What Is the Cause of Interest Rate Volatility in Interbank Markets?

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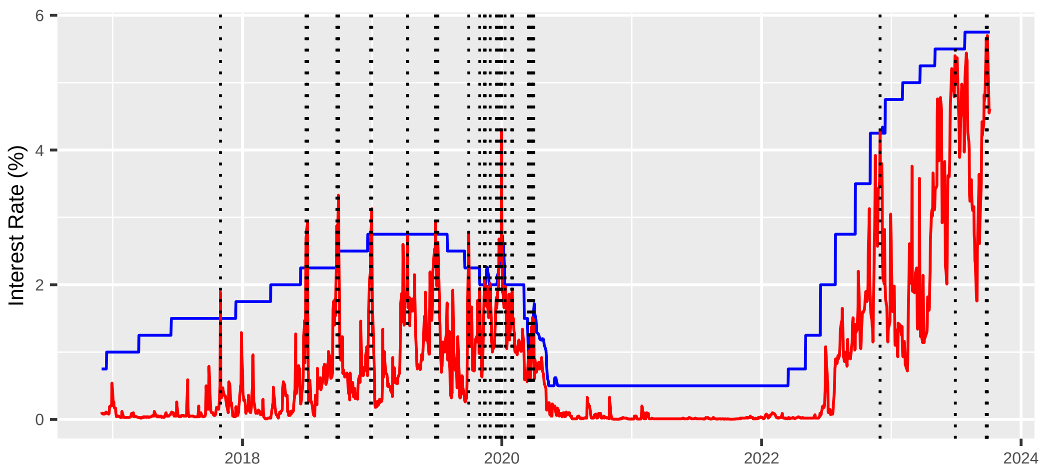
The Hong Kong Interbank Offering Rate (HIBOR), the city's benchmark rate, often breaches the Base Rate, which is the interest rate at which the Hong Kong Monetary Authority (HKMA) lends– see Figure 1.[1] This should not happen, as the Base Rate theoretically sets a ceiling on the HIBOR.[2] A bank seeking HKD should have no reason to borrow from a lender that charges more than the HKMA. This memo investigates why this is the case.



The Hong Kong Dollar Overnight Index Average (HONIA, an effective HKD rate of borrowing derived from volume−weighted overnight borrowing data) is plotted in red against the Base Rate (blue), which is referred to as the ceiling rate in this memo. Black dotted lines underscore days where HONIA exceeded the ceiling rate. Though HIBOR is till common parlance in local markets, financial markets have begun a transition away from HIBOR to HONIA since 2020. HIBOR and HONIA data published by the HKMA.

Figure 1: HIBOR, Base Rate, and Dates of Spikes

It's stigma, not IPOs

The common explanation offered for HIBOR spikes is initial public offerings (IPOs). Hong Kong is a common destination for companies to list their shares to raise funds. When an IPO closes, investors who successfully purchase shares must collectively make transfers to the fundraiser on the same day, during which the city's banks may borrow cash in large quantities to make payments;[3] accessing the discount window may be insufficient either in terms of amount or timeliness.[4] Purchasers must

[1]The HKMA is Hong Kong's de-facto central bank.

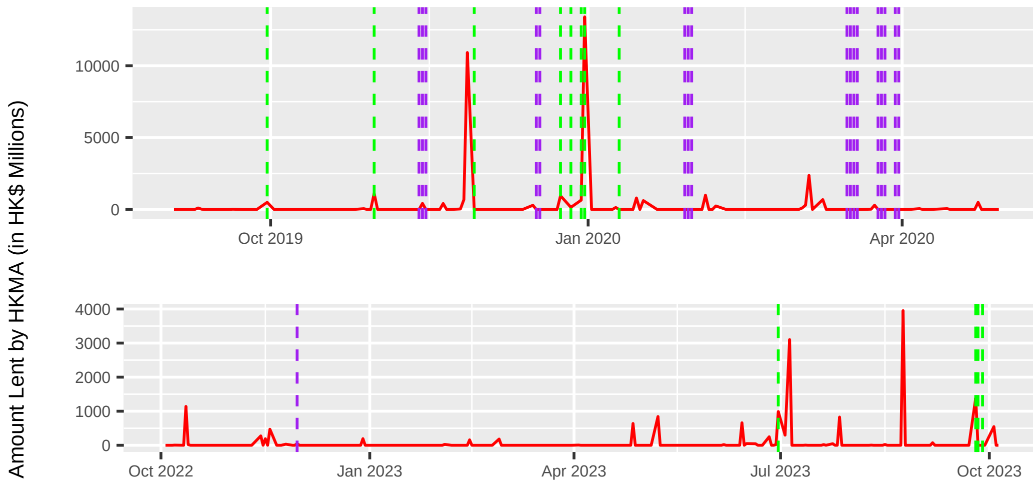
[2]Yes, the interest rate ceiling is called the Base Rate. Economists are not good at names.

[3]Frank Leung and Philip Ng, "Impact of IPO activities on the Hong Kong-dollar interbank market', Hong Kong Monetary Authority Quarterly Bulletin, Sep 2008, pp. 1-9.

[4]Arranging a discount window loan requires calling the HKMA's dealing room. https://www.hkma.gov.hk/media/eng/doc/key-functions/monetary-stability/liquidity-

therefore make borrowing arrangements in the interbank market, pushing up interbank interest rates.[5]

But I found that breaches occur even during days when there were no IPOs.[6] This is confirmed by further analysis: IPOs usually cause short-term rates to rise above long-term ones (leading to an "inverted yield curve").[7] But no inversion occurred during 18 of the 39 HIBOR spikes observed between 2019-23, i.e., borrowing costs for different maturities increased in tandem (Figure 2, purple dashed lines), which suggests IPOs were not the cause.



The daily HKMA discount window borrowing is plotted in red in this selected time period. Green dashed lines mark days with HIBOR spikes with yield inversion (one−day rate higher than one−month rate). Purple dashed lines mark spikes without yield inversion. HIBOR spikes without yield inversion were not observed in any time period between 2015 to 2019, or between 2021 to late 2022. Discount window and HIBOR data are published by the HKMA.

Figure 2: Amount Borrowed From Discount Window and Dates of Spikes

The most damning evidence is as follows: IPO activity is supposed to highly correlate with amounts borrowed from the HKMA. But as Figure 2 shows, HIBOR spikes which did not lead to inversion also happened to coincide with dampened borrowing (note how borrowing ticks up around green dashed lines but not purple). This means that, for half the sample, not only do we *not* see the positive correlation that we would expect between observed HIBOR spikes and borrowing (as the IPO hypothesis would suggest), we in fact see negative correlation.

Table 1 confirms this point: Column 1 shows that deviations of HIBOR from the Base Rate is highly predictive of the amount borrowed from the HKMA. (The dataset includes 29 days, which are those during which the Base Rate was breached.) Column 2 considers whether that day also saw an inverted yield curve (a binary variable) and the interaction between these two predictors. As suspected, banks only use the discount window if (i) HIBOR deviates from the Base Rate and (ii) there is yield inversion, which for our purposes signify the presence of an IPO. When only (i) is true, there is less willingness to borrow from the central bank.

All observations point to discount window stigma as the cause for interest rate spikes. Stigma exists because utilizing the HKMA's lending programs might suggest to investors that the borrowing bank is unable to convince other banks to lend. Investors could in turn assume that the bank is financially distressed and divest. In the US interbank lending market, stigma exists despite that access of the

facilities/Operational_Note_(English)_Liquidity_Facilities_Framework(final).pdf

[5] Leung and Ng, "Impact of IPO activities', pp. 1-2.

[6] HKEX, New Listing Report: Main Board and GEM, https://www2.hkexnews.hk/new-listings/new-listing-information/main-board?sc_lang=en.

[7] Leung and Ng, "Impact of IPO activities', p. 6.

Fed's lending program is kept confidential, leading scholars to speculate that the interconnectedness of interbank markets allows participants to infer the borrower's identity.[8]

Table 1: Discount Window Borrowing on HIBOR Spikes and Yield Inversion

	Billions HKD Borrowed from Discount Window	
	(1)	(2)
Deviation from Base Rate	5.909^{***}	0.387
	(0.486)	(1.830)
Yield Inversion		-1.071^{**}
		(0.466)
Deviation from Base Rate*Yield Inversion		5.974^{***}
		(1.891)
Constant	-0.825^{***}	-0.026
	(0.221)	(0.323)
Observations	29	29
R^2	0.845	0.890
Adjusted R^2	0.840	0.877
Residual Std. Error	0.994 (df = 27)	0.872 (df = 25)
F Statistic	147.693^{***} (df = 1; 27)	67.438^{***} (df = 3; 25)
Note:		*p<0.1; **p<0.05; ***p<0.01

[8] Olivier Armantier, Eric Ghysels, Asani Sarkar, and Jeffrey Shrader, "Discount window stigma during the 2007–2008 financial crisis', Journal of Financial Economics 118 (2015), pp. 317-35. Beyhaghi and Gerlach,"How Banking Supervision Hinders the Federal Reserve's Mission as the Lender of Last Resort', p. 28.