

The LCR-premium on money market rates

Barbara Meller, Benjamin Hartung, Jens Taping (all ECB)

1. Motivation

- **Maintaining target LCR levels becomes more challenging as the Eurosystem balance sheet shrinks, which could impact market rates.**
- We investigate how LCR considerations may affect different money market rates as liquidity becomes scarcer.
- In our simple theoretical model, banks can choose between market and central bank funding, are cost-minimizing and face reserve and LCR constraints.
- This allows us to back out market spreads or “LCR-premia” at which banks are indifferent between borrowing from the central bank and borrowing in different money market segments. Insights from the model can inform policy questions:
 - **Will ECB credit at fixed rate crowd out LCR-driven term funding?**
 - **Is there an LCR induced spread between short-term unsecured and repo rates?**

2. Model

- **LCR**=unencumbered HQLA/expected net outflows over next 30 stress days
- **To obtain reserves, the bank has the choice between borrowing**
 - **C** from the central bank at cost r_c , against HQLA ($\gamma_c=1$) or non-HQLA ($\gamma_c=0$);
 - **M** from the market at maturity $m=\{1,2,3,\dots\}$ months and against a fraction γ_m of HQLA collateral where $\gamma_m \in [0,1]$ at cost r_m , the market-rate/DFR spread. To dampen rollover risk, each month, bank borrows $\frac{1}{m}M_m$ with maturity m from the market and holds it to maturity.

Impact of different funding options on bank's LCR

Funding Source	Collateral	Maturity: in months	LCR_N: unencumbered HQLA	LCR_D expected net outflows during 1m stress	LCR
C	non-HQLA		↑	→	↑
M	none	≤ 1	↑	↑	↓
M or C	HQLA		→	→	→
M	none / non-HQLA	> 1	↑	↑	↑

- **Impact of MRR on LCR:** reserves which are held for minimum reserve requirement (MRR) purposes do not count towards the LCR numerator as unencumbered HQLA

Solving bank's constraint optimization problem:

$$\min_{C,M} Cr_c + M_m r_m$$

$$\text{s.t. } LCR^* = \frac{LCR_N + C(1-\gamma_c) + M_m(1-\gamma_m) - MRR}{LCR_D + \frac{1}{m}M_m(1-\gamma_m)}$$

$$\text{s.t. } MRR \leq C + M$$

- We find **LCR-constrained banks prefer M over C** if:

$$r_m < \frac{1-\gamma_m}{1-\gamma_c} \left(1 - \frac{LCR^*}{m}\right) r_c$$

- So, an LCR-constrained bank, which could pledge 100% eligible non-HQLA at the central bank ($\gamma_c=0$) and which has a target LCR above the regulatory minimum ($LCR^*>1$) would prefer short-term unsecured market funding ($\gamma_m=0$ and $m=1$) if the market rate to DFR spread, $r_{m=1}$, was negative:

$$r_{unsec,m=1} < (1 - LCR^*) r_c$$

3.1 Is term market funding crowded out?

Market spreads which make LCR-constrained bank indifferent between market and central bank funding, if not shown $m=3$ and $1-\gamma_c=0.9$

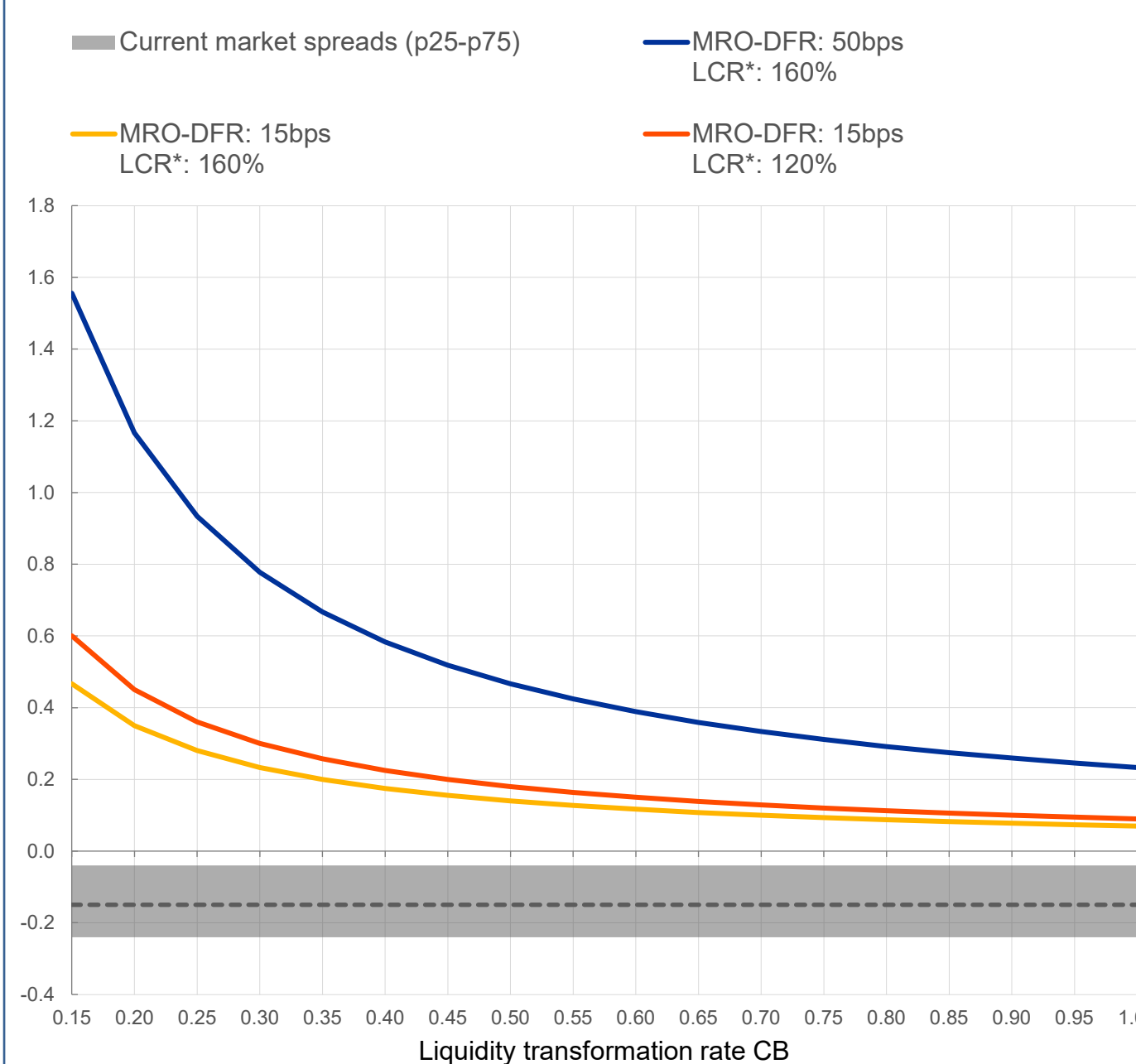


Fig 3: Impact of LCR* and liquidity transformation rate on r_m

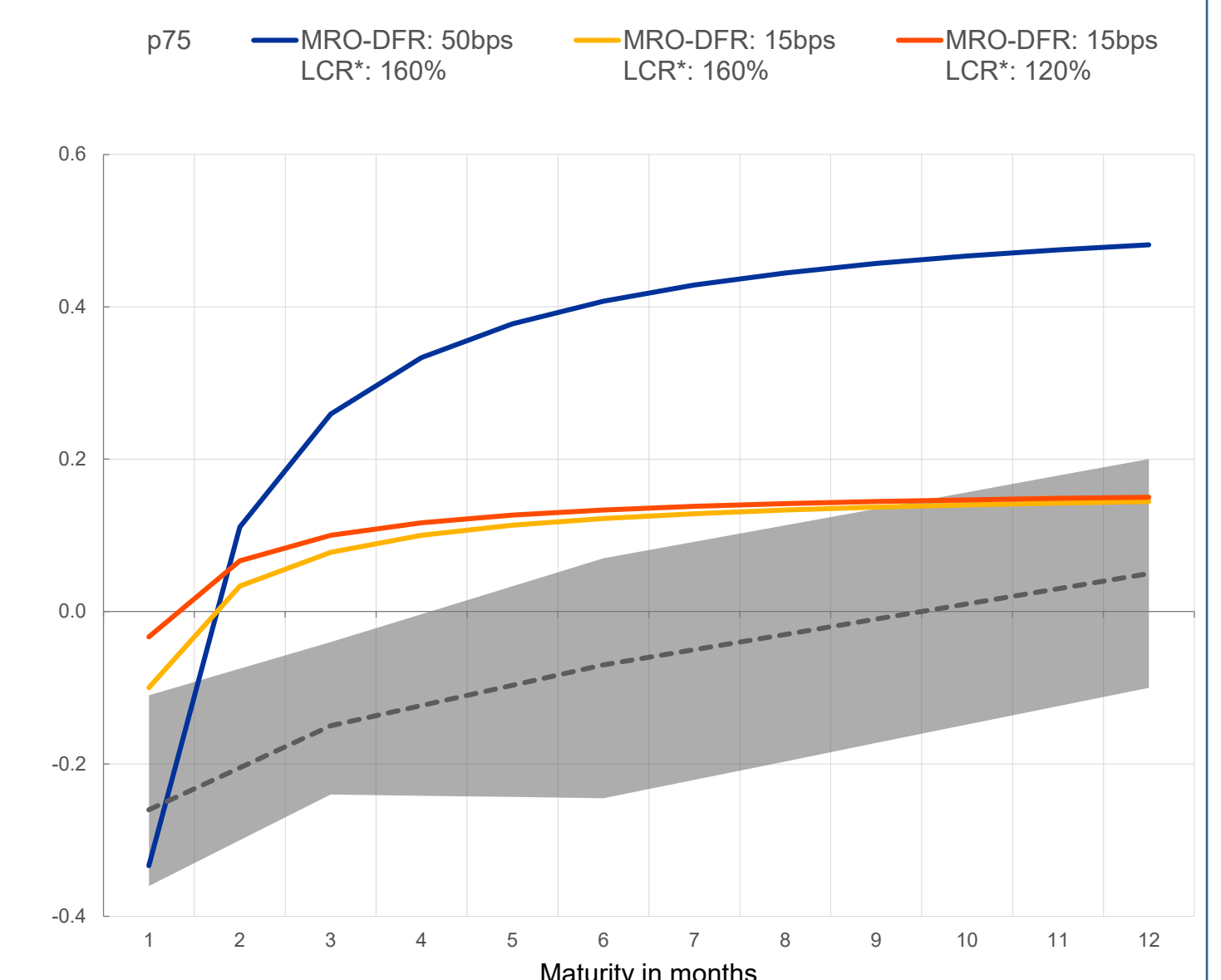


Fig 4: Impact of MRO-DFR spread, LCR*, maturity on r_m

- **Higher maturity** renders term funding relatively more attractive: If $m \rightarrow \infty$ then $r_m = \frac{1-\gamma_m}{1-\gamma_c} r_c$
- **Usage of eligible non-HQLA** (in Eurosystem's broad collateral framework) renders central bank funding relatively more attractive, for LCR-purposes
- **Unsecured term funding more attractive than CB funding for LCR-constrained bank in Q1 2024:** Observed term market spreads well below indifference r_m

3.2 Secured vs unsecured short-term funding

- An LCR-constrained bank may need to borrow reserves at short-term
- Two ways to borrow reserves LCR-neutrally:
 1. Short-term secured against HQLA collateral (LCR neutral per se)
 2. LCR-neutral combination of
 - LCR-negative unsecured borrowing at r_{UNSEC} (below DFR; $LCR^*>100\%$)
 - LCR-positive (if partly or fully against non-HQLA) MRO borrowing at r_c

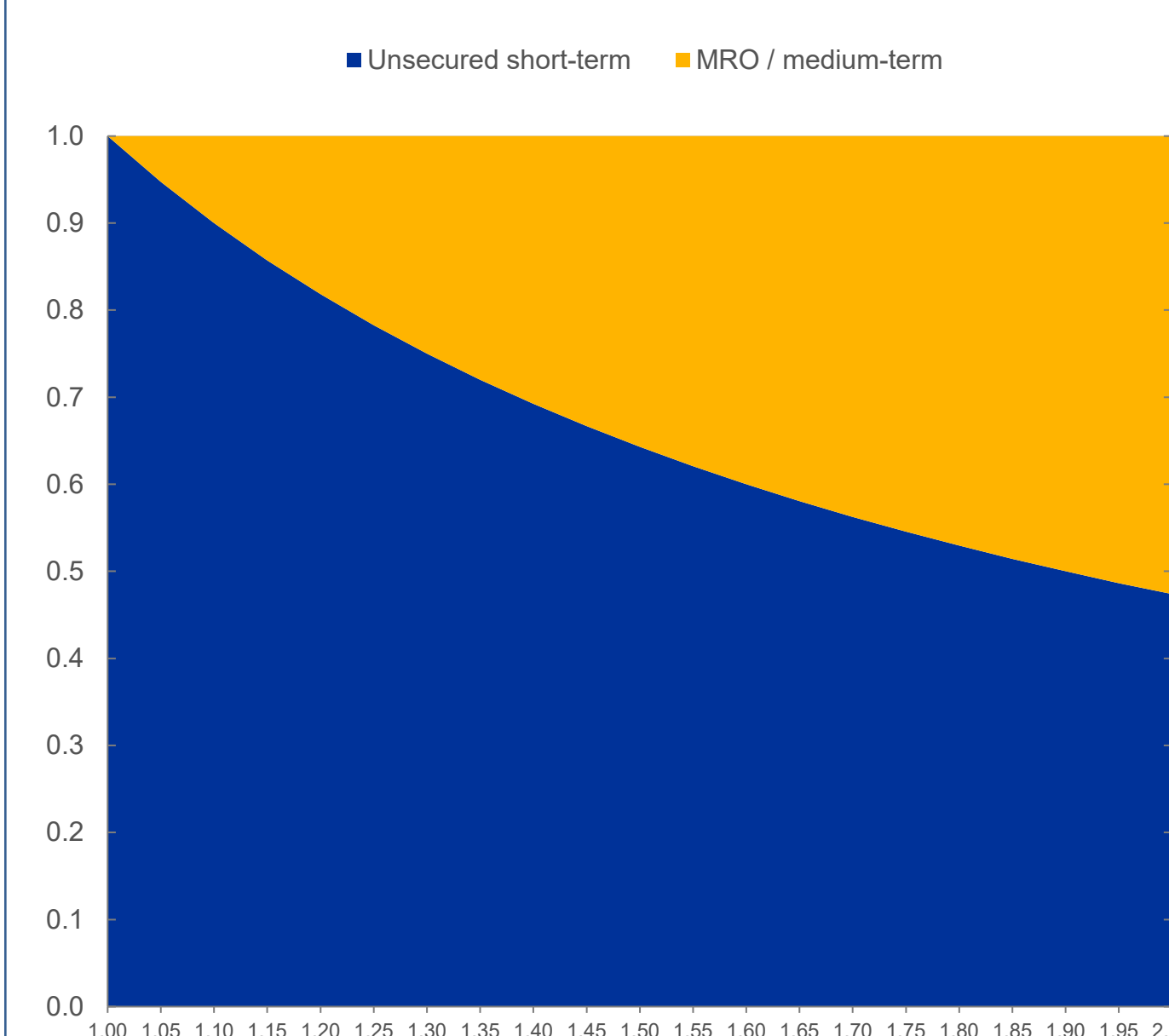


Fig 5: LCR-neutral combinations of unsecured short-term and MRO borrowing 90% against non-HQLA, as function of LCR*

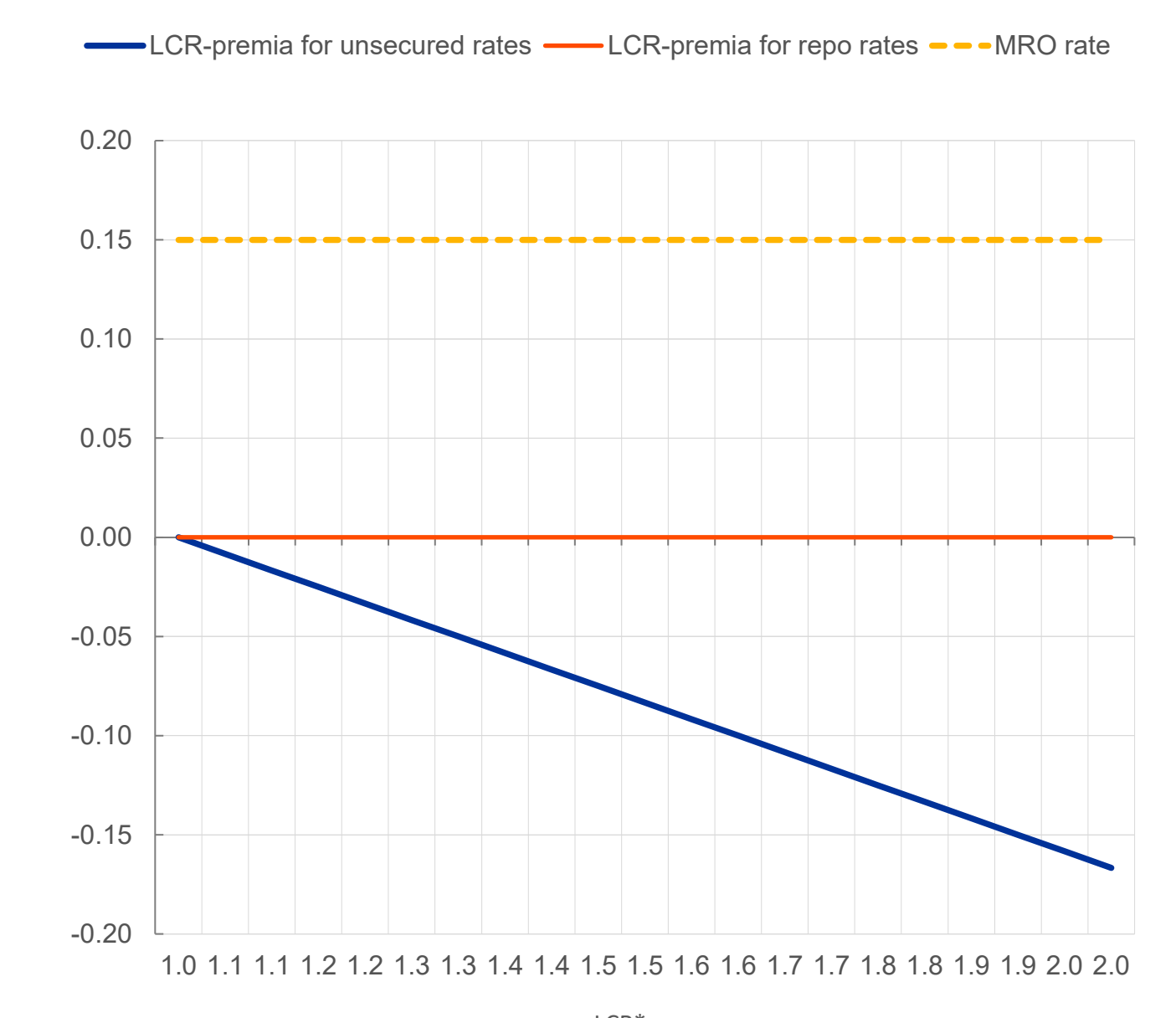


Fig 6: No-arbitrage repo and unsecured spread (to DFR)

- **LCR-driven wedge between secured and unsecured short-term spreads** increases with bank's target LCR* and MRO-DFR spread r_c :

$$r_{SEC}^* - r_{UNSEC}^* = \frac{LCR^* - 1}{1 - \gamma_c} r_c$$

4. Conclusion

While other factors influence banks' funding decisions and money market rates more generally, this simple model shows some interesting links between market spreads and bank's target LCR, the central bank's collateral framework and MRO-DFR spread:

- LCR-constrained banks are willing to pay an LCR premium for unsecured term funding. The longer the maturity the higher the premium. However, a broader collateral framework and a higher MROR-DFR spread make unsecured market term funding less attractive compared to central bank funding.
- Short-term unsecured market funding decreases the LCR and LCR-constrained banks will only borrow at a discount below the DFR. The negative LCR-premium widens the higher the bank's target LCR is and the narrower the central bank collateral framework.
- Neither market nor central bank funding backed by HQLA have an impact on LCR, assuming similar market and LCR haircuts.
- If binding, LCR constraints create a price wedge between secured and unsecured short-term rates, which increases with bank's target LCR and the MRO-DFR spread.

Contact

Barbara Meller & Benjamin Hartung
European Central Bank; DGM
Email: barbara.meller@ecb.europa.eu
benjamin.hartung@ecb.europa.eu

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