



***EVALUATION OF THE EFFECTS OF BANK REGULATORY REFORMS AND LOAN  
GUARANTEE SCHEMES ON LOANS TO SMALL AND MEDIUM-SIZED  
ENTERPRISES***

***Key points:***

- *Small and medium-sized enterprises (SMEs) are key contributors to the Hong Kong economy and, anecdotally, bank credit is an important external funding source for them. Therefore, changes in bank credit conditions could significantly affect the performance of both SMEs and the broader economy.*
- *Two developments after the global financial crisis – the introduction of Basel III reforms and the launch of the SME Financing Guarantee Scheme by the Hong Kong Mortgage Corporation - could have strong implications for bank credit conditions for SMEs in Hong Kong. This study estimates their effects on the supply of bank loans to these SMEs drawing on our analysis which contributed to the Financial Stability Board’s working group on the evaluation of the effects of financial regulatory reforms on SME financing.*
- *Our study finds that the higher regulatory requirements imposed by different measures under Basel III have not generated a persistent negative effect on the supply of SME loans by banks in Hong Kong. However, there is evidence that less-capitalised banks had a slightly faster growth in non-SME corporate loans than their counterparts in a short period after the introduction of the risk-based capital reform. This probably reflected a mild transitory effect on some relatively constrained banks. By contrast, loan guarantee schemes by the public sector are found to have significantly mitigated funding difficulties facing SMEs.*
- *In summary, these two post-crisis developments are likely to generate a net positive impact on bank credit conditions for SMEs in Hong Kong. But, there is a caveat as the estimated effects of Basel III may generally reflect the effects of earlier reform measures, as the final Basel III package has not yet been implemented.*

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The views and analysis expressed in this paper are those of the authors, and do not necessarily represent the views of the Hong Kong Monetary Authority.

## I. INTRODUCTION

Small and medium-sized enterprises (SMEs) are key contributors to the Hong Kong economy. At the end of 2018, they accounted for more than half of total private sector employments in Hong Kong.<sup>1</sup> Anecdotal evidence suggests that although many SMEs in Hong Kong rely mainly on internal financing, e.g. funds from owners, bank credit is a key external funding source. So, the bank credit conditions for SMEs could have significant impacts on the performance of both SMEs and the broader economy.

Two key developments after the global financial crisis (GFC), namely the introduction of Basel III reforms and the launch of the SME Financing Guarantee Scheme (SFGS) by the Hong Kong Mortgage Corporation (HKMC) could have significant effects on bank credit conditions of SMEs in Hong Kong. On one hand, although more stringent regulatory requirements under Basel III strengthen banks' resilience to shocks, such requirements may arguably induce negative impacts on SME loans or bank lending in general.<sup>2</sup> On the other hand, as the SFGS significantly reduces the credit risk of SME loans, banks may have stronger incentive to lend to SMEs. In view of their potential counteracting effects, this study estimates their effects on the supply of bank loans to SMEs in Hong Kong with a view to understanding the overall impact.

The assessment of the effects of Basel III regulatory reforms on SME loans draws mainly on the contribution of the Hong Kong Monetary Authority (HKMA) to the Financial Stability Board (FSB)'s working group on the evaluation of the effects of financial regulatory reforms on SME financing.<sup>3</sup> By examining the effects of earlier reform measures, namely the Risk-based Capital (RBC), Liquidity Coverage Ratio (LCR) and the Domestic Systemically Important Bank (D-SIB), this study finds that the higher regulatory requirements, as imposed by these reform measures under Basel III, have so far not induced a persistent negative effect on the supply of SME loans by banks in Hong Kong. But, there is evidence that non-SME corporate loans of less-capitalised banks grew slightly faster than other banks over

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<sup>1</sup> In the context of employment statistics, SMEs are defined as manufacturing enterprises with fewer than 100 employees and non-manufacturing enterprises with fewer than 50 employees. For detailed employment statistics, see Table 9 of Census and Statistics Department (2019).

<sup>2</sup> For instance, under the more stringent Basel III capital requirements, less-capitalised banks may be encouraged to shift away from SME loans to other corporate loans, as the capital requirements for SME loans may be higher than that of other corporate loans.

<sup>3</sup> The working group contains 16 jurisdictions including Hong Kong. For details, see FSB (2019a).

a short period following the introduction of risk-based capital reforms, probably reflecting a mild transitory effect on some relatively constrained banks. In contrast, loan guarantee schemes by the public sector are found to have significantly mitigated funding difficulties facing SMEs. In sum, these two post-crisis developments are likely to result in a net positive impact on bank credit conditions for SMEs in Hong Kong.

The rest of this paper is organised as follows. The next three sections focus on the analysis of the effects of Basel III reforms on SME loans. Sections 2 and 3 discuss the methodology and data. Section 4 reports the empirical findings. The analysis of the effects of SFGS on SME loans is discussed in Section 5. Section 6 concludes.

## II. METHODOLOGY

This study uses the difference-in-indifferences model adopted by the FSB (2019b) to examine the effects of Basel III regulatory reforms on the supply of SME loans by banks in Hong Kong, controlling for bank heterogeneity and systematic changes in the economic environment over time. The model can be broadly described by the following regression equation:

$$\Delta y_{i,t} = \sum_{k=1}^K \beta_k \text{Reg}_{t-k-1} \times \text{Bank}_i + \gamma_b C_{i,t-1} + FE(i) + FE(t) + \varepsilon_{i,t} \quad (1)$$

where  $\Delta y_{i,t}$  is the change in bank activities of interest of the  $i^{\text{th}}$  bank between time  $t$  and  $t - 1$ .  $\text{Reg}_{t-k-1}$  is a dummy variable separating the pre- and post-reform periods, which is defined as one if time  $t - k$  falls after the announcement date of the reform considered and zero otherwise.  $\text{Bank}_i$  is a dummy variable defined as one if the  $i^{\text{th}}$  bank is exposed to the regulatory reform (i.e. the treatment group) and zero otherwise (i.e. the control group).  $C_{i,t-1}$  and  $FE(i)$  are a vector of bank balance sheet characteristics and bank-fixed effects respectively to control for bank heterogeneity.  $FE(t)$  are time-fixed effects to capture the effects of changes in loan demand and economic environment over time.  $\varepsilon_{i,t}$  is the error term.

In addition to examining the quarterly growth rate of SME loans under the banking activities  $\Delta y_{i,t}$ , this study also examines the quarterly growth rate of total corporate loans (including SME loans) and the share of SME loans in

total corporate loans. Estimation results for the latter two variables could provide further understanding of the issue and also facilitate robustness checks.

The model is applied to estimate the effects of different regulatory reforms under Basel III, including the RBC, LCR and D-SIB.<sup>4</sup> Since these reforms aim at addressing different types of risks, a reform-specific balance sheet variable (i.e. the exposure variable) is selected to determine whether a bank is exposed to a particular reform, meaning that the treatment group of banks and thus  $Bank_i$  are defined differently among the reforms considered. In addition, since these reforms were announced at different points in time, the respective pre- and post-reform periods are different across the reforms. In other words,  $Reg_{t-k-1}$  is a reform-specific variable. Table 1 summarises the definitions of exposure variable and the announcement date for each of the regulatory reforms considered.

**Table 1: Definition of exposure variable and announcement date of reforms**

Reforms	Exposure variables	Announcement date of reform
RBC	Average ratio of Tier-1 capital over risk-weighted assets in the pre-reform period	2012 Q2
LCR	Average ratio of liquid assets <sup>5</sup> to total assets in the pre-reform period	2013 Q2
D-SIB	Banks identified as D-SIB	2013 Q4

Note: For RBC and LCR, banks are exposed to the reform if the value of the respective exposure variable is lower than the bottom quartile. For D-SIB, banks that are exposed to the reform refer to those banks that are assigned as D-SIB in Hong Kong as at March 2015.

Our core interest is on the  $\beta_k$  estimates, which reveal the cross-sectional effects of a regulatory reform on changes in bank activities over time. To illustrate this, we consider a case where the effects of RBC reform on the supply of SME loans is examined. In this case,  $\Delta y_{i,t}$  is the quarterly growth rate of SME loans.  $Reg_{t-k-1}$  is defined based on the announcement date of the RBC reform in Hong Kong (i.e. second quarter of 2012). Banks that are exposed to the RBC reform refer to those with the average ratio of Tier-1 capital over risk-weighted assets (RWA) in the pre-reform period lower than the lower quartile.  $\beta_k$  therefore measures the difference in the average growth rate of SME loans after

<sup>4</sup> Reforms regarding the Leverage Ratio and the Net Stable Funding Ratio are excluded from the analysis, as they were implemented very recently, and therefore the number of post-reform samples may be too small to obtain reliable statistical estimates.

<sup>5</sup> Liquid assets are defined as the sum of cash, due from Exchange Fund, and government bills, notes and bonds.

the RBC reform between the group of less-capitalised banks and other banks. If more stringent risk-based capital requirements constrain the supply of SME loans of banks and more so for less-capitalised banks, then  $\beta_k$  estimates are expected to be negative.

Note that the model as specified by equation (1) does not impose any restriction on the time-varying structure of  $\beta_k$ . Two parsimonious models are considered in this analysis. In the first model, the regulatory effect is assumed to evolve over time, enabling any transitory effect in nature to be examined. Specifically,  $\beta_k$  is assumed to be time-varying, but its values change for every four quarters.  $k$  ranges from 1 to 28, assuming that the regulatory effect can last for seven years at maximum. We also consider an alternative model to test whether the regulatory effect is persistent by assuming a single value of  $\beta_k$  over the whole post-reform period.

### III. DATA

Data for estimations are mainly obtained from regulatory banking returns filed with the HKMA by banks in Hong Kong. Data of SME loans and corporate loans are from the *return of capital adequacy ratio*. The former is defined as the sum of on-balance sheet exposure to SMEs and small business reported under the internal ratings-based approach (IRB approach), and the amount of qualifying exposures to small businesses reported under the standardised (credit risk) approach (STC approach).<sup>6</sup> Corporate loans refer to the sum of SME loans defined above and all other corporate exposure under the IRB and STC approaches.

Bank control variables in estimations (i.e.  $C_{i,t-1}$ ) include bank size (measured by the natural logarithm of total assets), loan-to-asset ratio, loan-to-deposit ratio, ratio of liquid assets to total assets, asset quality<sup>7</sup>, ratio of Tier 1 capital to RWA, return on assets and ratio of Tier-1 capital to total assets. These bank balance sheet variables are sourced from various regulatory returns, including the *return of assets and liabilities*, *return of capital adequacy ratio*, *quarterly analysis of loans and advances and provisions*, and *return of current year's profit*

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<sup>6</sup> For the IRB approach, SMEs are defined as corporates with annual revenue equal to or smaller than HK\$500 million; retail exposures to small businesses refer to exposures to those corporates where the total exposure amount to the corporate is less than HK\$10 million. For details, see HKMA (2019).

<sup>7</sup> Measured by the ratio of classified loans to total loans. Classified loans are those loans graded as “sub-standard”, “doubtful” or “loss”.

and loss account. Table 2 shows the descriptive statistics of the bank control variables.

The dataset for estimations is a panel of 19 locally incorporated licensed banks in Hong Kong, covering the period from the first quarter of 2010 to the third quarter of 2018.

**Table 2: Descriptive statistics of bank control variables**

	N	Mean	P50	P25	P75	SD
ln(Total assets)	665	19.34	19.08	18.66	20.03	1.17
Loans/Total assets (%)	665	47.65	48.21	43.83	52.64	8.30
Loans/Deposits (%)	665	65.16	65.59	58.45	73.23	12.36
Liquid assets/Total assets (%)	665	9.67	7.37	5.02	12.86	7.04
Classified loans/Loans (%)	665	0.49	0.32	0.17	0.66	0.47
Tier-1 capital /Risk-weighted assets (%)	665	14.68	13.88	11.42	16.83	4.45
Return on assets (%)	665	1.20	1.15	0.90	1.43	0.48
Tier-1 capital/Total assets (%)	665	8.31	8.21	6.46	9.98	2.60

Notes:

1. Sample period from 2010 Q1 to 2018 Q3.
2. N: number of observations; P50: median; P25: lower quartile; P75: upper quartile; and SD: standard deviation.

## IV. EMPIRICAL FINDINGS ON THE EFFECTS OF BANK REGULATORY REFORMS

### 4.1 *Effects of RBC*

Table 3 presents the estimation results for the RBC reform. Statistical significances of the estimates are computed based on robust standard errors, which alleviate the potential statistical problems arising from heteroskedasticity and autocorrelations. For brevity, the estimates for bank characteristic control variables are not shown.<sup>8</sup> The estimated transitory effects of the RBC on the quarterly growth rate of SME loans and corporate loans are presented in the first two columns. The next two columns present the estimated persistent effects on the same set of variables, while the final column shows the estimates on the share of SME loans in total corporate loans.

There are three key consistent findings from Table 3. First, focusing on the first column, the average growth rate of SME loans of less-capitalised banks is found to be not significantly different from that of other banks in any four-quarter periods after the announcement of the RBC reform in Hong Kong, controlling for bank heterogeneity. This finding suggests that the more stringent RBC requirements have not constrained the supply of SME loans of less-capitalised banks relatively to other banks. Second, as the estimates in the second column reveal, less-capitalised banks are found to have faster growth in total corporate loans relative to other banks after the RBC reform. Specifically, in the two four-quarter periods, one year after the announcement of the RBC reform in Hong Kong, less-capitalised banks are estimated to have a higher average growth in total corporate loans by around 2.5 percentage points compared with other banks. While the RBC reform has not constrained the supply of SME loans by less-capitalised banks, these two findings taken together indicate these banks may shift towards non-SME corporates to expand their corporate loan portfolios following the RBC reform. Nevertheless, the regulatory effect is estimated to be small and transitory. The latter is consistent with the estimates in Columns III and IV, which show no significant persistent effect of the RBC reform on both SME loans and total corporate loans. Finally, consistent with the findings above, the share of SME loans to total corporate loans of less-capitalised banks is estimated to decrease by around 1.4 percentage points relative to that of other banks (Column V), with the estimate being statistically significant.

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<sup>8</sup> Detailed estimation results are available on request.



**Table 3: Estimation results for the effects of RBC**

Dependent variable	I	II	III	IV	V
	$\Delta \ln$ (SME loans)	$\Delta \ln$ (corporate loans)	$\Delta \ln$ (SME loans)	$\Delta \ln$ (corporate loans)	SME loans/total corporate loans
Transitory effects:					
$\beta_{1 \text{ to } 4}$	3.241	0.093			
$\beta_{5 \text{ to } 8}$	3.559	2.467*			
$\beta_{9 \text{ to } 12}$	2.665	2.618*			
$\beta_{13 \text{ to } 16}$	1.186	-0.668			
$\beta_{17 \text{ to } 20}$	4.212	-0.873			
$\beta_{21 \text{ to } 24}$	-0.916	0.238			
$\beta_{25 \text{ to } 28}$	5.153	-1.340			
Persistent effects:					
$\beta$			2.629	0.775	-1.426**
No. of observations	665	665	665	665	665
No. of banks	19	19	19	19	19
R <sup>2</sup>	0.136	0.283	0.134	0.273	0.975
Bank controls	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes
Bank FE	Yes	Yes	Yes	Yes	Yes
Start of sample	2010 Q1	2010 Q1	2010 Q1	2010 Q1	2010 Q1
End of sample	2018 Q3	2018 Q3	2018 Q3	2018 Q3	2018 Q3

Notes:

1.  $\Delta \ln(x)$  refers to quarterly change of the natural logarithm of variable x.
2. For examining the transitory effects,  $\beta_{k \text{ to } l}$  refers to the average estimated regulatory effects from quarter  $k$  to  $l$ ; for examining the persistent effects,  $\beta$  refers the average estimated regulatory effects in the whole post-reform period.
3. \*\*\*, \*\* and \* denote significance level of 1%, 5% and 10% respectively.
4. Statistical significance is computed based on robust standard errors.

#### 4.2 Effects of LCR

Estimation results presented in Table 4 suggest no significant regulatory effect of LCR on both SME loans and corporate loans. Specifically, all key estimates in the first four columns are statistically insignificant, suggesting no significant transitory or persistent regulatory effects.

**Table 4: Estimation results for the effects of LCR**

Dependent variable	I	II	III	IV	V
	$\Delta \ln$ (SME loans)	$\Delta \ln$ (corporate loans)	$\Delta \ln$ (SME loans)	$\Delta \ln$ (corporate loans)	SME loans/total corporate loans
Transitory effects:					
$\beta_{1 \text{ to } 4}$	2.255	1.143			
$\beta_{5 \text{ to } 8}$	1.782	0.691			
$\beta_{9 \text{ to } 12}$	-1.500	-0.350			
$\beta_{13 \text{ to } 16}$	-1.400	-0.115			
$\beta_{17 \text{ to } 20}$	-5.779	0.265			
$\beta_{21 \text{ to } 24}$	-4.083	-2.526			
Persistent effects:					
$\beta$			-0.655	0.205	2.231***
No. of observations	665	665	665	665	665
No. of banks	19	19	19	19	19
R <sup>2</sup>	0.137	0.276	0.133	0.272	0.975
Bank controls	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes
Bank FE	Yes	Yes	Yes	Yes	Yes
Start of sample	2010 Q1	2010 Q1	2010 Q1	2010 Q1	2010 Q1
End of sample	2018 Q3	2018 Q3	2018 Q3	2018 Q3	2018 Q3

Notes:

1.  $\Delta \ln(x)$  refers to quarterly change of the natural logarithm of variable  $x$ .
2. For examining the transitory effects,  $\beta_{k \text{ to } l}$  refers to the average estimated regulatory effects from quarter  $k$  to  $l$ ; for examining the persistent effects,  $\beta$  refers to the average estimated regulatory effects in the whole post-reform period.
3. \*\*\*, \*\* and \* denote significance level of 1%, 5% and 10% respectively.
4. Statistical significance is computed based on robust standard errors.

### 4.3 Effects of D-SIB

We first discuss one technical issue regarding the choice of the control group. Since bank size is one key factor when determining D-SIBs, (in fact designated D-SIBs in Hong Kong are all the largest banks), we adjust the control group for analysing the effect of D-SIB by excluding the four smallest banks, as their size is substantially smaller than other sample banks. Therefore, the adjusted control group facilitates a more meaningful comparison with the treatment group of banks. Table 5 shows that the effects of D-SIB on SME loans, corporate loans, and the share of SME loans in all corporate loans are statistically insignificant.

**Table 5: Estimation results for the effects of D-SIB**

Dependent variable	I	II	III	IV	V
	$\Delta \ln$ (SME loans)	$\Delta \ln$ (corporate loans)	$\Delta \ln$ (SME loans)	$\Delta \ln$ (corporate loans)	SME loans/total corporate loans
Transitory effects:					
$\beta_{1 \text{ to } 4}$	2.989	-0.172			
$\beta_{5 \text{ to } 8}$	-3.060	-1.649			
$\beta_{9 \text{ to } 12}$	-0.375	-0.885			
$\beta_{13 \text{ to } 16}$	-2.339	0.852			
$\beta_{17 \text{ to } 20}$	0.922	-0.111			
Persistent effects:					
$\beta$			-0.298	-0.415	0.867
No. of observations	525	525	525	525	525
No. of banks	15	15	15	15	15
R <sup>2</sup>	0.156	0.307	0.153	0.250	0.981
Bank controls	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes
Bank FE	Yes	Yes	Yes	Yes	Yes
Start of sample	2010 Q1	2010 Q1	2010 Q1	2010 Q1	2010 Q1
End of sample	2018 Q3	2018 Q3	2018 Q3	2018 Q3	2018 Q3

Notes:

1.  $\Delta \ln(x)$  refers to quarterly change of the natural logarithm of variable  $x$ .
2. For examining the transitory effects,  $\beta_{k \text{ to } l}$  refers to the average estimated regulatory effects from quarter  $k$  to  $l$ ; for examining the persistent effects,  $\beta$  refers to the average estimated regulatory effects in the whole post-reform period.
3. \*\*\*, \*\* and \* denote significance level of 1%, 5% and 10% respectively.
4. Statistical significance is computed based on robust standard errors.

We conducted two robustness tests. In particular, we repeated the same estimation discussed using alternative definitions of the treatment group and post-reform period. For the treatment group, we considered a time-varying treatment group based on the value of the same exposure variables in the previous quarter instead of the average value in the pre-reform period, as it may be argued that whether a bank is exposed to a regulatory reform is more dependent on its recent balance sheet characteristics rather than those in the pre-reform period. For the alternative definition of post-reform period, we use the implementation date of the reforms instead of the announcement date as arguably, banks may be more responsive to a reform measure once it comes into effect. The estimation results for these two robustness tests are broadly similar to those obtained previously.

Overall, the estimation results show that despite the more stringent regulatory requirements as imposed by various measures under Basel III, the effects on the supply of SME loans, or more generally corporate loans, have been small and transitory. One plausible factor that may underpin the small regulatory effects is the strong capital and liquidity positions of banks in Hong Kong. Indeed, the distributional statistics for some key balance sheet characteristics in Table 2 show that even banks with their balance sheet characteristics at the lower quartile were

still well-capitalised and with adequate liquidity by international standards, suggesting that the higher regulatory requirements under Basel III may not generally produce a significant binding effect on the supply of bank loans. Nevertheless, there is a caveat that the estimated effects of Basel III in this study may mainly reflect those of earlier reform measures, as the final Basel III package has yet to be implemented.

## V. EMPIRICAL FINDINGS ON THE EFFECTS OF SFGS

We first briefly highlight two key features of the SME Financing Guarantee Scheme as they affect our choice of the empirical method to estimate the effects of the SFGS. First, the scheme was introduced in 2011, followed by refinements in 2012, 2016 and 2018 (See Table 6).<sup>9</sup> As the introduction of the scheme and the first two refinements occurred in the sample period, these events make the estimation of the Scheme’s effects possible.

**Table 6: HKMC’s SFGS and its refinement**

Effective since	01/01/2011	31/05/2012	01/06/2016	19/11/2018
Maximum guarantee ratio	70%	80%		
Maximum annual guarantee fee	4.2%	1.44%	1.3%	0.65%
Minimum annual guarantee fee	0.5%		No minimum	
Maximum credit amount (HKD)	12,000,000			15,000,000
Maximum guarantee amount (HKD)	8,400,000	9,600,000		12,000,000
Maximum guarantee period (year)	5			7

Source: HKMC.

Secondly, the scheme has drawn positive responses from banks in Hong Kong. Indeed all sample banks in this study are found to be participating in the scheme. As a result, empirically, it is difficult to identify the cross-sectional effects of the SFGS using the same estimation approach in the previous section unless a suitable exposure variable can be defined to separate the treatment and control groups of the banks. However, it appears there is no ideal candidate for the exposure variable in this case.

<sup>9</sup> The scheme aims to help SMEs obtain financing from participating lenders to meet their business needs and to enhance their productivity and competitiveness in the rapidly changing business environment. The current scheme remains effective until the end of June 2022.

Under these circumstances, our aim is to estimate the average effect of the SFGS among banks. To this end, a time series model is specified to explain the estimate of time fixed effects obtained from the previous model for examining the effect of the risk based capital on SME loans (i.e. the estimation result presented in Column I of Table 3). We choose to examine the estimate of time fixed effects, as it captures time-varying common factors among banks. In theory, if the SFGS generates a significant homogenous effect across banks, the effect can be revealed from the estimate of time fixed effects after controlling for other common factors (e.g. macroeconomic factors).

The model as specified in equation (2) below contains five explanatory variables, including a dummy variable that takes the value of one since the first quarter of 2011 and zero otherwise to capture the effect of the introduction of the SFGS ( $SFGS_t$ ), and a step variable to capture the effects of the subsequent two refinements ( $SFGSR_t$ ). The step variable takes an initial value of zero up to the first quarter of 2012, then a value of one from the second quarter of 2012 to the first quarter of 2016, and a value of two afterwards to reflect the two refinements in the scheme in 2012 and 2016 respectively. Two macroeconomic variables, the real GDP growth rate ( $RGDP_t$ ) and the three-month Hong Kong Interbank Offered Rate ( $HIBOR_t$ ) are included to control for changes in demand for SME loans and macroeconomic conditions over time. Finally, a dummy variable defined as one after the announcement of the RBC reform and zero otherwise ( $REG_t$ ) is added in order to capture a potential homogenous effect of the RBC reform across banks.

$$FE(t) = \alpha + \beta_1 SFGS_t + \beta_2 SFGSR_t + \gamma_1 RGDP_t + \gamma_2 HIBOR_t + \delta REG_t + \varepsilon_t \quad (2)$$

The estimation result (Table 7) shows that the introduction of the SFGS significantly increases the supply of SME loans, with an average seven-percentage-point increase in the quarterly growth of the loans. However, the effects of subsequent refinements to the SFGS are found to be insignificant. For the two macro control variables, their coefficients are estimated with expected signs, but only that for the real GDP growth rate is statistically significant. Finally, the estimated coefficient for the average effect of the RBC reform on banks is found to be statistically insignificant.

**Table 7: Estimation results for the effects of SFGS**

Dependent variable	The estimate of time fixed effects from the model for examining the effect of RBC (i.e. Column. 1 of Table 3)
Explanatory variables	Estimated coefficients
$SFGS_t$	7.056***
$SFGSR_t$	-1.073
$RGDP_t$	1.668***
$HIBOR_t$	-2.466
$REG_t$	-3.845
No. of observations	35
R <sup>2</sup>	0.551
Start of sample	2010 Q1
End of sample	2018 Q3

Notes:

1. \*\*\*, \*\* and \* denote significance level of 1%, 5% and 10% respectively.
2. Statistical significance is computed based on robust standard errors.

## VI. CONCLUSION

The credit conditions for small and medium-sized enterprises play an important role in determining the performance of SMEs and the broader economy. The introduction of Basel III and the launch of the SFGS can reasonably be considered as two key drivers of credit conditions for SMEs after the GFC. This study empirically assesses their effects on the supply of SME loans by banks in Hong Kong.

Empirical findings show that more stringent regulatory requirements as imposed by different measures under Basel III have not generated a persistent negative effect on the supply of SME loans by banks in Hong Kong. But, there is evidence that less-capitalised banks had a slightly faster growth in non-SME corporate loans compared with other banks over a relatively short period after the introduction of the risk-based capital reform, probably reflecting a mild transitory effect on some relatively constrained banks. By contrast, loan guarantee schemes by the public sector are found to have significantly mitigated funding difficulties facing SMEs. In summary, these two post-crisis developments are likely to generate a net positive impact on bank credit conditions for SMEs in Hong Kong. Nevertheless, there is a caveat as the estimated effects of Basel III in this study may mainly reflect the effects of earlier reform measures, and not the final package which has still to be implemented.

## REFERENCE

Census and Statistics Department (2019), *Quarterly Report of Employment and Vacancies Statistics*, March,  
<https://www.censtatd.gov.hk/hkstat/sub/sp452.jsp?productCode=B1050003>.

Financial Stability Board (2019a), “Evaluation of the effects of financial regulatory reforms on small and medium-sized enterprise (SME) financing: Consultation report”, June,  
<https://www.fsb.org/2019/06/fsb-publishes-consultation-on-sme-financing-evaluation>.

Financial Stability Board (2019b), “Evaluation of the effects of financial regulatory reforms on small and medium-sized enterprise (SME) financing: Technical Appendix to the empirical analysis”, June,  
<https://www.fsb.org/2019/06/fsb-publishes-consultation-on-sme-financing-evaluation>.

Hong Kong Monetary Authority (2019), “Completion instructions on the return of capital adequacy ratio”,  
<https://www.hkma.gov.hk/eng/key-functions/banking/banking-regulatory-and-supervisory-regime/regulatory-supervisory-framework/ma-bs-3>.