Journal of Financial Crises

Volume 4 | Issue 2

2022

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Recommended Citation
Hoffner, Benjamin (2022) "Hong Kong: Temporary Liquidity Measures, 2008," *Journal of Financial Crises*: Vol. 4 : Iss. 2, 897-919.
Available at: https://elischolar.library.yale.edu/journal-of-financial-crises/vol4/iss2/41

Hong Kong: Temporary Liquidity Measures, 2008[1]

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Yale Program on Financial Stability Case Study
July 15, 2022

Abstract

In September 2008, Hong Kong's interbank market tightened after the Bank of East Asia experienced a deposit run, prompting the Hong Kong Monetary Authority (HKMA) to roll out five novel liquidity measures. The first three of these measures expanded the scope of HKMA's discount window, offering term loans of up to three months, accepting additional collateral options, and lowering the rate charged. In the last two measures, the HKMA created one facility that allowed banks to request foreign exchange swaps and another that permitted the HKMA to extend collateralized term loans at market rates using its discretion. Although these measures lasted only six months, the HKMA later decided to incorporate the discretionary term lending and forex swap facilities into its permanent monetary policy framework. It allowed discount window lending to revert to its original terms. The HKMA cited greater activity under the discretionary facilities compared to the enhanced discount window as cause for the change in exit strategy. Moreover, during the six-month tenure of the enhanced discount window, banks did not use two of the three enhancements, namely the longer loan terms and expanded collateral options.

Keywords: broad-based emergency liquidity, currency board, discount window, HKMA, Hong Kong

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[1] This case study is part of the Yale Program on Financial Stability (YPFS) selection of New Bagehot Project modules considering broad-based emergency lending programs. Cases are available from the *Journal of Financial Crises* at
https://elischolar.library.yale.edu/journal-of-financial-crises/.

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Overview

During the Global Financial Crisis of 2007–09, fears about the worsening macroeconomic prospects bled into Hong Kong money markets. In the summer of 2008, term HIBORs (Hong Kong Interbank Offer Rates, the benchmark interbank interest rates) and later, overnight rates, increased (HKMA, 2008, 46). Meanwhile, the unwinding of carry trades, the repatriation of funds into Hong Kong, and a flight to safer currency markets increased demand for Hong Kong dollar (HKD)[3] liquidity (HKMA 2008i). The bankruptcy of Lehman Brothers on September 15 sent interbank interest rates climbing as worries about counterparty credit risks discouraged banks from lending (HKMA, 2008, 47).

Key Terms

Purpose: "To increase the supply of liquidity and reduce borrowing costs to relieve stress in the money market and help restore the normal functioning of the interbank market" (HKMA 2008i)

Launch Dates	Announcement: Sept. 30, 2008 Operational: Oct. 2, 2008
Expiration Dates	March 31, 2009
Legal Authority	Exchange Fund Ordinance
Peak Outstanding	HKD 11.4 billion in Oct. 2008 for combined temporary measures
Participants	Licensed banks in Hong Kong
Rate	Discount window: Fixed rate built off US federal funds target Discretionary Term Lending: Variable rate referenced at prevailing market rates
Collateral	Discount window: Exchange Fund Paper, US Treasuries Discretionary Term Lending: not available
Loan Duration	Maturities up to three months
Notable Features	Early roll out in conjunction with numerous liquidity measures
Outcomes	No apparent usage of extended maturities from DW, unknown for discretionary term lending

The resulting tightening in the interbank markets prompted the Hong Kong Monetary Authority (HKMA) to buy HKD 1.56 billion worth of US dollars on September 18—about USD 0.2 billion—to keep the HKD within its target zone, expanding the Aggregate Balance of banks' HKD reserves (HKMA 2008g).

On September 24, panic struck depositors at the Bank of East Asia, Hong Kong's fifth largest bank, after a series of rumors spread via text message concerning the bank's solvency (Bruner, 2008, 1). Though unsubstantiated, these rumors led depositors to withdraw HKD 2 billion from the bank by the next day, exemplifying a small-scale run. The HKMA subsequently injected HKD 3.9 billion on September 25 through another round of intra-zone foreign exchange operations (HKMA, 2008, 47). Although the overnight HIBOR began to ease shortly thereafter, term HIBORs continued to rise.

[3] Hong Kong has a linked exchange rate system which allows the Hong Kong dollar (HKD) to fluctuate within a tight range of HKD 7.75 to HKD 7.85 per US dollar (USD) (BIS 2019). The credibility of the HKD-USD link increases demand for HKD during flights to quality, such as in 2008 (Yam 2009).

In response, on September 30, the HKMA announced five new measures to provide temporary liquidity assistance to licensed banks through a combination of new and existing facilities. The first three measures enhanced the terms of the existing discount window ("enhanced discount window"):

(1) expanding the eligible collateral to include high-quality US dollar assets;

(2) extending the maximum borrowing term of liquidity beyond overnight to maturities of up to three months;

(3) reducing the cost of borrowing by waiving the 5% penalty imposed on banks that borrowed against more than 50% of their holdings of Exchange Fund paper at the discount window (HKMA 2008a).

The other two measures were discretionary:

(4) introducing foreign exchange swaps ("forex swap facility") with maximum maturities of three months for the purpose of providing licensed banks with HKD liquidity in exchange for US dollars;

(5) allowing banks to borrow term money for up to one month against high quality collateral ("discretionary term lending facility"), priced at market rates (HKMA 2008c).

This case will focus on the enhanced discount window and discretionary term lending facility, in other words, measures (1-3) and (5), respectively; a future case series will explore the foreign exchange component of the HKMA's emergency liquidity assistance. Nevertheless, all relief under these five measures was available to the 145 licensed banks in Hong Kong, representing the vast majority of domestic banking activity (HKMA 2008f, 214, 77).

The HKMA undertook other steps that interacted with the five temporary measures to further facilitate liquidity provision; the most notable of these complementary steps was the Base Rate reduction. On October 8, the HKMA reduced the Base Rate, which it used to price discount window borrowings, by 100 bps, lowering the cost for banks to obtain liquidity. The HKMA also increased the supply of Exchange Fund paper (government debt similar to US Treasuries) beginning with an allotment on October 20 in order to facilitate banks' collateral needs in support of the enhanced discount window and discretionary term lending facility (HKMA 2008h). The timing of Exchange Fund paper issuance strategically coincided with intra-zone foreign exchange operations—the excess HK dollars injected into banks' reserves were mopped up by the additional supply of highly-liquid Exchange Fund bills (HKMA 2009e).

When introduced, both the five temporary liquidity measures and the Base Rate adjustment were set to expire after six months, at the end of March 2009 (HKMA 2008c; HKMA 2008b). The only noted changes to the five temporary measures were amendments to the discretionary term lending facility in November 2008, adding three-month secured loans and scope for charging below-market interest rates (HKMA 2008e). Ultimately, the HKMA allowed the five temporary measures and the revised Base Rate to expire in March 2009. However, the HKMA decided to establish a permanent forex swap facility and discretionary term lending facilities as part of its permanent policy framework. It noted that most of the usage of the five temporary measures had been confined to those two measures (HKMA 2009b).

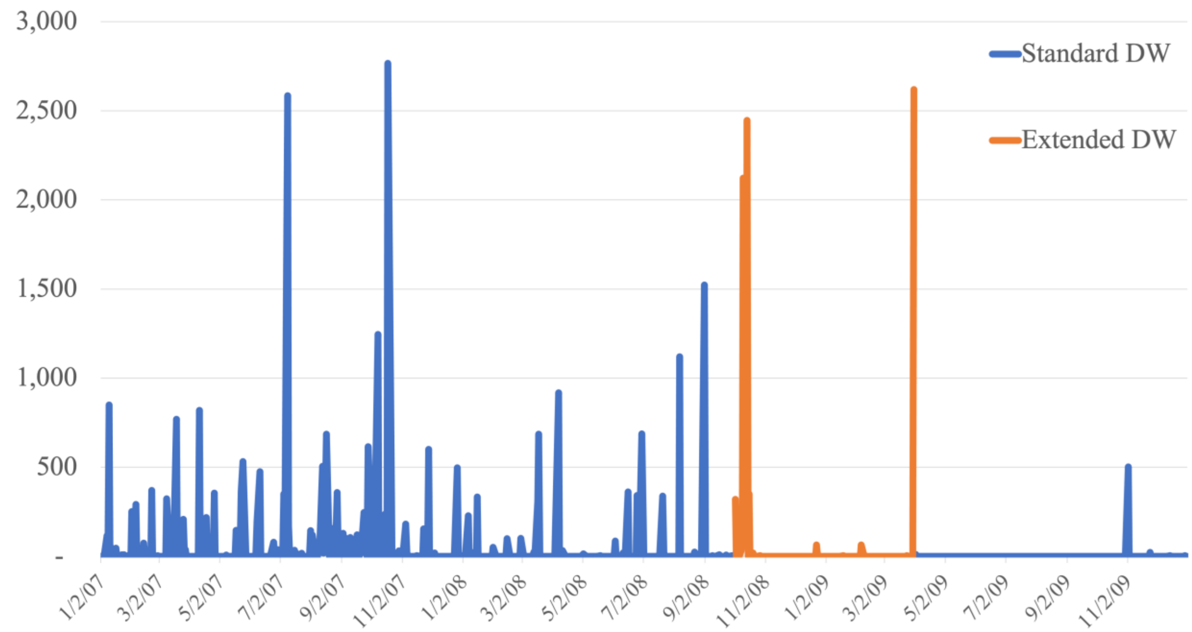
Overall, the HKMA said that the outstanding liquidity provided through the five measures was small in the fourth quarter of 2008 and reached a maximum of HKD 11.4 billion in October, declining to HKD 6.1 billion by the year's end. It did not say how much banks used each of the measures. However, based on periodical discount window data the HKMA released, it does not appear that banks took advantage of the first two temporary measures at all. Every discount window liquidity injection was followed by a reversal the next day, indicating the HKMA extended no term loans (API 2007–2009). Banks also did not take advantage of the broader collateral the HKMA allowed, only posting Exchange Fund paper during this period (HKMA 2009e; HKMA 2009f; HKMA 2009g).

Meanwhile, the HKMA injected far more liquidity into the banking system in the fourth quarter of 2008 through its foreign exchange operations—a total of HKD 182.8 billion, representing purchases of US dollars. While most of that figure represents passive US dollar purchases to maintain the currency peg, it also includes HKD 24.8 billion in US dollars that the HKMA injected to provide liquidity to banks (HKMA 2008i).

The HKMA disclosed data on the aggregate usage of the discount window during this period (Figure 1).[4] Such aggregate disclosures did not separate the regular, overnight operations from the enhanced lending operations. However, there is no need to isolate the enhanced operations since two of the three discount window enhancements (the extended term and expanded collateral) were never used; compared to nominal discount window operations, usage of the facility reflected an overall lower borrowing cost resulting from the third enhancement and the Base Rate reduction (HKMA 2008a; HKMA 2008h). During the six months that the enhanced terms were available, total discount window borrowing amounted to HKD 8.4 billion, compared to HKD 5.5 billion in the preceding six months and HKD 11 million in the following six months (API 2007–2009).

[4] The HKMA presents discount window borrowing amounts in terms of net increases in the level interbank liquidity, defined as the Aggregate Balance, a component of the monetary base. The Aggregate Balance constitutes "the sum of the balances in the clearing accounts maintained by the banks with the HKMA for settling interbank payments and payments between banks and the HKMA" (HKMA 2008h).

Figure 1: Daily Changes in the Aggregate Balance Arising from Discount Window activities, 2007–09



Source: API 2007–2009.

Notably, most discount window lending took place at the beginning and end of the temporary enhancements. Aggregate discount window borrowings were HKD 5.6 billion in October 2008 and HKD 2.6 billion on the last day of March 2009, but the HKMA lent only HKD 0.1 billion in the roughly five intervening months (HKMA 2009g; HKMA 2009f). Of the HKD 5.6 billion borrowing spike in October, only HKD 0.3 billion occurred before the Base Rate reduction on October 8, 2008 (API 2007–2009).

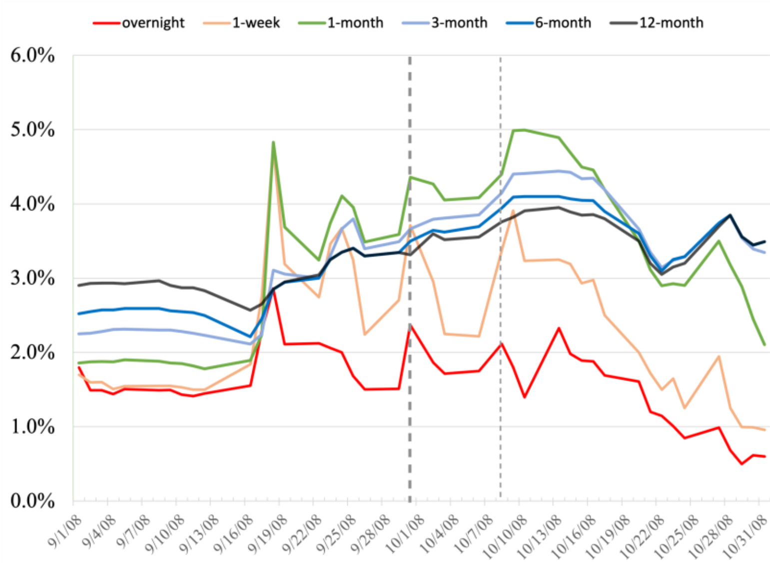
The HKMA also disclosed the number of banks that used the discount window and the frequency of their usage for two periods that imperfectly reference the duration of the temporary provisions and the lower Base Rate. In the first period (September 20 to November 20, 2008), nine separate banks borrowed from the discount window once, while two borrowed three times (HKMA 2009e). In the second period (November 21, 2008 to March 30, 2009), which excludes the very active final day of the six-month period, only four banks accessed the Window (HKMA 2009f).

Summary Evaluation

Over the six-month term in which the five temporary liquidity measures were available, the discount window experienced two spikes in borrowing activity, one just after the implementation of the enhancements and one just prior to their expiration as shown in Figure 1 (API 2007–2009). However, we found no evidence that the first and second measures of the enhanced discount window, offering extended maturities and accepting US Treasuries as collateral, were ever used. Nevertheless, the assurance of longer-term, affordable credit given to banks through the enhanced discount window and other measures helped ease funding conditions in the interbank market; yields on short-term HIBORs decreased corresponding to the introduction of the temporary liquidity measures (Fung and Yu 2009; API 2008).

As seen in Figure 2, HIBORs on overnight, one-week, and one-month declined following the announcement of the temporary liquidity measures on September 30 as well as the Base Rate reduction on October 8; term HIBORS beyond one-month decreased only after the announcement of the new Contingent Bank Capital Facility and full deposit guarantee programs on October 14 (Financial Secretary 2008; API 2008).

Figure 2: Hong Kong Interbank Interest Rates (HIBOR fixings), September–October 2008



Note: The dotted thick and thin grey vertical lines indicate the announcement of the five temporary measures and Base Rate reduction, respectively.

Source: API 2008.

In their statistical analysis on the impact of the five temporary measures, Fung and Yu (2009) found that the temporary liquidity support "helped mitigate the dislocations and therefore improved the efficiency in the money and FX swap markets," resulting in banks being "more willing to lend in the interbank market." On the other hand, the temporary measures, including the enhanced discount window, did not have a statistical impact on the easing of long-term credit spreads.

Context: Hong Kong 2008–2009	
GDP (SAAR, nominal GDP in LCU converted to USD)	$219.3 billion in 2008 $214.1 billion in 2009
GDP per capita (SAAR, nominal GDP in LCU converted to USD)	$31,516 in 2008 $30,697 in 2009
Sovereign credit rating (five-year senior debt)	Data for 2008: Moody's: Aa2 S&P: AA+ Fitch: AA+ Data for 2009: Moody's: Aa2 S&P: AA+ Fitch: AA+
Size of banking system	$330.3 billion in 2008 $374 .4 billion in 2009
Size of banking system as a percentage of GDP	150.6% in 2008 174.9% in 2009
Size of banking system as a percentage of financial system	100% for 2008 100% for 2009
Five-bank concentration of banking system	79.5% in 2008 78.3% in 2009
Foreign involvement in banking system	91% in 2008 92% in 2009
Government ownership of banking system	Data not available for 2008 Data not available for 2009
Existence of deposit insurance	Yes, in 2008 Yes, in 2009
Sources: Bloomberg; World Bank Global Financial Development Database; World Bank Deposit Insurance Dataset.	

Key Design Decisions

1. Purpose: The HKMA introduced five temporary measures to improve liquidity in the interbank market.

Following the collapse of Lehman Brothers on September 15, 2008, market participants increased their demand for Hong Kong dollars, which they saw as relatively safe as money markets tightened. Facing appreciating pressures on Hong Kong's fixed exchange rate and shortages of HKD liquidity, the HKMA intervened directly in the forex market. After the HKMA first injected liquidity on September 18 through large purchases of US dollars, local interbank markets remained tight. A deposit run on the Bank of East Asia on September 25 further disrupted interbank lending (HKMA 2008h).

On September 30, the HKMA introduced five temporary liquidity measures, effective October 2, to improve banks' access to liquidity (HKMA 2009d). These five measures were designed "to provide longer term funding for licensed banks against a wider-than-usual range of collateral" (HKMA 2008h). The first three measures amended the existing discount window while the fourth and fifth measures created new forex swap and discretionary term lending facilities. This case focuses on the enhanced discount window (measures 1-3) and the discretionary term lending facility (measure 5).

2. Legal Authority: The existing legal authority assigned to the HKMA provided discretionary power to introduce the innovative liquidity tools.

Under the Exchange Fund Ordinance, the Financial Secretary of Hong Kong has the right to set the policy objective for the HKMA. The Financial Secretary delegates to the HKMA the responsibility for achieving these objectives, "including determining the strategy, instrument and operational means for doing so" (Financial Secretary 2003). Since 1983, the overarching policy objective has been to peg the value of the HKD to the US dollar (USD). Under a currency board arrangement, the monetary base is fully backed by USD reserves. The HKMA utilizes its Exchange Fund "to maintain the stability and integrity of the monetary and financial systems of Hong Kong" (Legislative Council 1997). Provided that the HKMA honors the currency board arrangements, the HKMA has legal authority to administer emergency liquidity support to the banking system via the Exchange Fund when circumstances threaten the stability of the monetary or financial systems (HKMA 1999, 77).[5]

[5] In the currency board system, lender of last resort (LOLR) activities follow the convention that Hong Kong Dollar liquidity provision is "matched either by a decline in another component of the monetary base (i.e., the Exchange Fund paper) or an increase in US dollar assets" (HKMA 1999).

3. **Part of a Package: The HKMA's implementation of liquidity tools were supported by additional policies, all of which sought to produce confidence in the banking system and return the interbank markets to normal functioning.**

In addition to the temporary liquidity measures announced on September 30, the HKMA supported banks through intervening (passively and actively) in foreign exchange operations, supplying additional Exchange Fund paper (treasuries), lowering the Base Rate for calculating discount window borrowing costs, and allowing flexibility for capital adequacy requirements.

Foreign exchange operations: In the fourth quarter of 2008, appreciating pressures on the HKD triggered automatic exchange mechanisms[6] whereby the HKMA passively sold a total of HKD 154 billion in exchange for USD (BIS 2019). Additionally, the HKMA manually intervened through foreign exchange operations by actively selling HKD against USD within the convertibility zone to ease HKD liquidity strains (HKMA 2008i).

Expansion of the Exchange Fund Bills Programme: The HKMA also issued a total of HKD 12 billion in additional[7,8] Exchange Fund Bills amidst increased demand for Exchange Fund paper that had driven yields below zero (HKMA 2009e; HKMA 2009j).

Base Rate Reduction: To further enable banks' access to liquidity via the enhanced discount window, the HKMA revised the calculation of the Base Rate formula downward on October 8, 2008. Effective on October 9, the downward revision lowered the Base Rate calculation's 1.5% premium over the Federal Funds Target Rate to 0.5%. Coupled with US Federal Funds rate cuts over the quarter, the Base Rate, which determines the discount window fees, declined from 3% at the beginning of October to 0.5% by year end (HKMA 2009e).

Flexible capital adequacy ratio: The HKMA also lifted the 8% statutory minimum capital adequacy ratio applied to all locally incorporated banks on November 21, 2008, to ease lending conditions in the interbank market (Legislative Council 2008b).

Along with HKMA's efforts to promote confidence in the banking system, the Financial Secretary introduced two new measures on October 14: (1) the Contingent Bank Capital Facility[9] and (2) 100% deposit protection to all licensed banks.[10]

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[6] Hong Kong's Linked Exchange Rate System uses the HKMA's automatic stabilizers to ensure that the HKD stays within a convertibility zone of HKD 7.75 and HKD 7.85 to the USD (BIS 2019).

[7] The HKMA on occasion paired the tap issue of Exchange Fund bills with the within-zone foreign exchange operations to partially offset the increase in the Aggregate Balance (HKMA 2009e).

[8] Since banks use Exchange Fund paper as collateral in discount window and discretionary term loan borrowings, the issuance complemented the temporary measures rolled out on October 2.

[9] The Contingent Bank Capital Facility provided an opportunity for banks to receive capital injections via the Exchange Fund (HKMA 2008h).

[10] Prior to the full guarantee, the Exchange Fund covered up to HKD 100,000 per depositor at licensed banks (Legislative Council 2008a).

4. Management: Banks filed requests to the HKMA who then provided the approved funds into participants' clearing accounts.

For both the enhanced discount window and the discretionary term lending facility, the HKMA provided liquidity after banks filed requests to the HKMA's dealing room that were approved upon confirmation of requisite documentation and securities for repurchase agreements (repos). The eligible participants for the five temporary measures, all licensed banks, maintained Real Time Gross Settlement (RTGS) accounts with the Exchange Fund (HKMA 2008d). The RTGS is the interbank payment system whereby licensed banks hold clearing accounts with the HKMA (HKMA 2008i). Through the RTGS, the HKMA provided liquidity to the clearing accounts of these banks, increasing the Aggregate Balance. While RTGS facilitated currency transfers, the HKMA used the Central Money Markers Unit payment system to manage the collateral side of the liquidity transactions (HKMA 2009c).

5. Administration: The HKMA administered all liquidity assistance offered through the temporary measures.

Consistent with the LOLR arrangements and the existing monetary policy framework, the HKMA operated and supervised the new measures for liquidity provision (HKMA 2009c). For the enhanced discount window, the HKMA reserved the right to obtain additional information from banks "to reduce possible abuse" of discount window borrowings (HKMA 2008d).

6. Eligible Participants: The HKMA opened the temporary liquidity measures to all licensed banks.

The HKMA supervises a three-tier banking system, which, in 2008, consisted of 145 licensed banks, 27 restricted license banks (generally merchant banks), and 28 deposit-taking companies with a limited scope, collectively termed "authorized institutions" (HKMA 2008f). Licensed banks, the eligible participants for liquidity assistance, represent most of the financial activity among authorized institutions, providing 97% of the loans and receiving 99% of deposits in 2008 (HKMA 2008i).

In a Legislative Council panel on November 21, 2008, the Chief Executive of the HKMA, Joseph Yam, provided additional information about the types of licensed banks receiving most of the liquidity assistance from the new measures. Yam noted that liquidity to date was "mainly targeted at Hong Kong branches of foreign banks without a deposit base in Hong Kong and also local banks" (Legislative Council 2008b). At the time, 122 of the 145 licensed banks were foreign, domiciled outside of Hong Kong (HKMA 2008i).

7. Funding Source: The Hong Kong dollar liquidity provided through the five temporary liquidity measures used the Exchange Fund.

As noted previously, the HKMA must conduct monetary policy consistent with the Currency Board Rule, which requires at least 100% backing of the monetary base with US dollars (HKMA 2008a). Hong Kong relies on its Exchange Fund to maintain credibility in adhering to this currency board arrangement. The Exchange Fund is a large portfolio of Hong Kong's foreign reserve assets used to affect the exchange rate of the local currency (BIS 2019).

8. Program Size: the HKMA announced no limits to the size of lending that would be available under the five temporary liquidity measures.

The HKMA generally makes discount window lending available on an unlimited basis, and the temporary enhancements did not change this. There was also no indication of a limit to the availability of credit through the discretionary term lending facility. The HKMA did, however, stipulate an HKD 20 million minimum transaction size for term discount window repos (HKMA 2008d).

The liquidity provided through the discount window totaled HKD 8.4 billion for the six months that the enhanced facility and revised Base Rate were effective. Utilization of the discount window predominantly occurred in the first month (October 2008) and on the final day (March 31, 2009) of the period. Discount window borrowings totaled HKD 5.6 billion in October, HKD 2.6 billion on the last day of March, and only HKD 0.1 billion in the almost five intervening months (HKMA 2009g; API 2007–2009; HKMA 2009f).

The Exchange Fund's Currency Board Sub-Committee also reported the number of banks using the discount window and the corresponding frequency in two periods, September 20 through November 20, 2008 (the first period) and November 21, 2008, through March 30, 2009 (the second period). In the first period, nine banks used the facility once, while two borrowed on three occasions (HKMA 2009e); in the second period, which excludes March 31, only four banks accessed the facility (HKMA 2009f). In both periods, HKMA noted that Exchange Fund paper was the sole instrument used as collateral.

Included in Figure 3 for context are the total discount window borrowings from the prior and following six-month periods.

Figure 3: Changes in the Aggregate Balance Arising from Discount Window Activities

Half-year period	Total lending (HKD million)
April – September 2007	10,830
October 2007 – March 2008	8,157
April – September 2008	5,545
October 2008 – March 2009	8,358
April – September 2009	11

Note: The highlighted row represents that period in which the enhanced discount window operated.

Source: API 2007–2009.

These data do not differentiate between the traditional overnight and enhanced discount window. However, the following evidence suggests that the extended loan terms and additional collateral options were never used.

The daily interbank figures provided by the HKMA show that each discount window liquidity injection was quickly reversed within a day throughout the six-month temporary program (API 2007–2009). This suggests that despite the provision for longer term borrowings, the discount window did not extend liquidity support beyond single-day maturities. The absence of long-term lending, in addition to the fact that banks collateralized their discount window borrowing exclusively with Exchange Fund paper, suggests that neither the extended term nor additional collateral options were used during the temporary operations of the enhanced discount window (HKMA 2009f; HKMA 2009e).

Due to aggregate reporting, we cannot determine the amount of liquidity provided through the discretionary term lending facility. However, since the HKMA noted that utilization of temporary liquidity measures was "mainly confined to the fourth and fifth measures," we infer that banks borrowed from the discretionary term lending facility, not from the extended provisions of the enhanced discount window (HKMA 2009b).

9. Individual Participation Limits: Participation limits were not explicitly disclosed, but revised lender-of-last-resort (LOLR) guidelines appeared to limit lending support to 200% of a bank's capital.

When the liquidity facilities were introduced, the HKMA did not explicitly mention a participation limit for individual banks.

Although not explicitly linked to the liquidity arrangements in 2008, the HKMA's 1999 policy statement on its LOLR framework established precedent for limits to potential borrowings from the enhanced discount window and discretionary term lending facility. The statement set a limit on liquidity support per institution between "100% to 200% of the capital base…subject to a cap of HKD 10 billion" and conditional upon meeting a minimal capital adequacy ratio of 6% (HKMA 1999). To lend in excess of 200% of a bank's capital, the HKMA would need approval from the Financial Secretary (Carse 2008). On March 26, 2009, the HKMA slightly revised the policy statement on LOLR arrangements, days before the expiration of the five temporary liquidity measures, which raised the cap to HKD 25 billion per bank (HKMA 2009c). To additionally limit moral hazard, the HKMA emphasized its discretion to lend less than the maximum amount for which an institution may qualify (HKMA 1999).

10. Rate Charged: The extended tenors for discount window repos used a fixed rate at the Base Rate + 0.25%, while the discretionary term lending referenced market rates.

The enhanced discount window repo operations added a 0.25% fee on top of the Base Rate for pricing overnight funding (HKMA 2008d). Before the October 8 revision, the calculation for the Base Rate was the US Federal Funds Target Rate (FFTR) plus 1.5%. On October 8, the HKMA revised the Base Rate calculation down to the FFTR plus 0.5% (HKMA 2009e).

The Base Rate plus 0.25% applied equally to all eligible collateral. Consequently, the price at which banks borrowed from the discount window against collateral declined further with the Base Rate revision introduced October 9, 2008 (HKMA 2008b).

The fourth measure, forex swaps, were priced according to market rates (HKMA 2008d). The HKMA initially priced the fifth measure, the discretionary term lending facility, according to market interest rates; however, it announced on November 6, 2008, that it had discretion to charge a below-market rate, since such lending was secured by collateral (HKMA 2008i).

11. Eligible Collateral: Eligible collateral for repos primarily included Exchange Fund paper and US Treasuries.

The enhanced discount window expanded eligible collateral for discount window credit from Exchange Fund paper to include US Treasuries. Exchange Fund paper collateral, like US Treasuries, included bills and notes of various maturities. In the same announcement, the HKMA noted that it would "keep the list of US-dollar assets of credit quality acceptable to the discount window under review" and "consider refining it if necessary" (HKMA 2008d). The HKMA did not add to the list of eligible collateral during the term of the enhanced discount window's operations. A schedule for haircuts on the Exchange Fund paper and US Treasury collateral is outlined in Figure 4.

Figure 4: Schedule of Haircuts for the Enhanced Discount Window

Type of eligible instruments	Haircuts applicable
Exchange Fund paper	2% per number of years to maturity
US Treasuries	2% per number of years to maturity, with a minimum haircut of 2% applied

Source: HKMA 2008d.

Like the enhanced discount window, the discretionary term lending facility also accepted Exchange Fund paper and US Treasuries for collateral using the same haircut schedule. The HKMA also noted in the statement that eligible collateral under the discretionary lending facility may include "other assets of acceptable quality to the HKMA" (HKMA 2008d). In the 1999 LOLR statement, the HKMA specified other eligible collateral for LOLR repo as investment-grade securities with minimum ratings listed in Figure 5; such securities did not qualify for discount window collateral, which remained confined to Exchange Fund paper unless otherwise noted (HKMA 1999).

Figure 5: Investment-Grade Securities Eligible for LOLR Repo as of August 1999

Recognised credit rating agency	Minimum acceptable rating
Moody's Investors Service, Inc.	Baa3
Standard & Poor's Corporation	BBB-
IBCA Ltd.	BBB-
Thomson BankWatch	BBB+
R&I	BBB+

Source: HKMA 1999.

These investment-grade securities established precedent for the eligible collateral at the discretionary term lending facility. At the time of the 1999 statement, "other investment grade securities" were separated from those "eligible for rediscount at the Discount Window" (HKMA 1999). The "other investment grade securities" were subject to a minimum haircut of 10%, but the actual haircut applied would reference "factors including the [maturity], the quality of the security and actual terms of the repo arrangement" (HKMA 1999).

When the five temporary measures expired, the HKMA formally adopted the forex swap and discretionary term lending facilities as standing liquidity instruments (HKMA 2009b). In the March 26, 2009, updated LOLR statement, the HKMA retained this minimum haircut for other investment-grade collateral and used an almost identical table to identify the minimum acceptable rating for such discretionary term lending collateral, given in Figure 6 (HKMA 2009c).

Figure 6: Investment-Grade Securities Eligible for LOLR Repo as of March 2009

Recognised credit rating agency	Minimum acceptable rating
Moody's Investors Service, Inc.	Baa3
Standard & Poor's Corporation	BBB-
Fitch, Inc.	BBB-
R&I	BBB+

Source: HKMA 2009c.

12. Loan Duration: The temporary liquidity measures allowed banks to place bids for maturities of one month and three months.

The enhanced discount window permitted banks to request loans with one- and three-month maturities, in addition to overnight (HKMA 2008d). Similarly, the foreign exchange swap facility offered loans with a maximum maturity of three months. The discretionary term lending facility initially offered a maximum term of up to one month but was extended to three months on November 6, 2008 (HKMA 2008e).

13. Other Conditions: No other conditions of note were imposed on the lending.

Other than as discussed elsewhere in this case, we did not identify any other conditions that applied to the lending under the enhanced discount window, discretionary term lending, and swap facilities.

14. Impact on Monetary Policy Transmission: The temporary liquidity measures had modest impacts on the monetary operations.

In its initial announcement, the HKMA emphasized that the temporary liquidity measures would conform to the currency board arrangement, ensuring full backing of the monetary base with US dollar assets. Since these liquidity measures could temporarily increase the

Aggregate Balance, the HKMA noted that it would conduct sterilizing measures, if necessary, to offset corresponding expansions in the monetary base (HKMA 2008a).

When compared to HKMA's forex operations, the enhanced discount window and new liquidity facilities were significantly smaller in the scale of liquidity injections. From mid-September to the end of December 2008, the Aggregate Balance increased from around HKD 4.7 billion to HKD 158 billion; during this period the HKMA sold HKD 182.8 billion in forex injections, while the liquidity provided through the temporary measures peaked at a modest HKD 11.4 billion (HKMA 2008i).

In November 2009, the significant increase in the monetary base, through the expansion of the Aggregate Balance, required a transfer of US dollar assets from the Investment Portfolio to the Backing Portfolio as the backing ratio[11] hit its lower trigger at 105% for the first time ever (HKMA 2009h).

15. Other Options: Aside from the other liquidity tools administered in concert with the enhanced discount window facility, no other options were detailed.

The HKMA heavily relied on foreign exchange operations in both passive and active forms, detailed in Key Design Decision No. 3, Part of a Package, to aid efforts in providing liquidity to the interbank market.

16. Similar Programs in Other Countries: The nature of HKMA's temporary liquidity measures—encompassing numerous amendments and additions to its existing toolset—makes it difficult to compare with programs in other countries.

The three enhancements to the discount window and introduction of two new liquidity facilities (forex swap and discretionary term lending) were all deployed together as one unique program. The subsequent Base Rate reduction also played in important role to facilitate discount window borrowing. Without reducing the entire program down to individual measures, it is hard to find cross-country comparisons.

17. Communication: The HKMA announced the introduction of—and updates to—the enhanced discount window, discretionary term lending, and swap facilities through press releases.

The HKMA announced the five temporary measures in a press release on September 30, 2008, which included a technical annex detailing the mechanics of the new liquidity provisions (HKMA 2008c). The HKMA subsequently issued a press release on October 8, announcing the Base Rate reduction effective the following day, lowering the discount window borrowing costs (HKMA 2008b). These two announcements appeared to have immediate impacts on short-term interbank interest rates (Fung and Yu 2009).

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[11] The backing ratio is defined as ratio of Backing Assets (highly liquid USD securities) to Hong Kong's monetary base (HKMA 2008i; BIS 2019).

The only apparent change to these measures was also detailed in a press release on November 6th, 2008. In that press release, the HKMA refined the fifth measure, allowing three-month term loans and scope for below-market rates (HKMA 2008e).

When the program was first introduced, the HKMA explained that although it had provided ample liquidity injections through foreign exchange intervention, the temporary measures would "further mobilise liquidity in a targeted manner to banks that may find themselves in need" (HKMA 2008a). The HKMA also emphasized that the liquidity measures would be temporary in nature, lasting only six months through the end of March 2009 (HKMA 2008c). According to the HKMA, the pre-defined length of the program would help limit moral hazard— "so that individual banks would not become overly dependent on the specially arranged liquidity facilities and undesirable business behaviour would not be promoted" (HKMA 2009a).

In a December 2008 report that included an assessment of Hong Kong's crisis response, the IMF staff commended financial authorities' swift announcement of crisis response measures, particularly in regard to their "effective communication strategy to reassure investors and clearly explain the rationale behind each new policy step" (IMF 2008).

18. Disclosure: The HKMA disclosed the utilization of the discount window and other temporary liquidity measures through anonymized daily and periodic reports.

The HKMA notifies the public quickly following monetary-policy actions through press releases and daily reports of monetary figures. For that reason, the Bank for International Settlements has said that the HKMA operates with a "high degree of transparency" (BIS 2019). In this case, the HKMA reported the borrowing activity from the enhanced discount window and discretionary term lending facility in aggregate amounts that included other credit instruments, making it difficult to determine the size of the temporary operations.

When the five measures were introduced, the HKMA noted its intention to announce any changes in the Aggregate Balance corresponding to the temporary liquidity measures through standard publication channels (HKMA 2008c). This included daily publications of interbank liquidity on HKMA's Reuters pages. However, in these releases, HKMA did not explicitly distinguish the liquidity provided through the temporary liquidity measures from other traditional instruments (HKMA 2008d). Reports from the Currency Board Sub-Committee, published twice over the temporary liquidity program's six-month duration, provided additional information on discount window activity. These two reports detailed the total number of banks segmented by frequency of discount window visits; the figures anonymized the banks and only presented the aggregate borrowings over the periods (HKMA 2009f).

19. Stigma Strategy: The HKMA made no mention of a strategy to avoid stigma.

While the HKMA did not mention a stigma strategy in its discussions of the temporary liquidity measures, the utilization of the discount window during the duration of the enhanced measures may indicate that stigma perception was not a factor in banks' borrowing activity. Unlike the U.S., discount-window lending in Hong Kong occurs more frequently, and the HKMA does not discuss stigma concerns often. The HKMA's note that banks disproportionately used the discretionary term lending and swap facilities rather than the enhanced discount window terms may indicate other deciding factors such as collateral flexibility or pricing (HKMA 2009b). Nevertheless, the HKMA's aggregate reporting of loans provided through the enhanced discount window and discretionary term lending facility makes it difficult to determine the quantity and frequency of borrowings from these facilities.

20. Exit Strategy: The HKMA decided to return to nominal discount window operations and to retain the discretionary term lending and swap facilities.

On March 26, 2009, the HKMA announced that it had decided to allow the enhanced discount window lending to expire as previously announced (HKMA 2009b). It reverted to its normal function, accepting only Exchange Fund paper as collateral for overnight liquidity "so as to safeguard exchange rate stability under the Currency Board system" (HKMA 2009c). As for the Base Rate revisions set to expire at the end of March, the HKMA reinstated the HIBOR leg of the calculation while making permanent "the narrower 50-basis point spread over the federal funds target rate… compared with the previous spread of 150 basis points" (HKMA 2009b).

The HKMA also announced that it would continue to offer a forex lending and a discretionary term lending facility as standing facilities after the temporary measures expired on March 31, 2009. In announcing the decision to permanently incorporate the discretionary term lending and forex swap facilities into its liquidity framework, the HKMA noted that the "utilisation of the five temporary measures [were] mainly confined to the fourth and fifth measures" (HKMA 2009b).

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