

Monetary Policy Disconnect

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Motivation

*“...there is a risk that, under the current framework, some short-term market rates would **not respond fully** to changes in our key interest rates or, even if they would, that a continued dispersion of short-term rates would **adversely impact** the transmission of our monetary policy stance.”*

—Benoît Cœuré in May 2018

Paper in a nutshell

Two aspects of the central bank framework lead to the *monetary policy disconnect*.

- **Banks with access** the deposit facility at the central bank.
- Loans secured by assets eligible for **Quantitative Easing** (QE) programs.

Studying the repurchase agreement (**repo**) market, we find that interbank rates are more disconnected from the MP rate if:

- Lent by banks with access to central bank facilities.
- Secured by assets eligible for QE programs.
- Both effects create rate dispersion and add to one another.

Contribution

Literature on the **effectiveness of monetary policy**.

- Duffie and Krishnamurthy, 2016, and Drechsler, Savov, and Schnabl, 2017, analyze the interest-rate pass-through in the United States.
- On a macro level, Kalemli-Özcan, 2019 finds that capital flows are associated with an imperfect pass-through of policy rates to short rates in emerging markets; and Avouyi-Dovi, Horny, and Sevestre, 2017, find a slowdown of the interest rates transmission mechanism, which Al-Eyd and Berkmen, 2013, associate with segmentation along country lines.

Literature on **short-term funding markets**.

- Arrata et al., 2020, and Corradin and Maddaloni, 2020, investigate the effects of QE purchases on *special* repo rates. Kraenzlin and Nellen, 2015, analyze segmentation effects in the Swiss unsecured money market.
- Cross-sectional dispersion in repo rates in Europe (e.g., Mancini, Rinaldo, and Wrampelmeyer, 2016; Boissel et al., 2017; Rinaldo, Schaffner, and Vasios, 2020; Ballensiefen and Rinaldo, 2020) and the United States (e.g., Bartolini et al., 2011; Gorton and Metrick, 2012; Copeland, Martin, and Walker, 2014; Krishnamurthy, Nagel, and Orlov, 2014; Infante, 2020).

Monetary policy pass-through efficiency

- A consistent and uniform response of money market rates to the monetary policy stance is the first sign of an effective pass-through mechanism.
- "In an idealized money market, any change in the main monetary policy rate should pass through perfectly to all money market rates." (Corradin et al., 2020, p.13).
- "The money market plays a crucial part in the transmission of monetary policy decisions" (ECB, 2011).
- By contrast, a "*wider dispersion in short-term money market rates*" causes "*a reduction in the efficacy and transmission of monetary policy*" (BIS, 2017, p.32).

The importance of the repo market

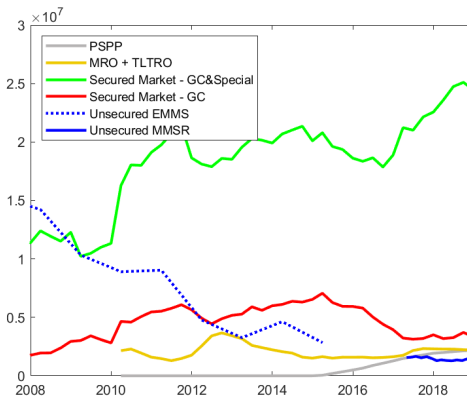


Figure: Different market turnovers (in euro million)

Monetary policy pass-through to lending rates

	(1)	(2)
	Non-Fin. Corporate Δr^L b/t	New Housing Δr^L b/t
$\Delta PolRate$	0.470*** (5.335)	0.729*** (8.118)
$\Delta PolRate \cdot D^{Dispersion}$	-0.351*** (-2.739)	-0.444*** (-3.379)
$\Delta PolRate \cdot PSPP^{Volume}$	-0.034* (-1.651)	-0.042** (-2.066)
N	991	907
adj. R^2	0.073	0.089

Both regressions include year-country fixed effects and heteroscedasticity-robust standard errors.

ECB access

Only euro area banks can **access** the ECB deposit facility.

- Deposit facility represents a **safe and convenient** way to store liquidity.
- It is **more convenient** when the repo rate falls below the deposit facility rate.
- Importance of the deposit rate and access to the central bank's facilities is stressed in the **theoretical** (Cúrdia and Woodford, 2011; Bech and Monnet, 2016; Williamson, 2019) and **empirical** (Bech and Klee, 2011; Kraenzlin and Nellen, 2015) literature.

Hypothesis I

Banks with (without) access to the ECB deposit facility lend at repo rates less (more) aligned to the monetary policy target rate.

Theoretical Framework: [Link](#), Dispersion: [Link](#), Volume and Spread: [Link](#)

Access/nonaccess banks

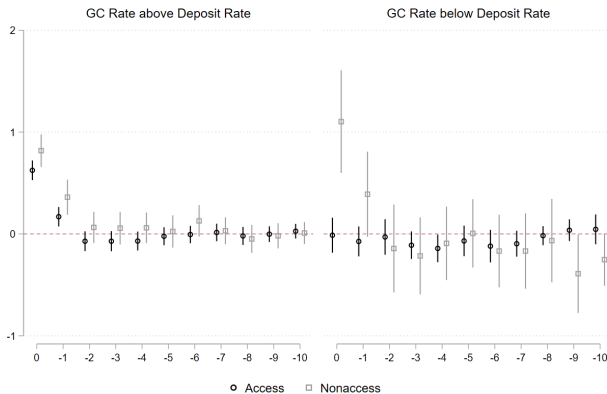


Figure: Impulse response after changes in policy rate

Regression results

Table: ECB access - German collateral

	(1)	(2)	(3)
	$\Delta repo^{GC}$	$\Delta repo^{GC}$	$\Delta repo^{GC}$
	ON/TN	ON/TN	ON/TN
	b/t	b/t	b/t
$\Delta PolRate$	0.539*** (15.700)	0.717*** (10.745)	0.675*** (8.781)
D^{Dep}	-0.046** (-2.265)		-0.047** (-2.338)
$\Delta PolRate \cdot D^{Dep}$	-0.176** (-2.216)		0.265** (2.082)
D^{Access}		-0.001 (-0.071)	-0.000 (-0.035)
$\Delta PolRate \cdot D^{Access}$		-0.264*** (-3.549)	-0.177** (-2.100)
$\Delta PolRate \cdot D^{Access} \cdot D^{Dep}$			-0.719*** (-4.970)
$\Delta repo^{GC}$ lagged	-0.332*** (-14.230)	-0.332*** (-14.147)	-0.332*** (-14.151)
N	10,001	10,001	10,001
R^2	0.210	0.213	0.220

All regressions include basket-month-term fixed effects and heteroscedasticity-robust standard errors.

Robustness checks: Core European countries, All European countries, different fixed effects, different standard errors, other monetary policy target rates.

Collateral eligibility

Assets that **qualify** for the QE asset purchase program.

- Comparing repo lending rates of **eligible and noneligible assets**.
- Employ the provisions of the Public Sector Purchase Program (**PSPP**) since the start of QE and retrospectively to compare time trends between (hypothetically) eligible and noneligible assets (difference-in-difference estimation setting).
- Role of central bank purchases is highlighted in the **theoretical** (Gertler and Karadi, 2013; Araújo, Schommer, and Woodford, 2015; Piquard and Salakhova, 2019) and **empirical** (Koijsen et al., 2017; Avdjiev, Everett, and Shin, 2019; Schlepper et al., 2017; Arrata et al., 2020; Corradin and Maddaloni, 2020) literature.

Hypothesis II

Repos using collateral that is (not) eligible for QE programs are more (less) misaligned from the monetary policy rate. Observing similar reactions of both types of collateral before QE would imply common trends and allow us to interpret the results as causal.

Theoretical framework: [Link](#), Dispersion measure: [Link](#) Volume and Spread: [Link](#)

Regression results

Table: QE eligibility - German collateral

	(1)	(2)	(3)
	$\Delta repo^{Special}$	$\Delta repo^{Special}$	$\Delta repo^{Special}$
	TN/SN b/t	TN/SN b/t	TN/SN b/t
$\Delta PolRate$	0.106*** (19.644)	0.098*** (12.937)	0.109*** (13.130)
D^{QE}	-0.016 (-1.462)		-0.016 (-1.434)
$\Delta PolRate \cdot D^{QE}$	-0.150*** (-15.837)		-0.120*** (-8.154)
$D^{Eligible}$		0.004 (0.454)	0.004 (0.440)
$\Delta PolRate \cdot D^{Eligible}$		0.006 (0.537)	-0.005 (-0.463)
$\Delta PolRate \cdot D^{Eligible} \cdot D^{QE}$		-0.172*** (-14.035)	-0.052*** (-2.737)
$\Delta repo^{Special} \text{ lagged}$	-0.364*** (-20.719)	-0.364*** (-20.716)	-0.364*** (-20.719)
N	301,608	301,608	301,608
R^2	0.119	0.119	0.119

All regressions include ISIN-month-term fixed effects and heteroscedasticity-robust standard errors.

Robustness checks: Core European countries, All European countries, different fixed effects, different standard errors, other monetary policy target rates.

Extensions

Our **results do not rely** on the choice of the **EONIA** as the monetary policy target rate. We also employ:

- EONIA-€STR combination with €STR rates beginning in March 2017.
- Overnight euro LIBOR.
- Overnight point of the OIS-implied zero curve and the EURIBOR-implied zero curve.
- One-week OIS rate.
- Rate on the ECB GC Pooling Basket.

We consider the **joint effects** of the two features of the central bank framework:

- GC baskets with a higher share of collateral assets that are eligible for asset purchase are less sensitive to changes in the monetary policy rate. [Results](#)
- Access banks also react less sensitively in the special market after controlling for asset eligibility. [Results](#)

Conclusion

Conclusion

Although designed to support monetary policy, **two crucial aspects of the central bank framework** have led to a **disconnect of short-term rates from the monetary policy rate**.

- Banks with access to the central bank's deposit facility lend at short-term rates that are more misaligned with the monetary policy target rate.
- Secured loans whose collateral assets are the target of Quantitative Easing programs are more disconnected from the monetary policy rate.
- Those two effects also reinforce one another and thus add to the disconnect between monetary policy and short-term secured rates.

Policy implications

- The notion that **unconventional policies safeguard the transmission** of the monetary policy has to be interpreted in the light of our results.
- Policies such as **tiering** and **CRR amendments** could encourage additional amounts to be deposited at the ECB deposit facility creating even **stronger segmentation**.
- Other policies such as **central bank certificates of deposits** and central bank digital currency (**CBDC**) can **widen** the **access** to the central bank's facilities.

References I

- Al-Eyd, M. A., Berkmen, P., 2013. Fragmentation and monetary policy in the euro area. International Monetary Fund Working Paper (No.13-208) .
- Araújo, A., Schommer, S., Woodford, M., 2015. Conventional and unconventional monetary policy with endogenous collateral constraints. American Economic Journal: Macroeconomics 7, 1–43.
- Arrata, W., Nguyen, B., Rahmouni-Rousseau, I., Vari, M., 2020. The scarcity effect of quantitative easing on repo rates: Evidence from the euro area, Journal of Financial Economics (forthcoming).
- Avdjiev, S., Everett, M., Shin, H. S., 2019. Following the imprint of the ECB's asset purchase programme on global bond and deposit flows. BIS Quarterly Review, March 2019, 69-81 .
- Avouyi-Dovi, S., Horny, G., Sevestre, P., 2017. The stability of short-term interest rates pass-through in the euro area during the financial market and sovereign debt crises. Journal of Banking and Finance 79, 74–94.
- Ballensiefen, B., Rinaldo, A., 2020. Safe asset carry trade. Working Paper, University of St.Gallen .
- Bartolini, L., Hilton, S., Sundaresan, S., Tonetti, C., 2011. Collateral values by asset class: Evidence from primary securities dealers. Review of Financial Studies 24, 248–278.

References II

- Bech, M., Klee, E., 2011. The mechanics of a graceful exit: Interest on reserves and segmentation in the federal funds market. *Journal of Monetary Economics* 58, 415–431.
- Bech, M., Monnet, C., 2016. A search-based model of the interbank money market and monetary policy implementation. *Journal of Economic Theory* 164, 32–67.
- BIS, 2017. Repo market functioning. CGFS Papers No. 59.
- Boissel, C., Derrien, F., Ors, E., Thesmar, D., 2017. Systemic risk in clearing houses: Evidence from the European repo market. *Journal of Financial Economics* 125, 511–536.
- Copeland, A., Martin, A., Walker, M., 2014. Repo runs: Evidence from the tri-party repo market. *Journal of Finance* 69, 2343–2380.
- Corradin, S., Eisenschmidt, J., Hoerova, M., Linzert, T., Schepens, G., Sigaux, J.-D., 2020. Money markets, central bank balance sheet and regulation, ECB Working Paper.
- Corradin, S., Maddaloni, A., 2020. The importance of being special: repo markets during the crisis. *Journal of Financial Economics* 137, 392–429.
- Cúrdia, V., Woodford, M., 2011. The central-bank balance sheet as an instrument of monetary policy. *Journal of Monetary Economics* 58, 54–79.

References III

- Drechsler, I., Savov, A., Schnabl, P., 2017. The deposits channel of monetary policy. *The Quarterly Journal of Economics* 132, 1819–1876.
- Duffie, D., Krishnamurthy, A., 2016. Pass-through efficiency in the Fed's new monetary policy setting. Designing resilient monetary policy frameworks for the future, a symposium sponsored by the Federal Reserve Bank of Kansas City, Jackson Hole August 25-27, 2016, 21–102.
- ECB, 2011. The Monetary Policy of the ECB.
- Gertler, M., Karadi, P., 2013. QE 1 vs. 2 vs. 3...: A framework for analyzing large-scale asset purchases as a monetary policy tool. *International Journal of Central Banking* 9, 5–53.
- Gorton, G., Metrick, A., 2012. Securitized banking and the run on repo. *Journal of Financial Economics* 104, 425–451.
- Infante, S., 2020. Private money creation with safe assets and term premia. *Journal of Financial Economics* 136, 828–856.
- Kalemli-Özcan, S., 2019. U.s. monetary policy and international risk spillovers. Working Paper 26297, National Bureau of Economic Research.
- Kojien, R. S., Koulischer, F., Nguyen, B., Yogo, M., 2017. Euro-area quantitative easing and portfolio rebalancing. *American Economic Review* 107, 621–627.

References IV

- Kraenzlin, S., Nellen, T., 2015. Access policy and money market segmentation. *Journal of Monetary Economics* 71, 1–12.
- Krishnamurthy, A., Nagel, S., Orlov, D., 2014. Sizing up repo. *Journal of Finance* 69, 2381–2417.
- Mancini, L., Rinaldo, A., Wrampelmeyer, J., 2016. The euro interbank repo market. *Review of Financial Studies* 29, 1747–1779.
- Piquard, T., Salakhova, D., 2019. Secured and unsecured interbank markets: Monetary policy, substitution and the cost of collateral. *Banque de France Working Paper* 703.
- Rinaldo, A., Schaffner, P., Vasios, M., 2020. Regulatory effects on short-term interest rates. *Journal of Financial Economics* forthcoming.
- Schlepper, K., Riordan, R., Hofer, H., Schrimpf, A., 2017. Scarcity effects of QE: A transaction-level analysis in the Bund market. *Deutsche Bundesbank Discussion Paper* 06/2017.
- Williamson, S. D., 2019. Interest on reserves, interbank lending, and monetary policy. *Journal of Monetary Economics* 101, 14–30.

Appendix: Repo market

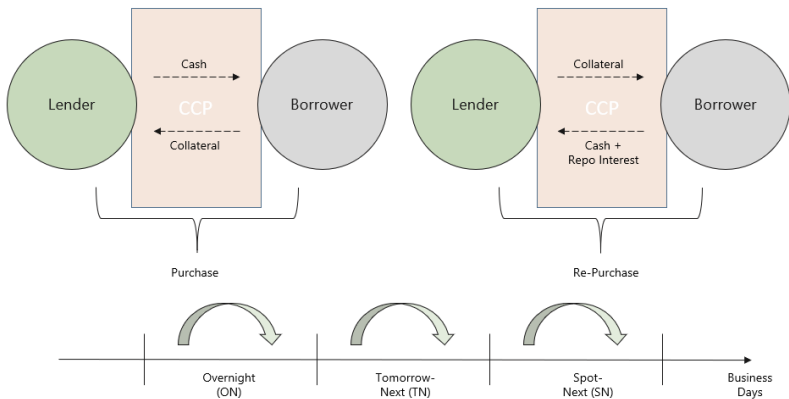
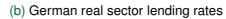
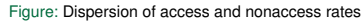


Figure: Repo market





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Appendix: Access/nonaccess model

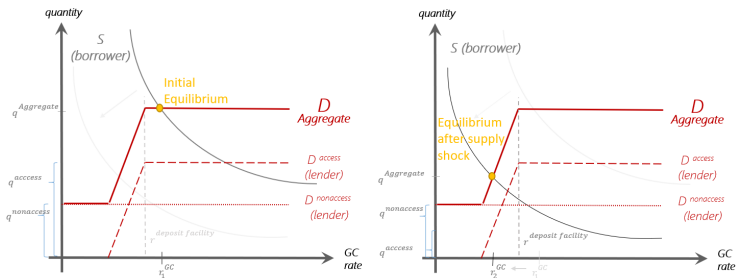


Figure: Impact of supply shock in the GC market

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Appendix: Eligible/noneligible model

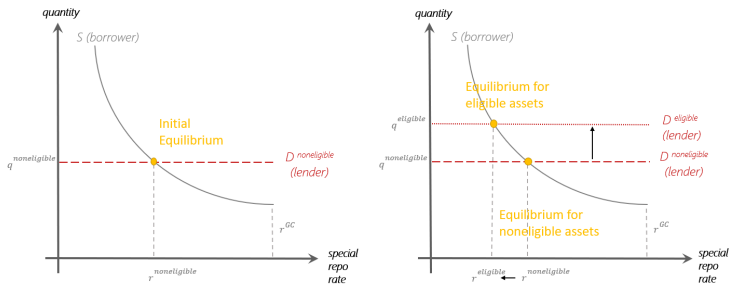


Figure: Impact of demand shock in the special repo market

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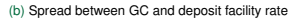


Figure: General collateral repo market

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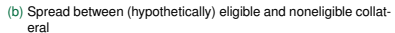


Figure: Special collateral repo market

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Appendix: Access/nonaccess by term type

Table 3.6. ECB access: Germany

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	$\Delta repo^{GC}$	$\Delta repo^{GC}$	$\Delta repo^{GC}$	$\Delta repo^{GC}$	$\Delta repo^{GC}$	$\Delta repo^{GC}$	$\Delta repo^{GC}$	$\Delta repo^{GC}$	$\Delta repo^{GC}$
	ON	TN	ON/TN	ON	TN	ON/TN	ON	TN	ON/TN
	b/t	b/t	b/t	b/t	b/t	b/t	b/t	b/t	b/t
$\Delta PolRate$	0.742*** (10.017)	0.456*** (11.476)	0.539*** (15.700)	0.646*** (6.547)	0.760*** (8.970)	0.717*** (10.745)	0.601*** (5.285)	0.719*** (7.428)	0.675*** (8.781)
D^{Dep}	-0.042 (-1.102)	-0.045* (-1.890)	-0.046** (-2.265)				-0.043 (-1.136)	-0.047** (-1.986)	-0.047** (-2.338)
$\Delta PolRate \cdot D^{Dep}$	-0.130 (-0.891)	-0.210** (-2.229)	-0.176** (-2.216)				0.238 (1.477)	0.287 (1.614)	0.265** (2.082)
D^{Access}				-0.003 (-0.142)	0.001 (0.067)	-0.001 (-0.071)	-0.001 (-0.080)	0.001 (0.074)	-0.000 (-0.035)
$\Delta PolRate \cdot D^{Access}$				0.114 (0.912)	-0.424*** (-4.685)	-0.264*** (-3.549)	0.194 (1.387)	-0.337*** (-3.274)	-0.177*** (-2.100)
$\Delta PolRate \cdot D^{Access} \cdot D^{Dep}$							-0.625** (-2.461)	-0.760*** (-4.037)	-0.719*** (-4.970)
$\Delta repo^{GC}$ lagged	-0.311*** (-7.411)	-0.326*** (-11.237)	-0.332*** (-14.230)	-0.311*** (-7.531)	-0.321*** (-10.978)	-0.332*** (-14.147)	-0.313*** (-7.491)	-0.321*** (-11.027)	-0.322*** (-14.151)
N	2,828	7,173	10,001	2,828	7,173	10,001	2,828	7,173	10,001
R^2	0.332	0.161	0.210	0.332	0.172	0.213	0.336	0.179	0.220

The table reports the regression results examining the impact of access to the ECB's deposit facility on the pass-through of the monetary policy target rate into GC repo rates. The dependent variable is the change in the GC rate $\Delta repo^{GC}$. $\Delta PolRate$ denotes the change in the policy rate. D^{Dep} equals 1 if a country's GC rate is below the deposit facility. D^{Access} equals 1 if a lending bank has access to the deposit facility. ***, **, and * represent significance at a 1, 5, and 10% level, respectively; t-statistics are in parentheses. All regressions include basket-month-term fixed effects and heteroskedasticity-robust standard errors. Data include German GC repo transactions separate for each and pooled across the term types ON and TN for the time-period 2010–2018.

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Appendix: Access/nonaccess by term type

Table 3.7. ECB access: Core countries

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	$\Delta repo^{GC}$	$\Delta repo^{GC}$	$\Delta repo^{GC}$	$\Delta repo^{GC}$	$\Delta repo^{GC}$	$\Delta repo^{GC}$	$\Delta repo^{GC}$	$\Delta repo^{GC}$	$\Delta repo^{GC}$
	ON	TN	ON/TN	ON	TN	ON/TN	ON	TN	ON/TN
	b/t	b/t	b/t	b/t	b/t	b/t	b/t	b/t	b/t
$\Delta PolRate$	0.679*** (15.740)	0.376*** (16.033)	0.472*** (23.035)	0.810*** (13.089)	0.624*** (11.957)	0.683*** (16.875)	0.801*** (10.747)	0.576*** (10.245)	0.643*** (14.261)
D^{Dep}	-0.020 (-1.132)	-0.037*** (-2.682)	-0.032*** (-2.940)				-0.017 (-1.014)	-0.038*** (-2.794)	-0.032*** (-2.922)
$\Delta PolRate \cdot D^{Dep}$	-0.219*** (-2.637)	0.030 (0.438)	-0.048 (-0.897)				0.045 (0.472)	0.450*** (4.129)	0.298*** (3.968)
D^{Access}				-0.002 (-0.231)	-0.006 (-0.801)	-0.005 (-0.819)	-0.002 (-0.226)	-0.005 (-0.685)	-0.004 (-0.743)
$\Delta PolRate \cdot D^{Access}$				-0.201*** (-2.692)	-0.324*** (-5.644)	-0.284*** (-6.242)	-0.155* (-1.782)	-0.263*** (-4.261)	-0.222*** (-4.423)
$\Delta PolRate \cdot D^{Access} \cdot D^{Dep}$							-0.528*** (-3.986)	-0.604*** (-4.584)	-0.561*** (-5.885)
$\Delta repo^{GC} \text{ lagged}$	-0.302*** (-15.168)	-0.345*** (-18.622)	-0.337*** (-24.685)	-0.303*** (-15.259)	-0.340*** (-18.181)	-0.335*** (-24.388)	-0.303*** (-15.180)	-0.341*** (-18.247)	-0.335*** (-24.410)
N	12,219	22,863	35,082	12,219	22,863	35,082	12,219	22,863	35,082
R^2	0.253	0.143	0.180	0.254	0.150	0.185	0.257	0.153	0.187

The table reports the regression results examining the impact of access to the ECB's deposit facility on the pass-through of the monetary policy target rate into GC repo rates. The dependent variable is the change in the GC rate $\Delta repo^{GC}$. $\Delta PolRate$ denotes the change in the policy rate. D^{Dep} equals 1 if a country's GC rate is below the deposit facility. D^{Access} equals 1 if a lending bank has access to the deposit facility. ***, **, and * represent significance at a 1, 5, and 10% level, respectively; t-statistics are in parentheses. All regressions include basket-month-term fixed effects and heteroskedastic-robust standard errors. Data include GC repo transactions for core European countries separate for each and pooled across the term types ON and TN for the time-period 2010-2015.

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	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	$\Delta repo^{GC}$	$\Delta repo^{GC}$	$\Delta repo^{GC}$	$\Delta repo^{GC}$	$\Delta repo^{GC}$	$\Delta repo^{GC}$	$\Delta repo^{GC}$	$\Delta repo^{GC}$	$\Delta repo^{GC}$
	ON b/t	TN b/t	ON/TN b/t	ON b/t	TN b/t	ON/TN b/t	ON b/t	TN b/t	ON/TN b/t
$\Delta P^{ol}Rate$	0.660*** (19.491)	0.304*** (15.542)	0.424*** (24.699)	0.708*** (10.666)	0.520*** (12.869)	0.589*** (16.774)	0.694*** (9.670)	0.484*** (11.494)	0.560*** (15.106)
D^{Dep}	0.033*** (2.675)	-0.020* (-1.775)	0.001 (0.143)				0.034*** (2.774)	-0.029* (-1.775)	0.002 (0.221)
$\Delta P^{ol}Rate - D^{Dep}$	-0.200*** (-2.562)	0.122* (1.882)	0.011 (0.220)				0.169* (1.808)	0.525*** (5.346)	0.384*** (5.668)
D^{Access}				-0.002 (-0.302)	-0.004 (-0.726)	-0.003 (-0.755)	-0.002 (-0.273)	-0.004 (-0.674)	-0.003 (-0.709)
$\Delta P^{ol}Rate - D^{Access}$				-0.085 (-1.152)	-0.270*** (-6.199)	-0.223*** (-5.687)	-0.047 (-0.594)	-0.240*** (-5.104)	-0.184*** (-4.438)
$\Delta P^{ol}Rate - D^{Access} - D^{Dep}$							-0.657*** (-5.109)	-0.505*** (-5.022)	-0.595*** (-6.733)
$\Delta repo^{GC} \text{ lagged}$	-0.324*** (-15.436)	-0.382*** (-25.063)	-0.373*** (-30.291)	-0.324*** (-15.482)	-0.381*** (-24.915)	-0.371*** (-30.133)	-0.324*** (-15.452)	-0.381*** (-24.929)	-0.371*** (-30.167)
N	21,894	36,289	58,183	21,894	36,289	58,183	21,894	36,289	58,183
R^2	0.248	0.140	0.174	0.248	0.145	0.177	0.250	0.147	0.178

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Appendix: Access/nonaccess by fixed effect specification

Table 3.9. ECB access: Germany, different fixed effect specifications

	(1)	(2)	(3)	(4)	(5)
	$\Delta repo^{GC}$	$\Delta repo^{GC}$	$\Delta repo^{GC}$	$\Delta repo^{GC}$	$\Delta repo^{GC}$
	ON/TN	ON/TN	ON/TN	ON/TN	ON/TN
	b/t	b/t	b/t	b/t	b/t
$\Delta PolRate$	0.675*** (8.781)	0.684*** (9.301)	0.712*** (9.197)	0.725*** (8.733)	0.725*** (8.709)
D^{Dep}	-0.047** (-2.338)	-0.047** (-2.274)	-0.027** (-2.068)	-0.032*** (-3.605)	-0.021* (-1.795)
$\Delta PolRate \cdot D^{Dep}$	0.265** (2.082)	0.269** (2.350)	0.279** (2.225)	0.313** (2.358)	0.293** (2.228)
D^{Access}	-0.000 (-0.005)	-0.002 (-0.147)	0.003 (0.265)	0.002 (0.155)	0.003 (0.339)
$\Delta PolRate \cdot D^{Access}$	-0.177** (-2.100)	-0.149* (-1.766)	-0.130 (-1.456)	-0.138 (-1.461)	-0.139 (-1.468)
$\Delta PolRate \cdot D^{Access} \cdot D^{Dep}$	-0.719*** (-4.970)	-0.686*** (-4.821)	-0.665*** (-4.400)	-0.591*** (-3.616)	-0.583*** (-3.608)
$\Delta repo^{GC}$ lagged	-0.332*** (-14.151)	-0.321*** (-14.032)	-0.307*** (-12.483)	-0.298*** (-12.005)	-0.296*** (-12.072)
FE	Basket $\times$ Month $\times$ Term	Basket $\times$ Month	Basket $\times$ Year	Basket	Year
N	10,001	10,098	10,165	10,168	10,168
R^2	0.220	0.239	0.227	0.220	0.223

The table reports the regression results examining the impact of access to the ECB's deposit facility on the pass-through of the monetary policy target rate into GC repo rates. The dependent variable is the change in the GC rate $\Delta repo^{GC}$. $\Delta PolRate$ denotes the change in the policy rate. D^{Dep} equals 1 if a country's GC rate is below the deposit facility. D^{Access} equals 1 if a lending bank has access to the deposit facility. ***, **, and * represent significance at a 1, 5, and 10% level, respectively; t -statistics are in parentheses. The regressions include different fixed effect specifications and heteroskedastic-robust standard errors. Data include German GC repo transactions pooled across the term types ON and TN for the time-period 2010–2018.

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Appendix: Access/nonaccess by fixed effect specification

Table 3.10. ECB access: Core countries, different fixed effect specifications

	(1)	(2)	(3)	(4)	(5)
	$\Delta repo^{GC}$	$\Delta repo^{GC}$	$\Delta repo^{GC}$	$\Delta repo^{GC}$	$\Delta repo^{GC}$
	ON/TN h/t	ON/TN h/t	ON/TN h/t	ON/TN h/t	ON/TN h/t
$\Delta PolRate$	0.643*** (14.261)	0.672*** (15.044)	0.709*** (15.028)	0.716*** (14.735)	0.715*** (14.721)
D^{Dep}	-0.032*** (-2.922)	-0.027** (-2.434)	-0.019*** (-2.594)	-0.018*** (-4.059)	-0.015** (-2.243)
$\Delta PolRate \cdot D^{Dep}$	0.298*** (3.908)	0.203*** (4.140)	0.298*** (3.908)	0.326*** (4.127)	0.310*** (3.966)
D^{Access}	-0.004 (-0.743)	-0.004 (-0.662)	-0.002 (-0.331)	-0.003 (-0.487)	-0.001 (-0.156)
$\Delta PolRate \cdot D^{Access}$	-0.222*** (-4.423)	-0.230*** (-4.565)	-0.227*** (-4.262)	-0.227*** (-4.162)	-0.225*** (-4.126)
$\Delta PolRate \cdot D^{Access} \cdot D^{Dep}$	-0.561*** (-5.885)	-0.512*** (-5.599)	-0.482*** (-5.029)	-0.429*** (-4.262)	-0.423*** (-4.230)
$\Delta repo^{GC} \text{ lagged}$	-0.335*** (-24.410)	-0.327*** (-23.978)	-0.310*** (-22.599)	-0.303*** (-22.093)	-0.304*** (-22.134)
FE	Basket× Month× Term	Basket× Month	Basket× Year	Basket	Year
N	35,082	35,376	35,624	35,631	35,631
R ²	0.187	0.199	0.192	0.188	0.190

The table reports the regression results examining the impact of access to the ECB's deposit facility on the pass-through of the monetary policy target rate into GC repo rates. The dependent variable is the change in the GC rate $\Delta repo^{GC}$. $\Delta PolRate$ denotes the change in the policy rate. D^{Dep} equals 1 if a country's GC rate is below the deposit facility. D^{Access} equals 1 if a lending bank has access to the deposit facility. ***, **, and * represent significance at 1, 5, and 10% level, respectively; t-statistics are in parentheses. The regressions include different fixed effect specifications and heteroskedastic-robust standard errors. Data include GC repo transactions for core European countries pooled across the term types ON and TN for the time-period 2010–2018.

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Appendix: Access/nonaccess by fixed effect specification

Table 3.11. ECB access: All countries, different fixed effect specifications

	(1)	(2)	(3)	(4)	(5)
	$\Delta repo^{GC}$	$\Delta repo^{GC}$	$\Delta repo^{GC}$	$\Delta repo^{GC}$	$\Delta repo^{GC}$
	ON/TN b/t	ON/TN b/t	ON/TN b/t	ON/TN b/t	ON/TN b/t
$\Delta PolRate$	0.560*** (15.106)	0.583*** (15.963)	0.616*** (16.619)	0.622*** (16.527)	0.621*** (16.500)
D^{Dep}	0.002 (0.221)	0.005 (0.553)	-0.002 (-0.311)	-0.011*** (-2.815)	-0.002 (-0.530)
$\Delta PolRate \cdot D^{Dep}$	0.384*** (5.668)	0.383*** (5.965)	0.397*** (5.843)	0.429*** (6.082)	0.417*** (5.976)
D^{Access}	-0.003 (-0.709)	-0.004 (-0.816)	-0.003 (-0.746)	-0.004 (-1.009)	-0.003 (-0.904)
$\Delta PolRate \cdot D^{Access}$	-0.184*** (-4.438)	-0.188*** (-4.586)	-0.190*** (-4.537)	-0.182*** (-4.259)	-0.180*** (-4.217)
$\Delta PolRate \cdot D^{Access} \cdot D^{Dep}$	-0.595*** (-6.733)	-0.533*** (-6.303)	-0.496*** (-5.567)	-0.454*** (-4.889)	-0.444*** (-4.817)
$\Delta repo^{GC} \text{ logged}$	-0.371*** (-30.107)	-0.363*** (-30.027)	-0.347*** (-28.923)	-0.342*** (-28.550)	-0.342*** (-28.577)
FE	Basket $\times$ Month $\times$ Term	Basket $\times$ Month	Basket $\times$ Year	Basket	Year
N	58,183	58,626	58,983	58,996	58,997
R^2	0.178	0.191	0.188	0.186	0.188

The table reports the regression results examining the impact of access to the ECB's deposit facility on the pass-through of the monetary policy target rate into GC repo rates. The dependent variable is the change in the GC rate $\Delta repo^{GC}$. $\Delta PolRate$ denotes the change in the policy rate. D^{Dep} equals 1 if a country's GC rate is below the deposit facility. D^{Access} equals 1 if a lending bank has access to the deposit facility. ***, **, and * represent significance at 1, 5, and 10% level, respectively; t-statistics are in parentheses. The regressions include different fixed effect specifications and heteroskedasticity-robust standard errors. Data include GC repo transactions for all European countries pooled across the term types ON and TN for the time-period 2010–2018.

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Appendix: Access/nonaccess by clustered standard errors

Table 3.12. ECB access: Germany

	(1)	(2)	(3)
	$\Delta repo^{GC}$	$\Delta repo^{GC}$	$\Delta repo^{GC}$
	b/t	b/t	b/t
$\Delta PolRate$	0.539* (7.367)	0.717* (10.556)	0.675* (9.705)
D^{Dep}	-0.046 (-4.366)		-0.047 (-4.723)
$\Delta PolRate \cdot D^{Dep}$	-0.176 (-0.631)		0.265 (3.538)
D^{Access}		-0.001 (-0.126)	-0.000 (-0.060)
$\Delta PolRate \cdot D^{Access}$		-0.264** (-15.995)	-0.177* (-12.534)
$\Delta PolRate \cdot D^{Access} \cdot D^{Dep}$			-0.719* (-11.802)
$\Delta repo^{GC}$ lagged	-0.332** (-34.857)	-0.332** (-55.699)	-0.332** (-31.902)
N	10,001	10,001	10,001
R^2	0.210	0.213	0.220

The table reports the regression results examining the impact of access to the ECB's deposit facility on the pass-through of the monetary policy target rate into GC repo rates using clustered standard errors. The dependent variable is the change in the GC rate $\Delta repo^{GC}$. $\Delta PolRate$ denotes the change in the policy rate. D^{Dep} equals 1 if a country's GC rate is below the deposit facility. D^{Access} equals 1 if a lending bank has access to the deposit facility. ***, **, and * represent significance at a 1, 5, and 10% level, respectively; t-statistics are in parentheses. All regressions include basket-month-term fixed effects and standard errors accounting for clustering at the basket and access level. Data include German GC repo transactions pooled across the term types ON and TN for the time-period 2010–2018.

Appendix: Access/nonaccess by clustered standard errors

Table 3.13. ECB access: Core countries

	(1)	(2)	(3)
	$\Delta repo^{GC}$	$\Delta repo^{GC}$	$\Delta repo^{GC}$
	b/t	b/t	b/t
$\Delta PolRate$	0.472* (6.571)	0.683** (16.968)	0.643** (17.549)
D^{Dep}	-0.032 (-3.318)		-0.032 (-2.634)
$\Delta PolRate \cdot D^{Dep}$	-0.048 (-0.209)		0.298* (7.263)
D^{Access}		-0.005 (-2.577)	-0.004 (-1.780)
$\Delta PolRate \cdot D^{Access}$		-0.284*** (-74.521)	-0.222** (-22.051)
$\Delta PolRate \cdot D^{Access} \cdot D^{Dep}$			-0.561** (-28.590)
$\Delta repo^{GC} \text{ lagged}$	-0.337** (-27.282)	-0.335** (-52.065)	-0.335** (-49.473)
N	35,082	35,082	35,082
R^2	0.180	0.185	0.187

The table reports the regression results examining the impact of access to the ECB's deposit facility on the pass-through of the monetary policy target rate into GC repo rates using clustered standard errors. The dependent variable is the change in the GC rate $\Delta repo^{GC}$. $\Delta PolRate$ denotes the change in the policy rate. D^{Dep} equals 1 if a country's GC rate is below the deposit facility. D^{Access} equals 1 if a lending bank has access to the deposit facility. ***, **, and * represent significance at a 1, 5, and 10% level, respectively; t-statistics are in parentheses. All regressions include basket-month-term fixed effects and standard errors accounting for clustering at the basket and access level. Data include GC repo transactions for core European countries pooled across the term types ON and TN for the time-period 2010–2018.

Appendix: Access/nonaccess by clustered standard errors

Table 3.14. ECB access: All countries

	(1)	(2)	(3)
	$\Delta repo^{GC}$	$\Delta repo^{GC}$	$\Delta repo^{GC}$
	b/t	b/t	b/t
$\Delta PolRate$	0.424* (6.626)	0.589** (18.599)	0.560** (18.663)
D^{Dep}	0.001 (0.079)		0.002 (0.107)
$\Delta PolRate \cdot D^{Dep}$	0.011 (0.047)		0.384 (6.133)
D^{Access}		-0.003 (-2.754)	-0.003 (-2.053)
$\Delta PolRate \cdot D^{Access}$		-0.223 (-6.139)	-0.184 (-5.411)
$\Delta PolRate \cdot D^{Access} \cdot D^{Dep}$			-0.595** (-17.311)
$\Delta repo^{GC} \text{ lagged}$	-0.372** (-21.546)	-0.371** (-21.317)	-0.371** (-21.424)
N	58,183	58,183	58,183
R^2	0.174	0.177	0.178

The table reports the regression results examining the impact of access to the ECB's deposit facility on the pass-through of the monetary policy target rate into GC repo rates using clustered standard errors. The dependent variable is the change in the GC rate $\Delta repo^{GC}$. $\Delta PolRate$ denotes the change in the policy rate. D^{Dep} equals 1 if a country's GC rate is below the deposit facility. D^{Access} equals 1 if a lending bank has access to the deposit facility. ***, **, and * represent significance at a 1, 5, and 10% level, respectively; t-statistics are in parentheses. All regressions include basket-month-term fixed effects and standard errors accounting for clustering at the basket and access level. Data include GC repo transactions for all European countries pooled across the term types ON and TN for the time-period 2010–2018.

Appendix: Alternative Rates and access/nonaccess banks

Table 6. ECB access: Germany

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	EONIA	€STR	euro LIBOR	zero OIS	zero EURIBOR	OIS 1W	GC Pooling
	$\Delta repo^{GC}$	$\Delta repo^{GC}$	$\Delta repo^{GC}$	$\Delta repo^{GC}$	$\Delta repo^{GC}$	$\Delta repo^{GC}$	$\Delta repo^{GC}$
	ON/TN b/t	ON/TN b/t	ON/TN b/t	ON/TN b/t	ON/TN b/t	ON/TN b/t	ON/TN b/t
$\Delta PolRate$	0.675*** (8.781)	0.705*** (9.274)	0.480*** (9.220)	0.334*** (6.013)	0.179*** (5.055)	0.329*** (4.349)	0.723*** (14.246)
D^{Dep}	-0.047** (-2.338)	-0.026** (-2.059)	-0.051** (-2.520)	-0.021 (-1.564)	-0.029** (-2.061)	-0.029** (-2.249)	-0.041** (-2.108)
$\Delta PolRate \cdot D^{Dep}$	0.265** (2.082)	0.253** (2.086)	0.356*** (4.003)	0.268** (2.571)	0.179** (2.196)	0.363*** (3.249)	0.277** (2.320)
D^{Access}	-0.000 (-0.035)	0.002 (0.183)	0.004 (0.339)	0.001 (0.120)	-0.004 (-0.361)	0.001 (0.090)	-0.005 (-0.482)
$\Delta PolRate \cdot D^{Access}$	-0.177** (-2.100)	-0.128 (-1.474)	-0.117* (-1.743)	-0.165*** (-2.702)	-0.072* (-1.887)	-0.046 (-0.516)	-0.162*** (-2.702)
$\Delta PolRate \cdot D^{Access} \cdot D^{Dep}$	-0.719*** (-4.970)	-0.648*** (-4.425)	-0.670*** (-5.607)	-0.378*** (-3.377)	-0.264*** (-3.058)	-0.258* (-1.740)	-0.657*** (-4.166)
$\Delta repo^{GC}$ lagged	-0.333*** (-14.151)	-0.311*** (-12.972)	-0.420*** (-15.125)	-0.323*** (-12.711)	-0.311*** (-12.876)	-0.324*** (-12.113)	-0.307*** (-11.913)
N	10,001	10,158	9,952	9,778	9,758	10,078	10,060
R^2	0.220	0.231	0.187	0.124	0.114	0.144	0.297

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Appendix: Alternative policy rates

Table 3.16. ECB access: Core countries

	(1)	(2)	(3)	(4)	(5)	(6)
	EONIA	€STR	euro LIBOR	zero OIS	zero EURIBOR	OIS 1W
	$\Delta repo^{GC}$	$\Delta repo^{GC}$	$\Delta repo^{GC}$	$\Delta repo^{GC}$	$\Delta repo^{GC}$	$\Delta repo^{GC}$
	ON/TN	ON/TN	ON/TN	ON/TN	ON/TN	ON/TN
	b/t	b/t	b/t	b/t	b/t	b/t
$\Delta PolRate$	0.643*** (14.261)	0.704*** (15.067)	0.440*** (8.908)	0.312*** (9.306)	0.135*** (7.426)	0.348*** (6.378)
D^{Dep}	-0.032*** (-2.922)	-0.018** (-2.488)	-0.030*** (-2.770)	-0.020** (-2.575)	-0.025*** (-3.260)	-0.022*** (-2.961)
$\Delta PolRate \cdot D^{Dep}$	0.298*** (3.968)	0.299*** (3.943)	0.375*** (5.581)	0.210*** (3.317)	0.198*** (4.152)	0.319*** (4.315)
D^{Access}	-0.004 (-0.743)	-0.001 (-0.192)	-0.005 (-0.785)	-0.001 (-0.231)	-0.006 (-1.033)	-0.004 (-0.619)
$\Delta PolRate \cdot D^{Access}$	-0.222*** (-4.423)	-0.226*** (-4.310)	-0.122** (-2.094)	-0.186*** (-5.242)	-0.059*** (-2.947)	-0.117** (-2.006)
$\Delta PolRate \cdot D^{Access} \cdot D^{Dep}$	-0.561*** (-5.885)	-0.497*** (-5.259)	-0.417*** (-4.766)	-0.240*** (-3.612)	-0.231*** (-4.533)	-0.233*** (-2.711)
$\Delta repo^{GC} \text{ lagged}$	-0.335*** (-24.410)	-0.313*** (-22.963)	-0.401*** (-26.606)	-0.318*** (-22.834)	-0.305*** (-22.875)	-0.318*** (-22.775)
N	35,082	35,607	34,949	34,606	34,519	35,295
R^2	0.187	0.195	0.168	0.118	0.106	0.135

The table reports the robustness results examining the impact of access to the ECB's deposit facility on the monetary policy pass-through for alternative monetary policy target rates. The dependent variable is the change in the GC rate $\Delta repo^{GC}$. $\Delta PolRate$ denotes the change in different policy rates. D^{Dep} equals 1 if a country's GC rate is below the deposit facility. D^{Access} equals 1 if a lending bank has access to the deposit facility. ***, **, and * represent significance at a 1, 5, and 10% level, respectively; t -statistics are in parentheses. All regressions include basket-month-term fixed effects and heteroskedastic-robust standard errors. Data include GC repo transactions for core European countries pooled across the term types ON and TN for the time-period 2010–2018.

Appendix: Alternative policy rates

Table 3.17. ECB access: All countries

	(1)	(2)	(3)	(4)	(5)	(6)
	EONIA	€STR	euro LIBOR	zero OIS	zero EURIBOR	OIS 1W
	$\Delta repo^{GC}$	$\Delta repo^{GC}$	$\Delta repo^{GC}$	$\Delta repo^{GC}$	$\Delta repo^{GC}$	$\Delta repo^{GC}$
	ON/TN b/t	ON/TN b/t	ON/TN b/t	ON/TN b/t	ON/TN b/t	ON/TN b/t
$\Delta PolRate$	0.560*** (15.106)	0.612*** (16.587)	0.379*** (10.586)	0.250*** (10.923)	0.127*** (10.831)	0.262*** (6.977)
D^{Dep}	0.002 (0.221)	-0.002 (-0.354)	0.003 (0.340)	-0.003 (-0.468)	-0.007 (-1.055)	-0.005 (-0.804)
$\Delta PolRate \cdot D^{Dep}$	0.384*** (5.668)	0.400*** (5.872)	0.396*** (6.898)	0.289*** (5.154)	0.210*** (5.112)	0.417*** (6.987)
D^{Access}	-0.003 (-0.709)	-0.002 (-0.509)	-0.003 (-0.641)	-0.002 (-0.447)	-0.004 (-0.961)	-0.002 (-0.535)
$\Delta PolRate \cdot D^{Access}$	-0.184*** (-4.438)	-0.193*** (-4.635)	-0.112*** (-2.677)	-0.142*** (-5.732)	-0.052*** (-4.004)	-0.102** (-2.462)
$\Delta PolRate \cdot D^{Access} \cdot D^{Dep}$	-0.595*** (-6.733)	-0.500*** (-5.763)	-0.362*** (-4.753)	-0.283*** (-4.711)	-0.231*** (-5.198)	-0.200*** (-2.713)
$\Delta repo^{GC} \text{ lagged}$	-0.371*** (-30.167)	-0.350*** (-29.208)	-0.416*** (-30.883)	-0.354*** (-28.331)	-0.346*** (-27.758)	-0.345*** (-28.558)
N	58,183	58,961	57,864	57,214	57,026	58,447
R^2	0.178	0.189	0.160	0.133	0.128	0.139

The table reports the robustness results examining the impact of access to the ECB's deposit facility on the monetary policy pass-through for alternative monetary policy target rates. The dependent variable is the change in the GC rate $\Delta repo^{GC}$. $\Delta PolRate$ denotes the change in different policy rates. D^{Dep} equals 1 if a country's GC rate is below the deposit facility. D^{Access} equals 1 if a lending bank has access to the deposit facility. ***, **, and * represent significance at a 1, 5, and 10% level, respectively; t -statistics are in parentheses. All regressions include basket-month-term fixed effects and heteroskedastic-robust standard errors. Data include GC repo transactions for all European countries pooled across the term types ON and TN for the time-period 2010–2018.

Appendix: Eligible/noneligible by term type

Table 4.6. Collateral eligibility: Germany

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	$\Delta repo^{eligible}$	$\Delta repo^{eligible}$	$\Delta repo^{eligible}$	$\Delta repo^{eligible}$	$\Delta repo^{eligible}$	$\Delta repo^{eligible}$	$\Delta repo^{eligible}$	$\Delta repo^{eligible}$	$\Delta repo^{eligible}$
	TN	SN	TN/SN	TN	SN	TN/SN	TN	SN	TN/SN
	b/t	b/t	b/t	b/t	b/t	b/t	b/t	b/t	b/t
$-\Delta PdRate$	0.190*** (17.209)	-0.061*** (11.084)	-0.198*** (10.644)	-0.171*** (11.659)	-0.058*** (6.992)	-0.098*** (12.937)	-0.156*** (11.598)	-0.066*** (7.315)	-0.109*** (13.130)
D^{QE}	-0.022 (-0.906)	-0.010 (-0.877)	-0.016 (-1.462)				-0.022 (-0.905)	-0.010 (-0.839)	-0.014 (-1.434)
$\Delta PdRate \cdot D^{QE}$	-0.200*** (-10.786)	-0.119*** (-12.683)	-0.159*** (-15.837)				-0.165*** (-5.386)	-0.095*** (-6.505)	-0.120*** (-8.154)
$D^{eligible}$				-0.001 (-0.043)	0.005 (0.575)	0.004 (0.654)	-0.001 (-0.051)	0.005 (0.568)	0.004 (0.440)
$\Delta PdRate \cdot D^{eligible}$				0.023 (1.007)	-0.001 (-0.127)	0.006 (0.537)	0.008 (0.356)	-0.010 (-0.837)	-0.005 (-0.403)
$\Delta PdRate \cdot D^{eligible} \cdot D^{QE}$				-0.235*** (-9.456)	-0.138*** (-11.374)	-0.172*** (-11.035)	-0.079* (-1.820)	-0.043** (-2.269)	-0.052*** (-2.737)
$\Delta repo^{eligible} \text{ lagged}$	-0.404*** (-56.990)	-0.312*** (-9.337)	-0.304*** (-20.719)	-0.424*** (-56.981)	-0.312*** (-9.356)	-0.364*** (-20.716)	-0.424*** (-56.992)	-0.312*** (-9.357)	-0.304*** (-20.719)
N	106,105	195,503	301,608	106,105	195,503	301,608	106,105	195,503	301,608
R^2	0.150	0.084	0.110	0.150	0.084	0.110	0.150	0.084	0.110

The table reports the regression results examining the impact of asset eligibility for quantitative easing on the pass-through of the monetary policy target rate into special repo rates. The dependent variable is the change in the special repo rate $\Delta repo^{eligible}$. $\Delta PdRate$ denotes the change in the policy rate. D^{QE} equals 1 during the PSPF. $D^{eligible}$ equals 1 if a security is (hypothetically) eligible for purchase under the PSPF. ***, **, and * represent significance at a 1, 5, and 10% level, respectively. t-statistics are in parentheses. All regressions include ISM month-term fixed effects and heteroskedasticity-robust standard errors. Data include German special repo transactions separate for each and pooled across the term types TN and SN for the time-period 2010-2018.

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Appendix: Eligible/noneligible by term type

Table 4.7. Collateral eligibility: Core countries

	(1) $\Delta repo^{Special}$ h/t	(2) $\Delta repo^{Special}$ h/t	(3) $\Delta repo^{Special}$ TN/SN h/t	(4) $\Delta repo^{Special}$ TN h/t	(5) $\Delta repo^{Special}$ SN h/t	(6) $\Delta repo^{Special}$ TN/SN h/t	(7) $\Delta repo^{Special}$ TN h/t	(8) $\Delta repo^{Special}$ SN h/t	(9) $\Delta repo^{Special}$ TN/SN h/t
$\Delta PolRate$	0.184*** (26.271)	0.003*** (18.168)	0.105*** (31.179)	0.147*** (14.900)	0.063*** (10.447)	0.095*** (17.681)	0.153*** (14.724)	0.071*** (10.779)	0.103*** (17.810)
D^{QE}	-0.010 (-0.719)	-0.006 (-0.802)	-0.006 (-1.187)				-0.010 (-0.709)	-0.005 (-0.709)	-0.008 (-1.158)
$\Delta PolRate \cdot D^{QE}$	-0.160*** (-12.396)	-0.110*** (-17.603)	-0.126*** (-19.814)				-0.124*** (-5.922)	-0.092*** (-8.172)	-0.104*** (-9.643)
$D^{HighLev}$				0.000 (0.013)	0.008 (1.179)	0.005 (0.972)	0.000 (0.007)	0.008 (1.181)	0.005 (0.969)
$\Delta PolRate \cdot D^{HighLev}$				0.055*** (4.088)	-0.004 (-0.526)	0.011 (1.592)	0.044*** (3.166)	-0.011 (-1.472)	0.002 (0.295)
$\Delta PolRate \cdot D^{HighLev} \cdot D^{QE}$				-0.182*** (-11.145)	-0.129*** (-16.192)	-0.137*** (-17.522)	-0.058** (-2.189)	-0.028** (-2.005)	-0.023** (-2.453)
$\Delta repo^{Special} \text{ lagged}$	-0.409*** (-81.121)	-0.316*** (-19.471)	-0.323*** (-30.267)	-0.409*** (-81.084)	-0.316*** (-19.470)	-0.327*** (-30.229)	-0.409*** (-81.092)	-0.316*** (-19.472)	-0.327*** (-30.264)
N	238,165	467,468	705,633	238,165	467,468	705,633	238,165	467,468	705,633
R^2	0.146	0.088	0.115	0.146	0.008	0.115	0.146	0.088	0.115

This table reports the regression results examining the impact of asset eligibility for quantitative easing on the pass-through of the monetary policy target rate into special repo rates. The dependent variable is the change in the special repo rate $\Delta repo^{Special}$. $\Delta PolRate$ denotes the change in the policy rate. D^{QE} equals 1 during the PSPP. $D^{HighLev}$ equals 1 if a security is (hypothetically) eligible for purchases under the PSPP. ***, **, and * represent significance at a 1, 5, and 10% level, respectively. t -statistics are in parentheses. All regressions include SN -month term fixed effects and heteroskedasticity-robust standard errors. Data include special repo transactions for core European countries separately for each and pooled across the term types TN and SN for the time-period 2010–2018.

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Appendix: Eligible/noneligible by term type

Table 4.8. Collateral eligibility: All countries

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	$\Delta repo^{special}$	$\Delta repo^{special}$	$\Delta repo^{special}$	$\Delta repo^{special}$	$\Delta repo^{special}$	$\Delta repo^{special}$	$\Delta repo^{special}$	$\Delta repo^{special}$	$\Delta repo^{special}$
	TN	SN	TN/SN	TN	SN	TN/SN	TN	SN	TN/SN
	b/t	b/t	b/t	b/t	b/t	b/t	b/t	b/t	b/t
$\Delta PdRate$	0.174*** (26.299)	0.061*** (17.227)	0.099*** (30.205)	0.145*** (15.800)	0.062*** (10.508)	0.094*** (18.304)	0.153*** (15.406)	0.069*** (10.844)	0.101*** (18.358)
PQE	-0.021 (-1.046)	-0.012 (-1.404)	-0.017* (-1.752)				-0.021 (-1.047)	-0.012 (-1.375)	-0.016* (-1.740)
$\Delta PdRate - PQE$	-0.126*** (-10.342)	-0.166*** (-16.347)	-0.108*** (-17.339)				-0.094*** (-4.601)	-0.088*** (-7.479)	-0.089*** (-8.198)
PQE^{table}				-0.007 (-0.658)	0.009 (1.374)	0.004 (0.669)	-0.007 (-0.675)	0.009 (1.365)	0.004 (0.649)
$\Delta PdRate - PQE^{table}$				0.041*** (3.250)	-0.005 (-0.625)	0.004 (0.562)	0.033** (2.508)	-0.012 (-1.545)	-0.004 (-0.565)
$\Delta PdRate - PQE^{table} - PQE$				-0.145*** (-9.463)	-0.114*** (-14.766)	-0.117*** (-15.319)	-0.051** (-1.995)	-0.028* (-1.869)	-0.028** (-2.119)
$\Delta repo^{special}$ lagged	-0.412*** (-95.132)	-0.324*** (-27.036)	-0.362*** (-51.918)	-0.412*** (-95.101)	-0.324*** (-51.911)	-0.362*** (-51.911)	-0.412*** (-95.110)	-0.324*** (-27.037)	-0.362*** (-51.915)
N	323,263	620,086	943,349	323,263	620,086	943,349	323,263	620,086	943,349
R^2	0.151	0.093	0.118	0.151	0.093	0.118	0.151	0.093	0.118

The table reports the regression results examining the impact of asset eligibility for quantitative easing on the pass-through of the monetary policy target rate into special repo rates. The dependent variable is the change in the special repo rate $\Delta repo^{special}$. $\Delta PdRate$ denotes the change in the policy rate. PQE equals 1 during the PSPP. PQE^{table} equals 1 if a security is (hypothetically) eligible for purchase under the PSPP. ***, **, and * represent significance at a 1, 5, and 10% level, respectively. t -statistics are in parentheses. All regressions include 150-month-term fixed effects and heteroskedasticity-robust standard errors. Data include special repo transactions for all European countries separate for each and pooled across the term types TN and SN for the time-period 2010–2018.

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Appendix: Eligible/noneligible by fixed effect specification

Table 4.9. Collateral eligibility: Germany, different fixed effect specifications

	(1)	(2)	(3)	(4)	(5)
	$\Delta repo^{Special}$	$\Delta repo^{Special}$	$\Delta repo^{Special}$	$\Delta repo^{Special}$	$\Delta repo^{Special}$
	TN/SN	TN/SN	TN/SN	TN/SN	TN/SN
	b/t	b/t	b/t	b/t	b/t
$\Delta PolRate$	0.109*** (13.130)	0.111*** (13.151)	0.117*** (13.619)	0.118*** (13.718)	0.119*** (13.765)
D^{QE}	-0.016 (-1.434)	-0.016 (-1.428)	0.048*** (9.022)	0.013*** (5.858)	0.048*** (9.408)
$\Delta PolRate \cdot D^{QE}$	-0.120*** (-8.154)	-0.121*** (-8.170)	-0.129*** (-8.598)	-0.129*** (-8.558)	-0.131*** (-8.715)
$D^{Eligible}$	0.004 (0.440)	0.004 (0.505)	-0.010** (-2.344)	-0.002 (-0.827)	-0.000 (-0.017)
$\Delta PolRate \cdot D^{Eligible}$	-0.005 (-0.463)	-0.006 (-0.511)	-0.002 (-0.219)	-0.003 (-0.302)	-0.004 (-0.348)
$\Delta PolRate \cdot D^{Eligible} \cdot D^{QE}$	-0.052*** (-2.737)	-0.053*** (-2.739)	-0.053*** (-2.711)	-0.051*** (-2.596)	-0.052*** (-2.642)
$\Delta repo^{Special} \text{ lagged}$	-0.364*** (-20.719)	-0.360*** (-21.031)	-0.350*** (-20.941)	-0.349*** (-20.941)	-0.349*** (-20.950)
FE	ISIN × Month × Term	ISIN × Month	ISIN × Year	ISIN	Year
N	301,608	301,859	301,896	301,897	301,897
R^2	0.119	0.123	0.121	0.121	0.121

The table reports the regression results examining the impact of asset eligibility for quantitative easing on the pass-through of the monetary policy target rate into special repo rates. The dependent variable is the change in the special repo rate $\Delta repo^{Special}$. $\Delta PolRate$ denotes the change in the policy rate. D^{QE} equals 1 during the PSPP. $D^{Eligible}$ equals 1 if a security is (hypothetically) eligible for purchase under the PSPP. ***, **, and * represent significance at a 1, 5, and 10% level, respectively; t-statistics are in parentheses. The regressions include different fixed effect specifications and heteroskedastic-robust standard errors. Data include German special repo transactions pooled across the term types TN and SN for the time-period 2010–2018.

Appendix: Eligible/noneligible by fixed effect specification

Table 4.10. Collateral eligibility: Core countries, different fixed effect specifications

	(1)	(2)	(3)	(4)	(5)
	$\Delta repo^{Special}$	$\Delta repo^{Special}$	$\Delta repo^{Special}$	$\Delta repo^{Special}$	$\Delta repo^{Special}$
	TN/SN	TN/SN	TN/SN	TN/SN	TN/SN
	b/t	b/t	b/t	b/t	b/t
$\Delta PolRate$	0.103*** (17.810)	0.106*** (18.194)	0.114*** (19.593)	0.115*** (19.711)	0.115*** (19.745)
D^{QE}	-0.008 (-1.158)	-0.008 (-1.148)	0.045*** (13.006)	0.010*** (7.362)	0.045*** (13.513)
$\Delta PolRate \cdot D^{QE}$	-0.104*** (-9.643)	-0.107*** (-9.860)	-0.119*** (-10.855)	-0.119*** (-10.823)	-0.121*** (-11.030)
$D^{Eligible}$	0.005 (0.969)	0.005 (0.972)	-0.007** (-2.470)	-0.002 (-1.324)	0.001 (0.599)
$\Delta PolRate \cdot D^{Eligible}$	0.002 (0.295)	0.003 (0.400)	0.006 (0.858)	0.005 (0.764)	0.005 (0.722)
$\Delta PolRate \cdot D^{Eligible} \cdot D^{QE}$	-0.033** (-2.453)	-0.033** (-2.426)	-0.031** (-2.305)	-0.029** (-2.096)	-0.030** (-2.179)
$\Delta repo^{Special} \text{ lagged}$	-0.357*** (-39.264)	-0.352*** (-39.715)	-0.341*** (-39.287)	-0.340*** (-39.274)	-0.340*** (-39.297)
FE	ISIN × Month × Term	ISIN × Month	ISIN × Year	ISIN	Year
N	705,633	706,207	706,252	706,255	706,255
R^2	0.115	0.119	0.116	0.116	0.116

The table reports the regression results examining the impact of asset eligibility for quantitative easing on the pass-through of the monetary policy target rate into special repo rates. The dependent variable is the change in the special repo rate $\Delta repo^{Special}$. $\Delta PolRate$ denotes the change in the policy rate. D^{QE} equals 1 during the PSPP. $D^{Eligible}$ equals 1 if a security is (hypothetically) eligible for purchase under the PSPP. ***, **, and * represent significance at a 1, 5, and 10% level, respectively; t-statistics are in parentheses. The regressions include different fixed effect specifications and heteroskedastic-robust standard errors. Data include special repo transactions for core European countries pooled across the term types TN and SN for the time-period 2010–2018.

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Appendix: Eligible/noneligible by fixed effect specification

Table 4.11. Collateral eligibility: All countries, different fixed effect specifications

	(1)	(2)	(3)	(4)	(5)
	$\Delta repo^{Special}$	$\Delta repo^{Special}$	$\Delta repo^{Special}$	$\Delta repo^{Special}$	$\Delta repo^{Special}$
	TN/SN b/t	TN/SN b/t	TN/SN b/t	TN/SN b/t	TN/SN b/t
$\Delta PolRate$	0.101*** (18.358)	0.105*** (18.825)	0.113*** (20.418)	0.114*** (20.554)	0.114*** (20.584)
D^{QE}	-0.016* (-1.740)	-0.017* (-1.764)	0.038*** (10.253)	0.011*** (8.196)	0.039*** (11.222)
$\Delta PolRate \cdot D^{QE}$	-0.089*** (-8.198)	-0.092*** (-8.437)	-0.104*** (-9.547)	-0.104*** (-9.563)	-0.106*** (-9.737)
$D^{Eligible}$	0.004 (0.649)	0.004 (0.727)	-0.007*** (-2.867)	-0.001 (-0.652)	0.001 (0.611)
$\Delta PolRate \cdot D^{Eligible}$	-0.004 (-0.565)	-0.003 (-0.369)	0.001 (0.181)	0.001 (0.096)	0.000 (0.057)
$\Delta PolRate \cdot D^{Eligible} \cdot D^{QE}$	-0.028** (-2.119)	-0.029** (-2.165)	-0.031** (-2.310)	-0.028** (-2.076)	-0.029** (-2.170)
$\Delta repo^{Special} \text{ lagged}$	-0.362*** (-51.915)	-0.356*** (-52.505)	-0.345*** (-51.939)	-0.344*** (-51.934)	-0.344*** (-51.964)
FE	ISIN $\times$ Month $\times$ Term	ISIN $\times$ Month	ISIN $\times$ Year	ISIN	Year
N	943,349	944,265	944,331	944,335	944,335
R^2	0.118	0.122	0.119	0.119	0.119

The table reports the regression results examining the impact of asset eligibility for quantitative easing on the pass-through of the monetary policy target rate into special repo rates. The dependent variable is the change in the special repo rate $\Delta repo^{Special}$. $\Delta PolRate$ denotes the change in the policy rate. D^{QE} equals 1 during the PSPP. $D^{Eligible}$ equals 1 if a security is (hypothetically) eligible for purchase under the PSPP. ***, **, and * represent significance at a 1, 5, and 10% level, respectively; t-statistics are in parentheses. The regressions include different fixed effect specifications and heteroskedastic-robust standard errors. Data include special repo transactions for all European countries pooled across the term types TN and SN for the time-period 2010–2018.

Appendix: Eligible/noneligible by clustered standard errors

Table 4.12. Collateral eligibility: Germany

	(1)	(2)	(3)
	$\Delta repo^{Special}$	$\Delta repo^{Special}$	$\Delta repo^{Special}$
	b/t	b/t	b/t
$\Delta PolRate$	0.106** (32.158)	0.098** (33.661)	0.109** (36.511)
D^{QE}	-0.016 (-0.832)		-0.016 (-0.835)
$\Delta PolRate \cdot D^{QE}$	-0.150 (-5.792)		-0.120** (-20.932)
$D^{Eligible}$		0.004 (0.400)	0.004 (0.400)
$\Delta PolRate \cdot D^{Eligible}$		0.006 (1.925)	-0.005 (-1.309)
$\Delta PolRate \cdot D^{Eligible} \cdot D^{QE}$		-0.173*** (-175.810)	-0.052* (-8.421)
$\Delta repo^{Special}$ lagged	-0.364** (-22.869)	-0.364** (-22.935)	-0.364** (-22.804)
N	301,608	301,608	301,608
R^2	0.119	0.119	0.119

The table reports the regression results examining the impact of asset eligibility for quantitative easing on the monetary policy pass-through using clustered standard errors. The dependent variable is the change in the special repo rate $\Delta repo^{Special}$. $\Delta PolRate$ denotes the change in different policy rates. D^{QE} equals 1 during the PSPP. $D^{Eligible}$ equals 1 if a security is (hypothetically) eligible for purchase under the PSPP. ***, **, and * represent significance at a 1, 5, and 10% level, respectively; t -statistics are in parentheses. All regressions include ISIN-month-term fixed effects and standard errors accounting for clustering at the ISIN and eligibility level. Data include German special repo transactions pooled across the term types TN and SN for the time-period 2010–2018.

Appendix: Eligible/noneligible by clustered standard errors

Table 4.13. Collateral eligibility: Core countries

	(1)	(2)	(3)
	$\Delta repo^{Special}$	$\Delta repo^{Special}$	$\Delta repo^{Special}$
	b/t	b/t	b/t
$\Delta PolRate$	0.105*** (134.397)	0.095*** (72.001)	0.103*** (81.078)
D^{QE}	-0.008 (-0.716)		-0.008 (-0.694)
$\Delta PolRate \cdot D^{QE}$	-0.126* (-8.472)		-0.104** (-39.994)
$D^{Eligible}$		0.005 (1.050)	0.005 (1.028)
$\Delta PolRate \cdot D^{Eligible}$		0.011* (7.979)	0.002 (1.168)
$\Delta PolRate \cdot D^{Eligible} \cdot D^{QE}$		-0.137*** (-195.384)	-0.033** (-12.887)
$\Delta repo^{Special}$ lagged	-0.357** (-29.353)	-0.357** (-29.473)	-0.357** (-29.314)
N	705,633	705,633	705,633
R^2	0.115	0.115	0.115

The table reports the regression results examining the impact of asset eligibility for quantitative easing on the monetary policy pass-through using clustered standard errors. The dependent variable is the change in the special repo rate $\Delta repo^{Special}$. $\Delta PolRate$ denotes the change in different policy rates. D^{QE} equals 1 during the PSPP. $D^{Eligible}$ equals 1 if a security is (hypothetically) eligible for purchase under the PSPP. ***, **, and * represent significance at a 1, 5, and 10% level, respectively; t -statistics are in parentheses. All regressions include ISIN-month-term fixed effects and standard errors accounting for clustering at the ISIN and eligibility level. Data include special repo transactions for core European countries pooled across the term types TN and SN for the time-period 2010–2018.

Appendix: Eligible/noneligible by clustered standard errors

Table 4.14. Collateral eligibility: All countries

	(1)	(2)	(3)
	$\Delta repo^{Special}$	$\Delta repo^{Special}$	$\Delta repo^{Special}$
	b/t	b/t	b/t
$\Delta PolRate$	0.099** (45.807)	0.094*** (110.286)	0.101*** (99.326)
D^{QE}	-0.017 (-0.666)		-0.016 (-0.661)
$\Delta PolRate \cdot D^{QE}$	-0.108* (-8.733)		-0.089** (-48.349)
$D^{Eligible}$		0.004 (0.702)	0.004 (0.667)
$\Delta PolRate \cdot D^{Eligible}$		0.004 (3.383)	-0.004 (-1.931)
$\Delta PolRate \cdot D^{Eligible} \cdot D^{QE}$		-0.117*** (-186.211)	-0.028** (-31.726)
$\Delta repo^{Special}$ lagged	-0.362** (-43.257)	-0.362** (-43.367)	-0.362** (-43.092)
N	943,349	943,349	943,349
R^2	0.118	0.118	0.118

The table reports the regression results examining the impact of asset eligibility for quantitative easing on the monetary policy pass-through using clustered standard errors. The dependent variable is the change in the special repo rate $\Delta repo^{Special}$. $\Delta PolRate$ denotes the change in different policy rates. D^{QE} equals 1 during the PSPP. $D^{Eligible}$ equals 1 if a security is (hypothetically) eligible for purchase under the PSPP. ***, **, and * represent significance at a 1, 5, and 10% level, respectively; t -statistics are in parentheses. All regressions include ISIN-month-term fixed effects and standard errors accounting for clustering at the ISIN and eligibility level. Data include special repo transactions for all European countries pooled across the term types TN and SN for the time-period 2010–2018.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	EONIA	€STR	euro LIBOR	zero OIS	zero EURIBOR	OIS 1W	GC Pooling
	$\Delta\text{repo}^{\text{Special}}$	$\Delta\text{repo}^{\text{Special}}$	$\Delta\text{repo}^{\text{Special}}$	$\Delta\text{repo}^{\text{Special}}$	$\Delta\text{repo}^{\text{Special}}$	$\Delta\text{repo}^{\text{Special}}$	$\Delta\text{repo}^{\text{Special}}$
	TN/SN b/t	TN/SN b/t	TN/SN b/t	TN/SN b/t	TN/SN b/t	TN/SN b/t	TN/SN b/t
$\Delta\text{PolRate}$	0.109*** (13.130)	0.109*** (13.394)	0.105*** (11.394)	0.054*** (9.442)	0.046*** (9.250)	0.101*** (12.053)	0.117*** (13.854)
D^{QE}	-0.016 (-1.434)	-0.016 (-1.421)	-0.040*** (-3.105)	-0.028** (-2.303)	-0.031*** (-2.465)	-0.039*** (-3.456)	0.042*** (3.461)
$\Delta\text{PolRate} \cdot D^{QE}$	-0.120*** (-8.154)	-0.116*** (-7.867)	-0.109*** (-9.346)	-0.025*** (-3.565)	-0.019*** (-2.984)	-0.039** (-2.427)	0.406*** (6.250)
D^{Eligible}	0.004 (0.440)	0.004 (0.435)	0.003 (0.316)	0.003 (0.314)	0.002 (0.254)	0.002 (0.187)	0.002 (0.202)
$\Delta\text{PolRate} \cdot D^{\text{Eligible}}$	-0.005 (-0.463)	-0.005 (-0.463)	-0.000 (-0.015)	0.015** (1.987)	0.002 (0.355)	-0.022** (-2.059)	0.013 (1.172)
$\Delta\text{PolRate} \cdot D^{\text{Eligible}} \cdot D^{QE}$	-0.052*** (-2.737)	-0.044** (-2.289)	-0.023 (-1.491)	-0.031*** (-3.346)	-0.017** (-2.021)	-0.023 (-1.086)	-0.216*** (-2.972)
$\Delta\text{repo}^{\text{Special}} \text{ loggoid}$	-0.364*** (-20.719)	-0.364*** (-20.719)	-0.365*** (-20.277)	-0.363*** (-19.856)	-0.363*** (-19.668)	-0.359*** (-20.195)	-0.356*** (-20.536)
N	301,608	301,608	299,889	290,153	289,058	298,718	303,446
R^2	0.119	0.119	0.120	0.119	0.120	0.116	0.119

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	(1)	(2)	(3)	(4)	(5)	(6)
	EONIA	€STR	euro LIBOR	zero OIS	zero EURIBOR	OIS 1W
	$\Delta repo^{Special}$	$\Delta repo^{Special}$	$\Delta repo^{Special}$	$\Delta repo^{Special}$	$\Delta repo^{Special}$	$\Delta repo^{Special}$
	TN/SN b/t	TN/SN b/t	TN/SN b/t	TN/SN b/t	TN/SN b/t	TN/SN b/t
$\Delta PolRate$	0.103*** (17.810)	0.103*** (17.810)	0.099*** (15.179)	0.055*** (13.493)	0.041*** (11.908)	0.074*** (12.705)
D^{QE}	-0.008 (-1.158)	-0.008 (-1.140)	-0.033*** (-3.990)	-0.023*** (-2.845)	-0.026*** (-3.244)	-0.032*** (-4.581)
$\Delta PolRate \cdot D^{QE}$	-0.104*** (-9.643)	-0.097*** (-8.995)	-0.094*** (-10.427)	-0.037*** (-7.136)	-0.023*** (-4.925)	-0.001 (-0.049)
$D^{Eligible}$	0.005 (0.969)	0.005 (0.959)	0.006 (1.003)	0.004 (0.688)	0.003 (0.612)	0.004 (0.629)
$\Delta PolRate \cdot D^{Eligible}$	0.002 (0.295)	0.002 (0.295)	0.017** (2.108)	0.005 (1.112)	0.001 (0.270)	0.028*** (3.810)
$\Delta PolRate \cdot D^{Eligible} \cdot D^{QE}$	-0.033** (-2.453)	-0.028** (-2.133)	-0.028** (-2.517)	-0.010 (-1.591)	-0.005 (-0.937)	-0.026* (-1.754)
$\Delta repo^{Special} \text{ lagged}$	-0.357*** (-39.264)	-0.357*** (-39.264)	-0.359*** (-38.341)	-0.356*** (-37.516)	-0.356*** (-37.058)	-0.352*** (-38.194)
N	705,633	705,633	701,859	681,324	678,897	699,266
R^2	0.115	0.115	0.117	0.114	0.115	0.113

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	(1)	(2)	(3)	(4)	(5)	(6)
	EONIA	€STR	euro LIBOR	zero OIS	zero EURIBOR	OIS 1W
	$\Delta repo^{Special}$	$\Delta repo^{Special}$	$\Delta repo^{Special}$	$\Delta repo^{Special}$	$\Delta repo^{Special}$	$\Delta repo^{Special}$
	TN/SN b/t	TN/SN b/t	TN/SN b/t	TN/SN b/t	TN/SN b/t	TN/SN b/t
$\Delta PolRate$	0.101*** (18.358)	0.101*** (18.358)	0.092*** (15.576)	0.055*** (14.263)	0.040*** (12.556)	0.065*** (11.882)
D^{QE}	-0.016* (-1.740)	-0.016* (-1.729)	-0.039*** (-3.990)	-0.031*** (-3.185)	-0.034*** (-3.471)	-0.040*** (-4.399)
$\Delta PolRate \cdot D^{QE}$	-0.089*** (-8.198)	-0.083*** (-7.669)	-0.086*** (-9.474)	-0.033*** (-6.308)	-0.018*** (-3.803)	0.030** (2.538)
$D^{Eligible}$	0.004 (0.649)	0.004 (0.642)	0.004 (0.685)	0.001 (0.218)	0.001 (0.124)	0.002 (0.298)
$\Delta PolRate \cdot D^{Eligible}$	-0.004 (-0.565)	-0.004 (-0.565)	0.007 (0.902)	-0.003 (-0.634)	-0.003 (-0.659)	0.039*** (5.593)
$\Delta PolRate \cdot D^{Eligible} \cdot D^{QE}$	-0.028** (-2.119)	-0.024* (-1.781)	-0.005 (-0.439)	-0.001 (-0.103)	-0.002 (-0.287)	-0.013 (-0.857)
$\Delta repo^{Special} \text{ lagged}$	-0.362*** (-51.915)	-0.362*** (-51.915)	-0.363*** (-50.806)	-0.369*** (-49.173)	-0.369*** (-48.554)	-0.358*** (-50.579)
N	943,349	943,349	938,391	913,396	910,329	934,884
R^2	0.118	0.118	0.120	0.118	0.118	0.117

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	Germany		Core		All	
	$\Delta repo^{Special}$	$\Delta repo^{Special}$	$\Delta repo^{Special}$	$\Delta repo^{Special}$	$\Delta repo^{Special}$	$\Delta repo^{Special}$
	TN/SN b/t	TN/SN b/t	TN/SN b/t	TN/SN b/t	TN/SN b/t	TN/SN b/t
$\Delta PolRate$	0.106*** (19.643)	0.106*** (19.643)	0.105*** (31.179)	0.105*** (31.179)	0.099*** (30.205)	0.099*** (30.205)
D^{QE}	-0.015 (-1.380)	-0.016 (-1.423)	-0.008 (-1.102)	-0.008 (-1.157)	-0.016* (-1.699)	-0.016* (-1.736)
$\Delta PolRate \cdot D^{QE}$	-0.094*** (-9.018)	-0.120*** (-8.469)	-0.080*** (-11.341)	-0.103*** (-9.773)	-0.070*** (-10.103)	-0.082*** (-7.509)
$\Delta PolRate \cdot TSE$	-0.001*** (-9.635)		-0.001*** (-9.882)		-0.001*** (-10.592)	
$\Delta PolRate^*$						
TSE^1_{Bucket}		-0.008 (-0.486)		-0.010 (-0.847)		-0.022* (-1.802)
TSE^2_{Bucket}		-0.279*** (-5.995)		-0.086** (-2.491)		-0.036 (-1.344)
TSE^3_{Bucket}		-0.470*** (-6.521)		-0.459*** (-9.542)		-0.389*** (-11.200)
$\Delta repo^{Special} \text{ lagged}$	-0.364*** (-20.715)	-0.364*** (-20.716)	-0.357*** (-39.263)	-0.357*** (-39.265)	-0.362*** (-51.913)	-0.362*** (-51.917)
N	301,608	301,608	705,633	705,633	943,349	943,349
R^2	0.119	0.119	0.115	0.115	0.118	0.118

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	Germany			Core			All		
	(1a)	(1b)	(2)	(3a)	(3b)	(4)	(5a)	(5b)	(6)
	$\Delta repo^{GC}$	$\Delta repo^{GC}$	$\Delta repo^{Spectral}$	$\Delta repo^{GC}$	$\Delta repo^{GC}$	$\Delta repo^{Spectral}$	$\Delta repo^{GC}$	$\Delta repo^{GC}$	$\Delta repo^{Spectral}$
	ON/TN b/t	ON/TN b/t	TN/SN b/t	ON/TN b/t	ON/TN b/t	TN/SN b/t	ON/TN b/t	ON/TN b/t	TN/SN b/t
$\Delta PolRate$	0.475*** (5.030)	0.599*** (6.026)	0.159*** (12.959)	0.576*** (10.521)	0.606*** (10.483)	0.154*** (17.617)	0.606*** (12.420)	0.653*** (12.430)	0.160*** (18.668)
D^{Dip}	-0.067** (-2.456)	-0.066** (-2.400)	0.015*** (2.794)	-0.037*** (-2.699)	-0.037*** (-2.733)	0.005 (1.575)	-0.024** (-2.077)	-0.024** (-2.095)	0.006** (2.147)
$\Delta PolRate \cdot D^{Dip}$	0.361*** (2.092)	0.458*** (2.814)	0.012 (0.416)	0.383*** (4.260)	0.389*** (4.343)	0.103*** (4.510)	0.349*** (4.165)	0.362*** (4.358)	0.106*** (4.686)
D^{Access}	-0.094 (-0.265)	-0.093 (-0.193)	-0.005*** (-2.582)	-0.096 (-1.018)	-0.096 (-0.940)	-0.005*** (-4.127)	-0.095 (-0.908)	-0.095 (-0.794)	-0.095*** (-4.455)
$\Delta PolRate \cdot D^{Access}$	-0.181** (-2.015)	-0.183* (-1.836)	-0.062*** (-5.181)	-0.260*** (-4.594)	-0.265*** (-4.732)	-0.063*** (-7.875)	-0.311*** (-6.132)	-0.311*** (-6.135)	-0.074*** (-9.305)
$\Delta PolRate \cdot D^{Access} \cdot D^{Dip}$	-0.606*** (-3.775)	-0.795*** (-4.232)	-0.161*** (-5.413)	-0.456*** (-4.341)	-0.525*** (-4.890)	-0.225*** (-9.418)	-0.402*** (-4.035)	-0.477*** (-4.719)	-0.214*** (-8.988)
D^{QE}	-0.113 (-1.489)	-0.119 (-1.519)	-0.014 (-1.231)	-0.047 (-1.340)	-0.053 (-1.503)	-0.007 (-0.983)	-0.066 (-1.071)	-0.062 (-1.191)	-0.012 (-1.309)
$D^{Eligible}$	-0.017 (-1.509)	-0.008 (-0.681)	0.003 (0.371)	-0.010** (-2.047)	0.010* (1.910)	0.005 (0.911)	-0.010** (-2.180)	0.007 (1.003)	0.005 (0.908)
$\Delta PolRate \cdot D^{Eligible}$	0.252*** (3.338)	0.045 (0.490)	-0.006 (-0.541)	0.141*** (3.255)	0.077* (1.782)	0.006 (0.816)	0.102** (2.576)	0.006 (0.138)	0.005 (0.643)
$\Delta PolRate \cdot D^{Eligible} \cdot D^{QE}$	-0.315*** (-2.872)	-0.040 (-0.261)	-0.097*** (-7.131)	-0.429*** (-6.802)	-0.301*** (-5.256)	-0.104*** (-9.822)	-0.349*** (-5.467)	-0.220*** (-3.633)	-0.110*** (-11.432)
$\Delta repo \text{ lagged}$	-0.340*** (-11.817)	-0.341*** (-11.603)	-0.364*** (-20.711)	-0.338*** (-22.734)	-0.338*** (-22.683)	-0.357*** (-35.249)	-0.337*** (-24.814)	-0.338*** (-24.821)	-0.360*** (-40.685)
N	6,802	6,484	301,475	30,314	29,996	628,208	37,453	37,135	759,772
R^2	0.262	0.255	0.119	0.239	0.237	0.115	0.233	0.231	0.118