

“Who’s the boss?”
The role of dividend clienteles in banks’ lending decisions¹

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¹The views expressed in this paper are those of the authors, and not necessarily those of the PRA, Bank of England, any of its’ committees, or the OECD.

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- ▶ Despite a voluminous literature on these two aspects of bank capital usage, relatively scant attention has been paid on their interaction
- ▶ This is surprising since banks are known to maintain their payouts even during times of stress (Acharya et al., 2011; Floyd et al., 2015), which could inhibit their ability to service the economy when most needed (Forti & Schiozer, 2015)

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- ▶ However, banks may also make payouts to satisfy dividend clienteles that have preference for a specific payout policy (Black & Scholes, 1974; Becker et al., 2011). Changes to payouts could trigger a negative reaction from these clienteles purely because their demand is no longer met.

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- ▶ We isolate the impact of dividend clienteles on banks' funding costs as a result of a systemic exogenous change in their payout policy, and examine how this affects banks' lending decisions and real outcomes

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- ▶ Their scope differed by jurisdiction. For example in the UK the PRA imposed restrictions on the seven largest deposit-takers, while in the EU the ECB imposed a ban on all institutions.
- ▶ These restrictions were partially relaxed in H1 2021 and banks were allowed to make limited distributions for the year of 2020. They were fully lifted by September 2021.

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Yes; Firms that borrowed from restricted banks that were *less* exposed to dividend clienteles increased their capital expenditure relative to firms borrowing from *unaffected banks* or those *most* exposed to dividend clienteles

Contribution

- ▶ Payout policy: Use Covid-era distribution restrictions to isolate the effect of investor-specific from firm-specific factors on banks' cost of funding following changes to payout policy.
 - ▶ Firm-specific factors: information asymmetries (Morgan, 2022; Calomiris & Nissim, 2014; Forti & Schiozer, 2015), agency costs (Demirgüç-Kunt & Huizunga, 2004)
 - ▶ Investor-specific factors: investor sentiment (Baker & Wrugler, 2004; Li & Lie, 2006), dividend clienteles (Black & Scholes, 1974; Becker et al., 2011), consumption smoothing (Shefrin & Statman, 1984; Baker et al., 2007)
- ▶ Capital and lending: How banks raise capital matters for lending outcomes!
 - ▶ Better capitalised banks lend more during normal and stress times (Gambacorta & Shin, 2018; Berrospide et al., 2024; Couaillier et al., 2024)
 - ▶ Firms may prefer to raise new equity organically rather than issue new shares due to information asymmetry (Myers & Majluf, 1984). Even then this can affect lending decisions when the equity raise is mandated by the regulator.
- ▶ Effects of distribution restrictions: looking at the whole picture.
 - ▶ Restricted banks' valuations fell (Ampudia et al., 2023; Andreeva et al., 2023; Cáceres & Lamas, 2023; Marsh, 2023)
 - ▶ Restricted banks increased lending (Martínez-Miera & Vegas, 2021; Dautović et al., 2023; Sanders et al., 2024)
 - ▶ How did the effects on cost of funding pass-through to real economy?

Data

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- ▶ Investors' required rate of return: International sample of 98 listed European banks in 22 countries, 85 of which restricted distributions and 13 didn't from Jan 2018 to Sep 2021 (matched)
 - ▶ Shareholders' required rate of return: Estimated using the average of four dividend discount models commonly used in the literature, utilising forecasts of EPS, DPS, ROE from Refinitiv Workspace (Altavilla et al., 2021; Dick-Nielsen et al., 2022)
 - ▶ Debtholders' required rate of return: Bank bond mid-yields traded in secondary market with maturity >1 year, aggregated at bank level using weighted average by market value (Arnould et al., 2022)
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- ▶ Mutual funds: For each bank in our sample, we download the list of mutual funds investing in the bank and their monthly holdings of its shares as a percentage of total shares outstanding. For each mutual fund, we additionally obtain information on whether it is income-oriented, i.e. whether it distributes the income it generates (proxy for dividend clientele).

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- ▶ Lending: Universe of UK SME loans by 10 UK banking groups, provided to BoE at monthly frequency by Experian from Jan 2018 to Jun 2021

Method & Results

Method (I)

1. Did dividend clienteles react negatively to the change in payout policy?

Triple DiD:

$$CAR_{b,t} = \mu_b + \mu_t + \beta D_{b,t} + \xi D_{b,t} More_exposed_{b,t} + \gamma X_{b,t-1} + \zeta More_exposed_{b,t} + \epsilon_{b,t} \quad (1)$$

- ▶ $CAR_{b,t}$: Cumulative abnormal return of the stock of bank b in month t
- ▶ μ_b, μ_t : Bank and month FEs
- ▶ $D_{b,t}$: Treatment dummy (restricted vs unrestricted banks)
- ▶ $More_exposed_{b,t}$: A dummy variable that equals 1 for banks with an exposure to income-oriented funds above a threshold: 50%, 75% and 90%.
- ▶ $X_{b,t-1}$: Bank controls
- ▶ t -statistics calculated using jackknife wild cluster restricted bootstrap (MacKinnon et al., 2023)

Compare:

Changes in cumulative abnormal returns of restricted vs. unrestricted bank shares, and separating the impact for banks more exposed to income-oriented funds.

Result (I)

1. Did dividend clienteles react negatively to the change in payout policy?

Dependent Variable:	$CAR_{b,t}$			
	(1)	(2)	(3)	(4)
		Exposure > 50th percentile	Exposure > 75th percentile	Exposure > 90th percentile
$D_{b,t}$	-0.043 (-1.316)	0.041 (1.179)	0.000 (0.013)	-0.002 (-0.064)
$D_{b,t}More_exposed_{b,t}$		-0.100*** (-5.250)	-0.059** (-2.198)	-0.059** (-2.325)
Bank fixed effects	Yes	Yes	Yes	Yes
Month fixed effects	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
Observations	2,176	2,176	2,176	2,176
Adj. R^2	0.762	0.783	0.781	0.779

- ▶ β insignificant: restricted banks less exposed to income-oriented funds did not face a differential price impact on their shares following the onset of the restrictions relative to unrestricted banks.
- ▶ ξ significant: restricted banks more exposed to income-oriented funds faced more negative abnormal returns (of between -5.9 and -10 pps) compared to less exposed restricted banks and relative to unrestricted banks over the implementation period.

Method (II)

2. Did the negative reaction of dividend clienteles have an impact on banks' overall funding costs?

Triple DiD:

$$Y_{b,t} = \mu_b + \mu_t + \beta D_{b,t} + \xi D_{b,t} \text{More_exposed}_{b,t} + \gamma X_{b,t-1} + \delta Z_{b,t-1} + \zeta \text{More_exposed}_{b,t} + \epsilon_{b,t} \quad (2)$$

- ▶ $Y_{b,t}$: RRoR of shareholders & debtholders and on capital
- ▶ μ_b, μ_t : Bank and month FEs
- ▶ $D_{b,t}$: Treatment dummy (restricted vs unrestricted banks)
- ▶ $\text{More_exposed}_{b,t}$: A dummy variable that equals 1 for banks with an exposure to income-oriented funds above a threshold: 50%, 75% and 90%
- ▶ $X_{b,t-1}$: Bank controls
- ▶ $Z_{b,t-1}$: Country macroeconomic controls
- ▶ t -statistics calculated using jackknife wild cluster restricted bootstrap (MacKinnon et al., 2023)

Compare:

- Differences in the RRoR of shareholders & debtholders between restricted and unrestricted banks (β)
- Differences in the RRoR of shareholders & debtholders between restricted banks less and more exposed to income-oriented funds (ξ)

Result (II) - Shareholders' RRoR

2. Did the negative reaction of dividend clienteles have an impact on banks' overall funding costs?

Dependent Variable:	$COE_{b,t}$			
	(1)	(2)	(3)	(4)
		Exposure > 50th percentile	Exposure > 75th percentile	Exposure > 90th percentile
$D_{b,t}$	0.024 (2.886)	0.012 (1.427)	0.016 (1.748)	0.017 (1.895)
$D_{b,t} \text{ More_exposed}_{b,t}$		0.013** (2.528)	0.017*** (2.978)	0.017*** (2.927)
Bank fixed effects	Yes	Yes	Yes	Yes
Month fixed effects	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
Observations	1,699	1,699	1,699	1,699
Adj. R^2	0.717	0.724	0.730	0.728

- ▶ β insignificant: restricted banks faced similar shareholders' RRoR to unrestricted banks
- ▶ ξ significant: restricted banks more exposed to income-oriented funds faced an increase in their shareholders' RRoR by up to 1.7 pps compared to less exposed ones.

Result (II) - Debtholders' RRoR

2. Did the negative reaction of dividend clienteles have an impact on banks' overall funding costs?

Dependent Variable:	$COD_{b,t}$			
	(1)	(2)	(3)	(4)
		Exposure > 50th percentile	Exposure > 75th percentile	Exposure > 90th percentile
$D_{b,t}$	-0.007* (-2.659)	-0.007* (-2.104)	-0.007* (-2.331)	-0.007* (-2.292)
$D_{b,t} \text{ More_exposed}_{b,t}$		0.001 (0.311)	-0.001 (-0.103)	-0.001 (-0.833)
Bank fixed effects	Yes	Yes	Yes	Yes
Month fixed effects	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
Observations	1,699	1,699	1,699	1,699
Adj. R^2	0.834	0.836	0.838	0.836

- ▶ β significant: restricted banks faced lower debtholders' RRoR than unrestricted banks by -0.7 pp
- ▶ ξ insignificant: restricted banks most exposed to income-oriented funds faced similar decrease in debtholders' RRoR to less exposed ones

Result (II) - RRoR on capital

2. Did the negative reaction of dividend clienteles have an impact on banks' overall funding costs?

Dependent Variable:	$COC_{b,t}$			
	(1)	(2)	(3)	(4)
		Exposure > 50th percentile	Exposure > 75th percentile	Exposure > 90th percentile
$D_{b,t}$	0.012 (1.146)	-0.001 (-0.091)	0.002 (0.144)	0.004 (0.361)
$D_{b,t} \text{ More_exposed}_{b,t}$		0.016* (1.939)	0.020** (3.017)	0.019*** (3.659)
Bank fixed effects	Yes	Yes	Yes	Yes
Month fixed effects	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
Observations	1,699	1,699	1,699	1,699
Adj. R^2	0.822	0.829	0.836	0.834

- ▶ β insignificant: restricted banks faced similar change in RRoR on capital to unrestricted banks
- ▶ ξ significant: restricted banks most exposed to income-oriented funds faced higher RRoR on capital by up to 2 pps compared to less exposed ones

Method (III)

3. Did the impact on funding costs influence banks' lending decisions?

Triple DiD:

$$\begin{aligned} \text{Log}(\text{Volume}_{i,b,t}) = & \mu_b + \mu_{s,z,r,t} + \beta D_{b,t} + \xi D_{b,t} \text{More_exposed}_{b,t} + \gamma X_{b,t-1} \\ & + \delta Z_{i,t-1} + \theta \text{More_exposed}_{b,t} + \epsilon_{i,b,t} \quad (3) \end{aligned}$$

- ▶ $\text{Log}(\text{Volume}_{i,b,t})$: Logarithm of volume of loan issued by bank b to borrower i in quarter t
- ▶ $\mu_b, \mu_{s,z,r,t}$: Bank and borrowers' size-industry-region-quarter FEs (Degryse et al., 2019)
- ▶ $D_{b,t}$: Treatment dummy (restricted vs unrestricted banks)
- ▶ $\text{More_exposed}_{b,t}$: A dummy variable that equals 1 for banks with an exposure to income-oriented funds above the median
- ▶ $X_{b,t-1}$: Bank controls (incl other prudential and monetary policies for lending)
- ▶ $Z_{i,t-1}$: Borrower controls
- ▶ t -statistics calculated using jackknife wild cluster restricted bootstrap (MacKinnon et al., 2023)

Compare:

- Differences in the volumes between restricted and unrestricted banks (β)
- Differences in the volumes between restricted banks less and more exposed to income-oriented funds compared to unrestricted banks (ξ)

Result (III)

3. Did the impact on funding costs influence banks' lending decisions?

Dependent Variable:	$\text{Log}(\text{Volume}_{i,b,t})$	
	(1)	(2)
$D_{b,t}$	0.302** (7.075)	0.403** (6.107)
$D_{b,t} \text{More_exposed}_{b,t}$		-0.188* (-2.675)
Sum of coefficients significance		$\beta + \xi = 0$ $t\text{-stat}_{(9)} = 3.156$ $p\text{-value} = 0.065$
Bank fixed effects	Yes	Yes
Size x Industry x Region x Quarter fixed effects	Yes	Yes
Controls	Yes	Yes
Observations	351,237	351,237
Adj. R^2	0.415	0.416

- ▶ β significant: restricted banks increased lending volumes compared to unrestricted banks
- ▶ ξ significant: more exposed restricted banks increased volumes by half as much as those less exposed relative to unrestricted banks.
- ▶ $\beta + \xi = 0$: most exposed restricted banks increased their overall lending volumes by less compared to unrestricted banks (or not at all for higher percentiles).

Method (IV)

4. Did this affect firms' investment decisions?

Triple DiD:

$$Y_{i,t} = \mu_i + \mu_{z,t} + \mu_{r,t} + \beta D_{i,t} + \xi D_{i,t} \text{More_exposed}_{i,t} + \gamma X_{i,t-1} + \delta Z_{i,t-1} + \theta \text{More_exposed}_{i,t} + \epsilon_{i,t} \quad (4)$$

- ▶ $Y_{i,t}$: includes capital expenditure (in £million), the logarithm of cash and the logarithm of the number of employees of borrower i in quarter t
- ▶ $\mu_i, \mu_{z,t}, \mu_{r,y}$: Borrower, industry-quarter and region-quarter FEs (Bahaj et al., 2020)
- ▶ $D_{i,t}$: Firms borrowing from restricted banks
- ▶ $\text{More_exposed}_{b,t}$: Firms borrowing from banks more exposed to income-oriented funds (above median)
- ▶ $X_{b,t-1}$: Bank controls (incl other prudential and monetary policies for lending)
- ▶ $Z_{b,t-1}$: Borrower controls
- ▶ t -statistics calculated at borrower level

Compare:

- i) Impact on capital expenditure, cash holdings, and number of employees.
- ii) Government guaranteed vs non-government guaranteed loans.

Result (IVa)

4. Did this affect firms' investment decisions?

Dependent Variable:	<i>Capital Expenditure_{i,t}</i>	<i>Log(Cash_{i,t})</i>	<i>Log(#Employees_{i,t})</i>
	(1)	(2)	(3)
Panel A: Non-government guaranteed loans			
<i>D_{i,t}</i>	0.032** (2.105)	-0.008 (-0.150)	0.003 (0.295)
<i>D_{i,t}More_exposed_{i,t}</i>	-0.017* (-1.746)	0.004 (0.125)	-0.004 (-0.615)
Sum of coefficients significance	$\beta + \xi = 0$ $F\text{-stat}_{(1,20111)} = 0.98$ $p\text{-value} = 0.322$		
Borrower fixed effects	Yes	Yes	Yes
Region x Quarter fixed effects	Yes	Yes	Yes
Industry x Quarter fixed effects	Yes	Yes	Yes
Controls	Yes	Yes	Yes
Observations	60,358	53,640	54,015
Adj. R^2	0.802	0.884	0.989

- ▶ Firms borrowing from restricted banks less exposed to dividend clienteles increased their capex relative to those borrowing from more exposed restricted banks over unrestricted banks. No difference in cash positions or number of employees.

Result (IVb)

4. Did this affect firms' investment decisions?

Dependent Variable:	<i>Capital Expenditure_{i,t}</i>	<i>Log(Cash_{i,t})</i>	<i>Log(#Employees_{i,t})</i>
	(1)	(2)	(3)
Panel B: Government guaranteed loans			
$D_{i,t}$	-0.000 (-0.002)	-0.760 (-1.312)	0.000 (0.001)
$D_{i,t} \text{ More_exposed}_{i,t}$	0.014 (0.443)	0.396** (2.444)	-0.027 (-0.677)
Sum of coefficients significance		$\beta + \xi = 0$ $F\text{-stat}_{(1,3587)} = 0.35$ $p\text{-value} = 0.553$	
Borrower fixed effects	Yes	Yes	Yes
Region x Quarter fixed effects	Yes	Yes	Yes
Industry x Quarter fixed effects	Yes	Yes	Yes
Controls	Yes	Yes	Yes
Observations	8,955	7,192	7,857
Adj. R^2	0.838	0.952	0.993

- ▶ No meaningful differences in capex, cash positions or number of employees for government guaranteed loans.

Additional results

- ▶ Parallel trends hold for all our regressions. Effects on shareholders' RRoR and lending volumes persist throughout the implementation period.
- ▶ Expectations about potential disruptions in future dividend payments increased on a system-wide level in Europe, resulting in a rise in risk premium.
- ▶ Biggest increase in lending was in the government guaranteed segment.
- ▶ More exposed banks increased loan volumes very selectively: Mainly small loans issued to larger firms [▶ Results](#)

Conclusion and policy implications

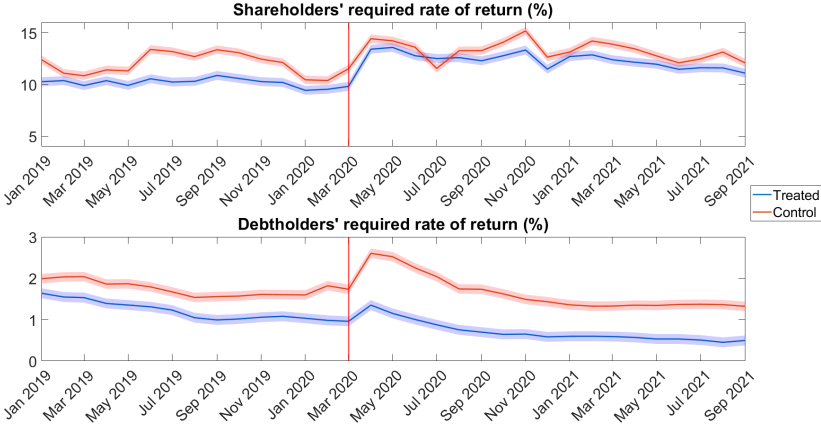
- ▶ Dividend clienteles can react negatively to changes in banks' payout policy:
 - ▶ Banks that were particularly exposed to income-oriented funds suffered higher stock price impact and increases of shareholders' required rate of return than those that were less exposed to them
 - ▶ As a result, the required rate of return on their overall capital also increased
- ▶ This pressure on banks' funding costs impacted credit supply, with implications for firms' investment.
- ▶ Crisis measures that target banks' liabilities structure need to be carefully designed:
 - ▶ Previous studies have advocated for the imposition of distribution restrictions during stress to help banks support the real economy and not worry about signalling issues (Acharya et al., 2011; Forti & Schiozer, 2015)
 - ▶ Our results show that even then, dividend clienteles can react negatively with implications for the real economy.
- ▶ Policy efforts must be focused on finding ways to incentivise banks to support smaller firms during stress, and broaden SMEs' access to credit.

Appendix

Lending (additional interactions)

Dependent Variable:	<i>Log(Volume_{i,b,t})</i>		
	(1)	(2)	(3)
<i>D_{b,t}</i>	0.216 (0.790)	0.495* (2.557)	0.551* (2.982)
<i>D_{b,t}More_exposed_{b,t}</i>	-0.190* (-2.548)	-0.024 (-0.624)	-0.009 (-0.193)
<i>D_{b,t}Gov_Loan_{i,b,t}</i>	0.413 (2.458)	0.661 (3.681)	0.785 (3.998)
<i>D_{b,t}Large_Loan_{i,b,t}</i>		-0.449* (-2.492)	-0.477** (-2.799)
<i>D_{b,t}Micro_SME_{i,t}</i>			-0.548** (-3.280)
<i>D_{b,t}Small_SME_{i,t}</i>			-0.298* (-2.613)
<i>D_{b,t}Medium_SME_{i,t}</i>			0.016 (0.538)
Sum of coefficients significance	$\beta + \xi_2 = 0$ t-stat(9) = 6.508 p-value = 0.029	$\beta + \xi_3 = 0$ t-stat(9) = 0.717 p-value = 0.529	$\beta + \xi_4 = 0$ t-stat(9) = 0.013 p-value = 0.995
	$\beta + \xi_1 + \xi_2 = 0$ t-stat(9) = 5.382 p-value = 0.037	$\beta + \xi_2 + \xi_3 = 0$ t-stat(9) = 3.847 p-value = 0.081	$\beta + \xi_5 = 0$ t-stat(9) = 1.004 p-value = 0.369
Bank fixed effects	Yes	Yes	Yes
Size x Industry x Region x Quarter fixed effects	Yes	Yes	Yes
Controls	Yes	Yes	Yes
Observations	351,237	351,237	351,237
Adj. R ²	0.418	0.670	0.675

Investors' required rate of return



Loan volume

