chapter 6, Article 5 of the Sveriges Riksbank Act.

Chapter 6 of the Sveriges Riksbank Act contains provisions on the Riksbank's monetary policy operations. Article 5 specifies the tools with which the Riksbank can conduct monetary policy: to lend against collateral; to purchase, sell, and mediate securities, foreign exchange, and obligations linked to such assets; and to issue its own debt instruments (Andersson and Stenström 2021; Chapter 6, Article 5 of Riksbank, n.d.i). Because Riksbank purchases these securities from its monetary policy counterparties, Government Bill 1986/87:143 requires the Riksbank to ensure its monetary policy measures are competition-neutral; its auctions were designed accordingly (Regeringen 1986).

4. Governance: The Executive Board of the Riksbank, the Head of the Monetary Policy Department, and the Head of the Financial Stability Department approved commercial paper purchases while the General Council informed the Riksdag of the Riksbank's activities.

The Executive Board of the Riksbank, the Head of the Monetary Policy Department, and the Head of the Financial Stability Department approved commercial paper purchases (Riksbank 2020w).

The Riksbank is considered a public authority under the Riksdag, Sweden's parliament, which appoints the Riksbank's General Council (Riksdag 2021, Chapter 9, Article 13). The General Council is tasked with, among other things, enabling transparency and control for

⁹ The Riksbank's purchases on the secondary market "did not affect companies' funding capacity directly, as the terms for the security issued remained unchanged" (Gustafsson and von Brömsen 2021, 61). However, secondary market purchases "could be significant when companies needed to refinance securities that matured by issuing new securities" (Gustafsson and von Brömsen 2021, 61). Although the Riksbank was not legally able to intervene in primary markets, it believed that investors who knew the secondary market was functioning, "may have been more inclined to purchase securities on the primary market" (Gustafsson and von Brömsen 2021, 61).

the Riksdag and keeping the Riksdag's Committee on Finance informed of important matters at the Riksbank (Ingves and Meyersson 2021; Ministry of Finance 2019). The General Council also appoints the six-member Executive Board, including the Governor of the Riksbank, which, pursuant to the Instrument of Government, manages the activities of the Riksbank (Sveriges Riksbank 2021; Riksdag 2021, Chapter 9, Article 13).

The Riksbank Act states the Riksbank must deliver a monetary policy report twice a year to the Riksdag's Committee on Finance (Riksbank, n.d.i, Chapter 6, Article 4). The Riksbank's monetary policy reports contained details on its purchases of corporate debt (Riksbank 2020n; Riksbank 2020q; Riksbank 2020t). Prior to the Executive Board making a monetary policy decision "of major importance," the Riksbank must inform the Finance Minister (Riksbank, n.d.i, Chapter 6, Article 3).

In 2015, the Riksdag's Committee on Finance criticized how the Riksbank's activities were scrutinized (Ingves and Meyersson 2021, 5; Riksdag 2016). In 2018, the Riksdag established the Riksbank Inquiry to determine how the Riksdag could strengthen scrutiny of the Riksbank and its monetary policy (Ministry of Finance 2019). In 2019, the Riksbank Inquiry, noting the Riksbank's high degree of independence relative to other central banks and Swedish authorities, proposed a new Sveriges Riksbank Act to the Council of Law, which if approved would take effect in 2023 (Ingves and Meyersson 2021).

5. Administration: The Riksbank administered the commercial paper purchase program and empowered the Head of the Markets Department to conduct asset purchases.

The asset purchases were a monetary policy decision made by the Executive Board (Riksbank 2020p). The Head of the Riksbank's Markets Department (with the right to delegate to another person) determined the amounts of corporate bond purchases and set the terms and conditions for, and information on, participation in the corporate bond purchase program (Riksbank 2020w).

Auctions were cleared through Euroclear Sweden (Riksbank 2020d). Counterparties placed their bids via telephone (Riksbank 2020d; Riksbank 2020k).

The Head of the Markets Department was required to consult with the Heads of the Monetary Policy and Financial Stability Departments (with the right for these Heads to delegate to other persons) about the dates and amounts associated with each auction or purchase offer, the terms and conditions for upcoming auctions, and information about prior auctions (Riksbank 2020w).

The Head of the Markets Department was required to consult with the Executive Board at regular meetings prior to each auction and deliver an assessment of potential purchases for the next auction¹⁰ (Riksbank 2020w; Riksbank 2020k). From these meetings, the Head of the Markets Department would determine the "details regarding the terms for, and information

¹⁰ The Riksbank's corporate bond purchase program did not require such an assessment.

about, the purchases of commercial paper," in keeping with the eligibility criteria established by the Riksbank (Riksbank 2020k).

The Executive Board determined the Riksbank's financial risk and investment policy and established frameworks for dealing with the market, credit, and liquidity risks that arise from asset purchases. The Markets Department was responsible for "day-to-day risk control," and the Risk Division was tasked with managing the "overall and independent risk control" (Riksbank 2020a).

6. Communication: The Riksbank intended the commercial paper purchases to improve credit supply to companies, restore market functionality, and facilitate the impact of monetary policy on the economy. It emphasized the benefits to small companies.

The Riksbank intended the commercial paper purchases to improve credit supply to companies, thereby restoring market functionality and keeping interest rates low (Riksbank 2020k; Riksbank, n.d.f). By restoring functionality to the corporate debt markets, larger companies could source market-based funding rather than financing themselves through bank lending. Once larger companies sourced market-based funding, the Riksbank believed smaller companies that didn't have access to the bond market could regain access to bank funding (Gustafsson and von Brömsen 2021; Riksbank 2020s).

The commercial paper purchase program was announced in a press release in March 2020 (Riksbank 2020f). Throughout the commercial paper purchase program, the Riksbank periodically published press releases containing updates on terms and conditions, purchase amounts, and intended monetary policy actions.

7. Disclosure: The Riksbank provided twice-yearly reports to the Riksdag that included details on the program; published aggregated auction results on a bi-weekly basis; and, beginning in 2021, published sustainability data on a monthly basis.

Aggregate commercial paper purchase data were published weekly (Riksbank, n.d.h). Although the Riksbank published a list of companies who met their corporate bond eligibility criteria, no such list was provided for the 30 companies eligible for commercial paper purchases (Gustafsson and von Brömsen 2021). Transaction-level details on individual auctions were not announced publicly in accordance with the Terms and Conditions for RIX and Monetary Policy Instruments, which states that bilateral transactions are not made public (Section D.3.2[c] of Riksbank 2020o). RIX is the Swedish payment system used by banks and other financial institutions to settle transactions.

Once bid purchases (auctions) began on April 2, 2020, the Riksbank published results on a weekly basis (Riksbank, n.d.h). Directly after a completed auction, the Riksbank published information on total bid volume, number of bids, allocated volume, and prices (Riksbank, n.d.h).

Pursuant to the Sveriges Riksbank Act, the Riksbank has to submit a written report on monetary policy to the Riksdag Committee on Finance at least twice a year (Chapter 6, Article 4 of Riksbank, n.d.i). This report contained financial and operational details on the broad bond purchase program as well as commentary on its effects on market functioning. The Riksbank also included program details in its Annual Report submitted to the Riksdag in accordance with Chapter 10, Article 3 of the Sveriges Riksbank Act (Chapter 10, Article 3 of Riksbank, n.d.i). The Report included an administration report, a balance sheet, a profit and loss account, and an assessment of the Riksbank's internal controls, as well as commentary on its pandemic response measures.

The Executive Board of the Riksbank usually holds five monetary policy meetings per year and publishes a Monetary Policy Report after each of these meetings (Riksbank 2021g).

8. Use of SPV: The Riksbank did not utilize a special purpose vehicle.

The Riksbank did not rely on a special purpose vehicle to purchase commercial paper, instead purchasing commercial paper at auctions organized with its monetary policy counterparties.

9. Size: The Riksbank set a limit on commercial paper holdings of a nominal SEK 4 billion in March 2020, but raised the limit to SEK 32 billion in May.

The Riksbank said in March 2020 that it would limit its purchases to SEK 4 billion, but it raised the limit to SEK 32 billion in May. Overall purchases of commercial paper could have exceeded SEK 32 billion over the specified period, but the holding could not exceed SEK 32 billion at any time (Hansson and Birging 2021).

On June 30, 2020, the Riksbank announced it would limit its holdings of commercial paper to no more than 70 percent of any individual issuer's total outstanding volume of commercial paper in Swedish kronor (Riksbank 2020m). This limit was applied to ensure the Riksbank's holdings of commercial paper were "allocated in a proportionate manner" to the outstanding volume of commercial paper on the secondary market, which would "[benefit] the impact of monetary policy without reducing its room for [maneuver] going forward" (Riksbank 2020m). Moreover, this issuer limit enabled the Riksbank to stabilize the market while also limiting the "risk of the bond-purchasing program affecting the fundamental functionality of the relevant markets" (Riksbank 2020m). In announcing the commercial paper purchasing program, the Riksbank noted the "considerable uncertainty regarding economic developments and the situation on the financial markets," asserting their readiness "to take further measures and to provide the necessary liquidity" (Riksbank 2020k). However, commercial paper purchases remained capped at SEK 32 billion even as the Riksbank enlarged its overall asset purchase program from SEK 300 billion to SEK 500 billion in June 2020, and again to SEK 700 billion in November 2020 (Riksbank 2020m; Riksbank 2021d; Riksbank 2021f). The total sum of commercial paper purchased topped SEK 12 billion in August 2020, where it remained throughout 2021 (Riksbank, n.d.f).

In May 2020, roughly one month after the commercial paper purchase program began, outstanding volumes of commercial paper issued by Swedish nonfinancial corporations

stood at SEK 134 billion, 76% of which was issued in Swedish kronor (Riksbank 2020n). Auctions peaked at SEK 2.3 billion during the week of April 3, 2020 (Riksbank, n.d.f).

10. Source of Funding: The Riksbank funded its commercial paper purchases through the creation of reserves.

The Riksbank purchased a commercial paper certificate on the secondary market and paid the seller, one of its monetary policy counterparties, by crediting the RIX account for the counterparty's bank (Kjellberg and Vestin 2019; Riksbank 2020l). The Riksbank created the money that was deposited in the banks' accounts in the RIX payment system. The commercial paper holdings were recorded as assets on the Riksbank's balance sheet. As the commercial paper holdings matured, the reserves were extinguished (Kjellberg and Vestin 2019).

The Riksbank said that such interventions "normally have several different, and partly uncertain, consequences for the national economy and the Riksbank's own finances." It said that the "benefits of the respective measures therefore have to be weighed against their potential drawbacks and risks" (Riksbank 2020k). Although purchases of corporate debt have increased the credit risk in Riksbank's asset portfolio, the Riksbank said the risk was limited as these securities only make up a small portion of the assets. The Riksbank normally buffers financial risk with equity and unrealized gains in revaluation accounts, but the total buffer did not grow at the same rate as the Riksbank's financial risks increased. As a result, the Executive Board of the Riksbank made a provision for financial risks, allowing the Riksbank to retain SEK 5 billion in profit on its balance sheet by reducing the dividends paid to the government (Riksbank 2020a).

11. Eligible Institutions: Monetary Policy Counterparties who completed Registration were eligible to make a bid in the Riksbank's commercial paper purchase program.

The Riksbank conducts monetary policy with the assistance of 24 monetary policy counterparties,¹¹ which are credit institutions either domiciled or with a branch in Sweden and that participate in Sweden's payment system, RIX (Riksbank, n.d.e; Riksbank, n.d.c). Monetary policy counterparties were required to register for each individual monetary policy measure before they could participate (Riksbank 2020v). Registration bound the counterparty to the terms and conditions of each measure and included contact details, Euroclear account information, and, for bid purchases, contact information for the counterparty (Riksbank 2020d).

¹¹ In March 2020, the Riksbank allowed credit institutions supervised by Finansinspektionen to become temporary Monetary Policy Counterparties to participate in the Riksbank's on-lending to corporations, however no temporary designation was available for participation in corporate debt purchases (Riksbank 2020e).

12. Auction or Standing Facility: The Riksbank purchased commercial paper through bid purchase procedure (reverse auctions).

The commercial paper purchase program used auctions, like most of the Riksbank's asset purchase programs. The Riksbank said that auctions were the most "market-neutral way" to ensure its secondary market purchases had a broad impact on interest rates (Hansson and Birging 2021; Riksbank 2020w). For commercial paper specifically, auctions ensured purchases were "implemented in a way that is favorable to the functionality of the markets and thereby guarantee a broad impact for the current monetary policy" (Riksbank 2020m).

Before each auction, the Riksbank published the specific ratings classes of securities it was offering to buy (Class 1, Class 2, or some combination) and the purchase amounts, which were determined by the Head of the Markets Department after consultation with the Heads of the Monetary Policy and Financial Stability Departments (Hansson and Birging 2021).

The Riksbank's monetary policy counterparties placed bids specifying the issuer's credit rating (Class 1 or Class 2; see Figure 5) for the commercial paper the counterparty wished to sell and the desired volume (Riksbank 2020k; Bloomberg 2021). The Riksbank believed that this would ensure the "distribution of the Riksbank's transactions will be transparent to the market" (Riksbank 2020k). In the event the bid volume exceeded the volume desired bv the monetary policy counterparties, the allocation was reduced in proportion to the size of each bid¹² (Riksbank 2020w). The Riksbank stipulated that no bid could contain commercial paper in excess of SEK 250 million issued by the same issuer (Riksbank, n.d.a).

Figure 5: Eligible Credit Ratings

	Clas	ss 1	Class 2
	Short term	Long term	Short Long term term
S&P	A-2	A-	A-3 BBB-
Moody's	P-2	A3	P-3 Baa3
Fitch	F2	A-	F-3 BBB-
Nordic Credit	N-1+	A-	N-1 BBB-
Scope	-	A-	_ BBB-

Source: Riksbank Auction Announcements

The Riksbank announced its offering price as the minimum accepted interest rate for each credit class and maturity (referred to as the "bid rate"), which "[allowed] counterparties to sell several different commercial papers to the Riksbank at each auction" (Hansson and Birging 2021, 15). Because of this advance price announcement, which was unique among the Riksbank's asset purchases, interest among counterparties in selling commercial paper to the Riksbank depended on the market price. In other words, paper that traded on the open market at prices higher than the Riksbank offered to buy meant it was not advantageous to sell to the Riksbank. Thus, the commercial paper auctions functioned as a "stabilizing

¹² The Riksbank stated that without establishing the exact purchase amounts at each respective auction in advance, it could "maintain the flexibility required to adapt monetary policy to the future needs," enabling it "to distribute the individual purchases between types of asset as effectively as possible with consideration for the assessment of monetary policy stimulus made at each given time" (Riksbank 2020m, 3-4).

measure" whereby the Riksbank effectively "set a ceiling on the holding, but [had] limited control over the actual amount of purchases" (Hansson and Birging 2021, 16).

The Riksbank posted the auction date, requested volume, and terms for delivery and payment generally two days prior to the auction, and bids for volume and credit rating were submitted by telephone (Riksbank 2020u). Thirty minutes after the auction, bids were allocated *pro rata*, at which point "it [was] the duty of the participant to supply commercial paper up to the allocated volume" (Riksbank 2020k). Commercial paper auctions were available only to monetary policy counterparties who registered for the program with the Riksbank (Riksbank 2020d). Delivery and payment were expected two business days after the auction (Riksbank, n.d.a).

On October 20, 2021, the Riksbank announced it would reduce the frequency of commercial paper auctions from weekly to every other week as "demand has been very low over the past year," noting that less frequent auctions would still "produce the intended monetary policy effect" (Riksbank 2021h).

13. Loan or Purchase: The Riksbank purchased investment-grade commercial paper on the secondary market.

Purchases of commercial paper were made on the secondary market; the Riksbank believed that "if investors knew that the secondary market was functioning well, they may [be] more inclined to purchase securities on the primary market" (Gustafsson and von Brömsen 2021, 61). However, the Riksbank's legal mandate did not allow purchases on the primary market (Gustafsson and von Brömsen 2021).

14. Eligible Assets: The Riksbank purchased commercial paper issued in Swedish kronor by non-financial companies with investment-grade credit ratings and a remaining maturity of up to six months.

The Riksbank purchased commercial paper from non-financial corporations for the first time in response to the COVID-19 pandemic.¹³ In its definition of "non-financial" corporations, the Riksbank included captive financial institutions, money lenders, and investment companies with a broad ownership diversification. Firms with primarily financial operations, or under the supervision of Finansinspektionen, were excluded from participating in the program (Riksbank, n.d.d). About 70 companies had outstanding commercial paper in April 2020 (Riksbank 2020n, 20). Beginning June 30, 2020, the Riksbank limited commercial paper purchases to no more than 70 percent of the outstanding volume of an individual issuer (Riksbank 2020w).

The Riksbank limited its purchases to commercial paper from investment-grade companies, defined as those with credit ratings of at least BBB-/Baa3 from Standard & Poor's, Moody's, Fitch Ratings, Nordic Credit Rating, or Scope Ratings (Riksbank 2020w). Credit ratings for the issuer's parent company were considered in cases where the issuer did not have its own

¹³ The Riksbank considered purchasing corporate bonds, among other asset classes, in its response to the Global Financial Crisis, but ultimately did not (Riksbank 2020c, 17).

credit rating and the issuer's parent company guaranteed the issuer's obligations. If credit ratings were available from several credit rating agencies, the highest rating applied, but none could fall below the lowest accepted credit rating level; if both long-term and short-term credit ratings were available, the higher of these was applied (Riksbank, n.d.a).

Initially, the Riksbank only accepted commercial paper with remaining maturity of three months or less,¹⁴ both because the "substantial majority of outstanding commercial paper is issued with a maturity of up to three months" and because the Riksbank wanted to focus its support on "Swedish companies that need to refinance loans that fall due during the period for the purchasing programme" (Riksbank 2020k, 2). The Riksbank announced it would purchase, beginning on May 11, 2020, commercial paper with maturities up to six months "to continue to reduce the refinancing risks of companies" (Riksbank 2020k, 2).

Commercial paper purchased by a counterparty from the issuer less than one week prior to the date for announcing an auction was not eligible for purchase by the Riksbank (Riksbank, n.d.a).

Most commercial paper in Sweden is issued in kronor (SEK 102 billion). Other currencies, including euros, U.S. dollars, Norwegian krone, and pounds sterling, accounted for SEK 32 billion of outstanding volume in April 2020, about one quarter of Swedish commercial paper. The Riksbank only purchased commercial paper issued in kronor (Riksbank 2020n; Riksbank 2020g).

15. Purchase Price: The Riksbank applied a haircut to commercial paper purchases based on credit rating and remaining maturity.

The Riksbank applied haircuts to its commercial paper purchases based on two classes of credit rating. For Class 1-rated commercial paper, the Riksbank charged 0.30 percent for paper with a remaining maturity of up to three months and 0.40 percent for a remaining maturity of up to six months. For Class 2-rated commercial paper, the Riksbank charged 0.60 percent for paper with a remaining maturity of up to three months and 0.70 percent for a remaining maturity of up to six months (Riksbank, n.d.a).

Ahead of each auction, the Riksbank announced its offering price, or "bid rate," as the minimum accepted interest rate for each credit class and maturity (Hansson and Birging 2021, 15). The announcement of its offering price in advance of a commercial paper auction was unique among the Riksbank's asset purchases. Because interest among counterparties in selling commercial paper to the Riksbank depended on the market price, this "[allowed] counterparties to sell several different commercial papers to the Riksbank at each auction" and ensured the auctions functioned as a "stabilizing measure" (Hansson and Birging 2021, 15–16).

¹⁴ The average original maturity was about five months for outstanding commercial paper issued in Swedish kronor by nonfinancial corporations as of April 2020 (Riksbank 2020n).

16. Haircuts: This Key Design Decision is not applicable to asset purchase programs.

This Key Design Decision is not applicable to asset purchase programs.

17. Interest Rates: The Riksbank did not charge an interest rate for purchases of corporate bonds.

As an asset purchase program, there was no interest rate associated with the Riksbank's corporate bond purchases.

18. Fees: The Riksbank charged normal RIX participant fees.

All RIX participants paid fees to the Riksbank according to a price list published by the Riksbank (Riksbank 2020o, Section C.5; Riksbank 2021a). RIX is Sweden's real-time gross settlement payments system. Fees were based on the principles of limitation of systemic risks, cost coverage, and non-discrimination (Riksbank 2020o, Section C.5).

Additionally, monetary policy counterparties were expected to hold a sufficient amount of securities or currency to carry out a transaction. Any counterparties unable to deliver or pay for their securities were charged interest on the part of the delivery or payment that had not been executed, at a rate equal to the current reference rate as defined in Section 9 of the Interest Act (9 § Räntelagen) plus 8 percentage points. This interest would be charged for the term equal to the intended transaction (Riksbank 2020o, 33, Section D.3.1.3[d]).

19. Term: This Key Design Decision does not apply to asset purchase programs.

This Key Design Decision does not apply to asset purchase programs.

20. Individual Participation Limits: The Riksbank would hold no more than 70 percent of any individual issuer's total outstanding volume of commercial paper.

The Riksbank limited its holdings of commercial paper to no more than 70 percent of any individual issuer's total outstanding CP.

21. Other Restrictions on Eligible Participants: The Riksbank did not apply any other restrictions on participants in its commercial paper purchase program.

In its other major corporate debt intervention—the purchasing of Swedish corporate bonds—the Riksbank announced it would purchase only bonds issued by companies that complied with international standards and norms for sustainability (Riksbank 2021c). The Riksbank announced early in its asset purchase program that "[commercial paper] purchases may take sustainability into account" due to the "requirements imposed by the Riksbank's remit." However, it ultimately did not take sustainability into account for its commercial paper purchases (Riksbank 2020k).

22. Regulatory Relief: The Riksbank did not offer its monetary policy counterparties regulatory relief for participation in its commercial paper purchases.

The Riksbank did not offer regulatory relief to participants in its commercial purchase program.

23. International Coordination: The Riksbank did not coordinate with other countries for its commercial paper purchases.

While central banks in other countries purchased commercial paper over the same period, the Riksbank's program was not coordinated with these efforts.

24. Duration: Initially scheduled to end May 31, 2020, the commercial paper purchase program was extended four times to December 31, 2021.

The Riksbank originally announced broad bond purchases up to SEK 300 billion through December 2020 (Riksbank 2020f). Commercial paper purchases were announced as part of this asset purchase program on March 26, 2020. In an announcement dated April 3, 2020, the Riksbank stated its plan to purchase SEK 4 billion in commercial paper between April 2, 2020 and May 31, 2020, and to "continue [commercial paper purchases] as long as these measures are justified by the economic situation" (Riksbank 2020i, 1). On May 8, 2020, the Riksbank extended commercial paper purchases to September 30, 2020, and expanded the program to SEK 32 billion (Riksbank 2020k). On June 30, 2020, purchases of commercial paper were extended to June 30, 2021, along with the other assets in the Riksbank's purchasing program, which was then capped at SEK 500 billion including the SEK 300 billion previously announced. Finally, on November 25, 2020, the Riksbank expanded the bond buying program to SEK 700 billion and extended its purchases, including commercial paper, to December 31, 2021 (Riksbank 2020m). With each expansion to its asset purchase program and the extension of its timeline, the Riksbank left the limit on commercial paper purchases at SEK 32 billion.

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