Bank Market Power and Monetary Policy Transmission

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disclaimer

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research questions

- how does monetary policy transmit to bank lending depending on the bank market structure?
- how are loan volume, maturity, lending rate, risk, and the extensive margin of lending affected?
- is there a trade-off between financial stability and the strength of MP transmission?

literature

- Afanasyeva and Güntner (JME 2020): a monopolistic bank prefers a higher leverage ratio of the borrower after a monetary expansion
- Brissimis, Delis, and Iosifidi (IJCB 2014): banks with even moderate levels of market power are able to buffer the negative impact of a monetary policy change on bank loans and credit risk
- Scharfstein and Sunderam (mimeo 2016): high concentration in mortgage lending reduces the sensitivity of mortgage rates and refinancing activity to mortgage-backed security rates
- Wang, Whited, Wu, and Xiao (JF 2022): bank market power explains much of the transmission of monetary policy to borrowers, with an effect comparable to that of bank capital regulation

methodology

- Khwaja and Mian (AER 2008), Morais et al (JF 2019)
- idea: use double fixed effects – firm×time and bank×time – as controls for demand and supply of credit at the firm and bank level, respectively
- regression specification:

$$Y_{bft} = \beta_0 + \beta_1 HHI_{r,t-h-1} + \beta_2 HHI_{r,t-h-1} KeyRate_{t-h}$$

$$+\alpha_{bt} + \zeta_{it} + \gamma_t + \delta_f + \mu_b + \epsilon_{bft}$$

  where Y_{bft} is a loan characteristic (volume, rate, maturity, risk, extensive margin); HHI_{rt} is the Herfindahl – Hirschman index at the region level; $KeyRate_t$ is the policy rate; α_{bt} bank×time fixed effects; ζ_{it} industry×time fixed effects
- regretfully, we cannot use firm×time fixed effects because of perfect multicollinearity with the regressor of interest $HHI_{r,t-h-1} KeyRate_{t-h}$

hypotheses

- if $Y =$ loan volume, then $\beta_2 > 0$: on more concentrated markets, the stimulating effect of looser monetary policy on the amount of individual loan is muted
- if $Y =$ lending rate, then $\beta_2 < 0$: on more concentrated markets, the pass-through of the key rate to lending rates is muted
- if $Y =$ risk, then $\beta_2 > 0$: on more concentrated markets, the stimulating effect of looser monetary policy on risk taking is muted
- if $Y =$ new lender dummy, then $\beta_2 < 0$: on more concentrated markets, the stimulating effect of looser monetary policy on the extensive margin of lending is amplified
- lower sensitivity of lending rate and risk to changes in the key rate on more concentrated markets would suggest the existence of a trade-off between the strength of MP transmission and financial stability

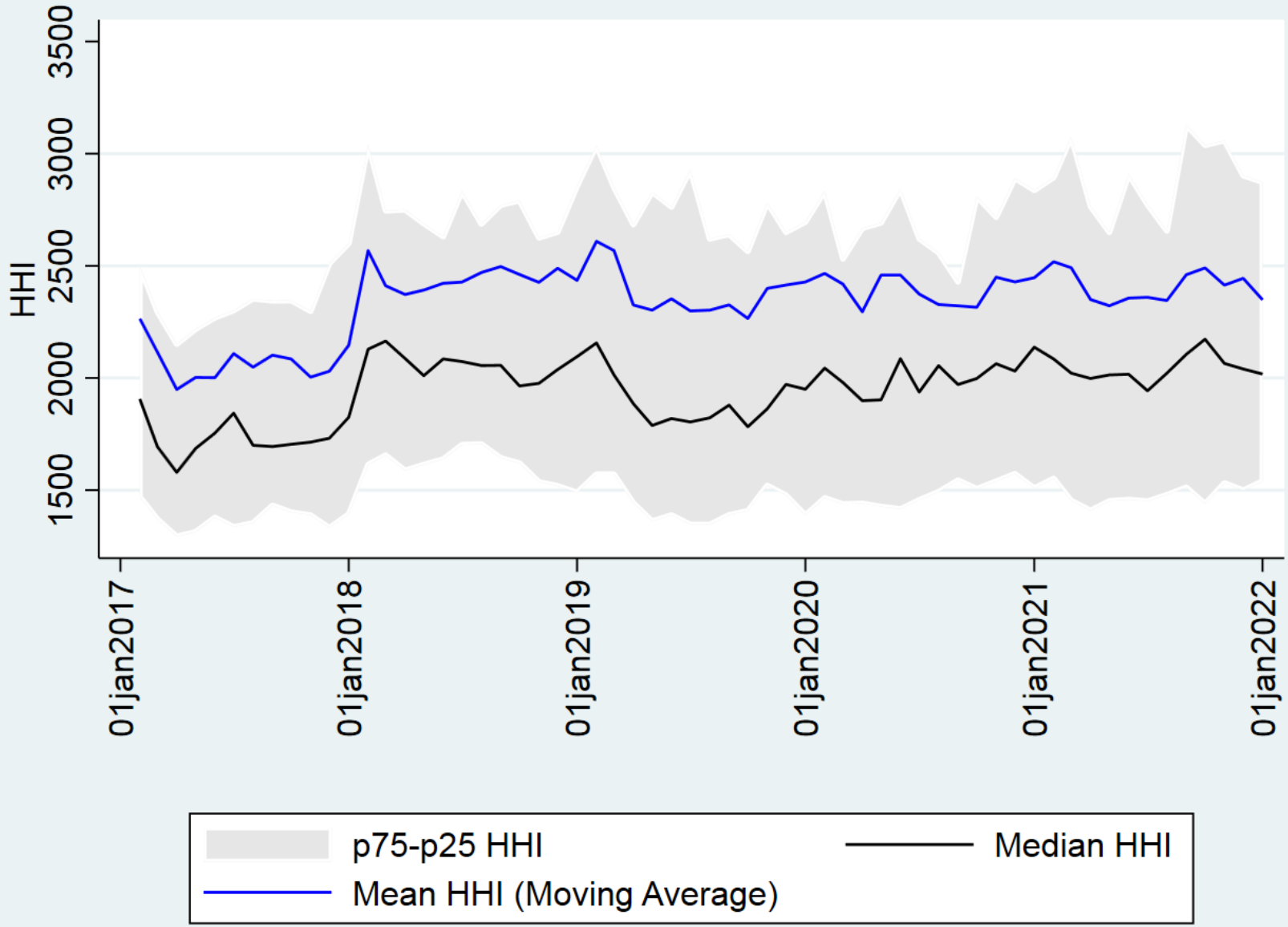
data

- 2017 to 2021 monthly
- confidential loan-level data: credit registry – Form 303
- Bank of Russia's policy rate, a.k.a. the key rate
- Herfindahl- Hirschman index at the region level

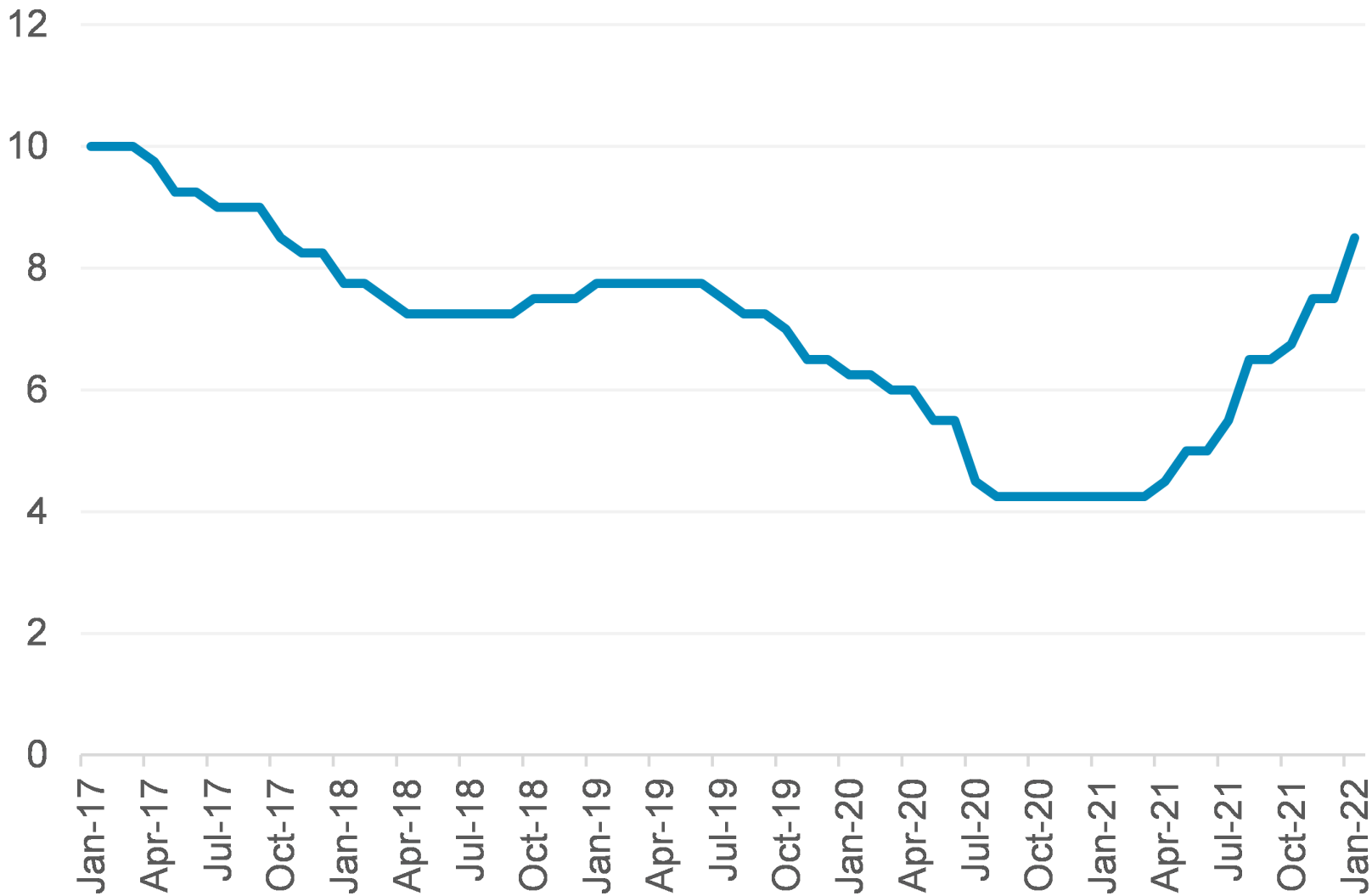
descriptive statistics

	mean	median	sd	min	max
lending rate	12.67	12.85	4.28	0.01	23.96
volume	14.62	14.75	2.34	6.67	20.21
HHI	0.18	0.15	0.09	0.07	1.00
key rate	6.77	7.25	1.59	4.25	10.00
avg. credit spread	5.81	5.57	3.71	-9.97	19.25
new lender	0.08	0.00	0.27	0.00	1.00

HHI dynamics



Bank of Russia's key rate



findings: rate (1)

	dependent: lending rate$(+h)$			
regressor	(1)	(2)	(3)	(4)
	$h = 0$	$h = 2$	$h = 4$	$h = 6$
HHI(-1)	-0.374	-0.645***	-0.660***	-0.522*
	(0.392)	(0.187)	(0.214)	(0.275)
HHI$(-1)\times$key rate	0.046	0.090***	0.093***	0.069*
	(0.054)	(0.026)	(0.030)	(0.038)
bank$\times$time FEs	yes	yes	yes	yes
industry$\times$time FEs	yes	yes	yes	yes
time FEs	yes	yes	yes	yes
bank FEs	yes	yes	yes	yes
firm FEs	yes	yes	yes	yes
obs	3,531,069	3,531,069	3,531,069	3,531,069
$\bar{R}^2$	0.82	0.82	0.82	0.82

findings: rate (2)

	dependent: lending rate$(+h)$			
regressor	(1)	(2)	(3)	(4)
	$h = 0$	$h = 2$	$h = 4$	$h = 6$
HHI(-1)	-0.408	-0.687***	-0.696***	-0.557**
	(0.380)	(0.181)	(0.220)	(0.281)
HHI$(-1)\times$key rate	0.049	0.094***	0.097***	0.073*
	(0.053)	(0.026)	(0.030)	(0.038)
quality group	yes	yes	yes	yes
bank$\times$time FEs	yes	yes	yes	yes
industry$\times$time FEs	yes	yes	yes	yes
time FEs	yes	yes	yes	yes
bank FEs	yes	yes	yes	yes
firm FEs	yes	yes	yes	yes
obs	3,529,120	3,529,120	3,529,120	3,529,120
$\bar{R}^2$	0.82	0.82	0.82	0.82

findings: volume

	dependent: log loan volume$(+h)$			
regressor	(1)	(2)	(3)	(4)
	$h = 0$	$h = 2$	$h = 4$	$h = 6$
HHI(-1)	-0.246***	-0.347***	-0.387***	-0.385***
	(0.092)	(0.105)	(0.115)	(0.115)
HHI$(-1)\times$key rate	0.027***	0.043***	0.048***	0.047***
	(0.009)	(0.012)	(0.015)	(0.014)
bank$\times$time FEs	yes	yes	yes	yes
industry$\times$time FEs	yes	yes	yes	yes
time FEs	yes	yes	yes	yes
bank FEs	yes	yes	yes	yes
firm FEs	yes	yes	yes	yes
obs	3,719,368	3,719,368	3,719,368	3,719,368
$\bar{R}^2$	0.74	0.74	0.74	0.74

findings: extensive margin

	dependent: new lender dummy$(+h)$			
regressor	(1)	(2)	(3)	(4)
	$h = 0$	$h = 2$	$h = 4$	$h = 6$
HHI(-1)	-0.021	0.002	0.015	0.027
	(0.020)	(0.032)	(0.040)	(0.045)
HHI$(-1)\times$key rate	0.004*	0.001	-0.001	-0.003
	(0.001)	(0.003)	(0.004)	(0.005)
bank$\times$time FEs	yes	yes	yes	yes
industry$\times$time FEs	yes	yes	yes	yes
time FEs	yes	yes	yes	yes
bank FEs	yes	yes	yes	yes
firm FEs	yes	yes	yes	yes
obs	3,719,368	3,719,368	3,719,368	3,719,368
$\bar{R}^2$	0.24	0.24	0.24	0.24

findings: maturity

	dependent: loan maturity$(+h)$			
regressor	(1)	(2)	(3)	(4)
	$h = 0$	$h = 2$	$h = 4$	$h = 6$
HHI(-1)	72.1*	55.4	40.0	31.1
	(43.4)	(53.1)	(58.3)	(60.2)
HHI$(-1)\times$key rate	-5.36	-3.17	-0.93	-0.15
	(4.26)	(5.07)	(5.52)	(5.57)
bank$\times$time FEs	yes	yes	yes	yes
industry$\times$time FEs	yes	yes	yes	yes
time FEs	yes	yes	yes	yes
bank FEs	yes	yes	yes	yes
firm FEs	yes	yes	yes	yes
obs	3,627,788	3,627,788	3,627,788	3,627,788
$\bar{R}^2$	0.71	0.71	0.71	0.71

findings: *ex ante* risk (1)

	dependent: loan loss provision $(+h)$			
regressor	(1)	(2)	(3)	(4)
	$h = 0$	$h = 2$	$h = 4$	$h = 6$
HHI(-1)	1.643***	1.769***	1.664***	1.350***
	(0.569)	(0.562)	(0.596)	(0.664)
HHI$(-1)\times$key rate	-0.173***	-0.183***	-0.169***	-0.124***
	(0.063)	(0.060)	(0.063)	(0.073)
bank$\times$time FEs	yes	yes	yes	yes
industry$\times$time FEs	yes	yes	yes	yes
time FEs	yes	yes	yes	yes
bank FEs	yes	yes	yes	yes
firm FEs	yes	yes	yes	yes
obs	3,579,622	3,579,622	3,579,622	3,579,622
$\bar{R}^2$	0.63	0.63	0.63	0.63

findings: *ex ante* risk (2)

	dependent: credit spread$(+h)$			
regressor	(1)	(2)	(3)	(4)
	$h = 0$	$h = 2$	$h = 4$	$h = 6$
HHI(-1)	0.136	0.012	-0.103	-0.176
	(0.256)	(0.227)	(0.176)	(0.138)
HHI$(-1)\times$key rate	-0.027	-0.007	0.010	0.021
	(0.036)	(0.033)	(0.026)	(0.020)
bank$\times$time FEs	yes	yes	yes	yes
industry$\times$time FEs	yes	yes	yes	yes
time FEs	yes	yes	yes	yes
bank FEs	yes	yes	yes	yes
firm FEs	yes	yes	yes	yes
obs	3,181,180	3,181,180	3,181,180	3,181,180
$\bar{R}^2$	0.92	0.92	0.92	0.92

findings: *ex post* risk (2)

	dependent: default dummy$(+h)$			
regressor	(1)	(2)	(3)	(4)
	$h = 0$	$h = 2$	$h = 4$	$h = 6$
HHI(-1)	-0.003	-0.006	-0.009	-0.010
	(0.005)	(0.006)	(0.007)	(0.007)
HHI$(-1)\times$key rate	0.000	0.001	0.001	0.001
	(0.001)	(0.001)	(0.001)	(0.001)
bank$\times$time FEs	yes	yes	yes	yes
industry$\times$time FEs	yes	yes	yes	yes
time FEs	yes	yes	yes	yes
bank FEs	yes	yes	yes	yes
firm FEs	yes	yes	yes	yes
obs	3,719,353	3,719,353	3,719,353	3,719,353
$\bar{R}^2$	0.54	0.54	0.54	0.54

summary of findings

- on more concentrated markets,
  - volume is less sensitive
  - lending rate is more sensitive
  - *ex ante* risk as proxied by LLP is more pronounced

  to changes in the key rate
- the responses of
  - loan maturity
  - the extensive margin of lending
  - *ex ante* risk measured by credit spread
  - *ex post* measure of risk

  do not depend on market concentration
- no clear evidence in support of a trade-off between the strength of MP transmission and financial stability