Monetary Transmission, Ownership and Crisis:
How Robust is the Indian Evidence?

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Paper presented at the 9th Annual Workshop of the Asian Research Networks jointly organized by BIS and CAFRAL, March 21-22, 2016, Mumbai

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Abstract

Employing data for the period 2001-2014, the paper investigates the lending and loan pricing behavior of public and private banks to monetary policy. Three major findings emerge. First, while both the interest rate and the bank lending channel are relevant, there is a trade-off: the impact of the former is much higher as compared to the latter, although it occurs with a significant lag. Second, we find that private banks exhibit a much larger reaction to monetary policy shock under the interest rate channel whereas public banks show larger response under the bank lending channel. And third, state-owned banks cut back lending during periods of crisis, although no such behavior is in evidence for private banks.

Keywords: interest rate pass-through; Monetary Policy Transmission, capitalization

JEL Codes: C23; D4; E43; E52; G21; L10

1. Introduction

The quantum of loans to extend and its pricing are critically important function for banks. As such, banks must decide how much loans to extend or for that matter, at what price so as to balance manifold considerations. These include not only covering the operating costs, but also providing the capitalization needed to ensure the institutions' financial viability and ultimately, promote sustainable growth of the institution. As a result, banks need to institute appropriate policy direction, controls as well as monitoring and reporting systems so as to ensure appropriate loan extension and pricing.

In the Indian context, commercial banks have to comply with a variety of regulatory and prudential requirements. It is not obvious, either theoretically or empirically, as to how these measures could impinge on banks' lending decisions. Illustratively, in the wake of the global crisis, the Reserve Bank of India (RBI) in its annual policy statement expressed a concern that while the policy rate softened by over 500 basis points, the lending rates of banks declined by a much lower margin, of the order of 250 basis points. The point was also echoed in the Expert Committee Report on the Monetary Policy framework (ECMPR) (RBI, 2014) and more recently, by Das (2015) who observed than banks are much more proactive in rebalancing their lending rates in respond to monetary tightening.

Against this background, the paper has a two-fold purpose. First, we examine the response of banks to a monetary policy shock, focusing on both the lending rate (interest rate channel) and the quantum of credit (bank lending channel). Second, we examine whether this response differs across ownership and relatedly, during periods of expansionary and contractionary monetary policy. The

monetary policy variable is akin to that employed in Romer and Romer (1989) which takes on board both the direction and stringency of the policy stance, because as Berger and Bouwman (2009) observe, directly using the monetary policy variable can lead to endogeneity problems.

Our analysis contributes to the literature in three distinct ways. First, to the best of our knowledge, this is one of the earliest studies to systematically investigate the impact of monetary transmission on bank lending rate using longitudinal data. The purpose of estimating the response of bank lending rates to changes in official (or, policy) interest rates premised on understanding how well banks perform as financial intermediaries between financial consumers and general market conditions (Kashyap and Stein, 2000; Kleimeier and Sander, 2006). Besides, the speed and extent to which changes in bank funding costs are passed on to bank customers is also of interest to regulators in their quest to ensure a more efficient and responsive banking system (Wang and Lee, 2009).

Surveying the empirical literature for low-income countries, Mishra and Montiel (2013) identify high bank concentration ratios along with weaknesses in the institutional mechanism as major constraints that hinder the bank lending channel. Employing a sample of over 100 countries, Mishra et al (2014) provide empirical evidence to suggest that the transmission of monetary policy to bank lending rates is weak and unreliable for low-income countries. Employing disaggregated data, Schluter et al (2012) finds that German banks exhibit sluggish and sticky loan pricing behavior and that the extent of pass-through is 1.7% points higher for cost-efficient banks. In the Indian case, most studies (Patra and Kapur, 2010; Mohanty, 2012; Keltzer, 2012) employ a VAR framework and investigate the impact of monetary policy shocks on output and prices. Our studies differs from previous research in that it employs disaggregate bank-level data and estimates the pass-through impact by estimating the pass-through under alternate bank optimization strategies.

Second, our analysis augments the literature that examines the asymmetries in the monetary transmission process. At the cross-country level, Georgiadis (2014) reports that differences in the financial structure, labor market and differential industry mix across countries play an important role in explaining these differences. Evidence for India using monthly data for the period 2001-2012, Singh (2011) provides evidence to suggest significant asymmetries in the monetary transmission process. More specifically, during periods of tight monetary policy, a 100 basis points change in the policy rate leads to roughly 50 basis points change in the lending rate, with the contemporaneous impact being roughly three times the lagged impact. Ray and Prabhu (2013) suggest that the efficacy of monetary transmission is much more robust when overall system-wide liquidity is in a deficit mode. More recent

research also supports the fact that lending rates adjust more quickly to monetary tightening than to loosening (Das, 2015). These studies are either cross-country in nature or even if they are within-country estimates, are at the macroeconomic level. By using micro level data, our study is able to control for the bank-specific and industry-wide factors that influence bank lending and as a result, provide more reliable estimates than those reported in prior research.

Third, the analysis contributes to the literature on constructing a monetary policy index for India, in line with Romer and Romer (1989) and closely following Boschen and Mills (1991). A major advantage of this approach is that it takes on board both the direction and stringency of the policy stance, rather than just the monetary policy numbers, *per se*. In the Indian case where both price and quantity instruments have been used as monetary policy variables, the index is suitably tailored to take this aspect on board. Several studies in the Indian context have focused on either a monetary conditions index, which combines a parsimonious set of indicators into a single number (Kannan et al., 2007) or focused on an index construction (Ray and Bhattacharyya, 2007). Our analysis augments this literature by considering more recent periods and exploiting the index to examine the impact of asymmetries in monetary policy on bank lending rates.

The rest of the analysis continues as follows. Section II highlights the data and summary statistics. Section III discusses the empirical strategy, followed by a discussion of the results (Section IV) and the concluding remarks (Section V).

2. Data and Methodology

For our purpose, we employ two pieces of data. First, the quarterly data on banks' balance sheet and income statements for the period 2001–2014 from the *Prowess* database, a leading private think-tank in India. The data has the advantage of being perfectly comparable across banks, with the central bank acting as regulator of the financial system requires the financial entities to present their balance sheets with the same accounts and criteria. We start off with over 150 banks. This includes not only commercial banks, but also regional rural banks, cooperative banks and local area banks. Since our focus is on commercial banks, we exclude the rural, cooperative and local area banks from our sample. Additionally, we also delete several foreign banks which have become operative only recently and therefore, do not have information for an extended time span to enable a meaningful analysis. As a result, the final sample comprises of an unbalanced set on 83 banks, comprising of all public (or, state-owned) banks (SOBs), 20 domestic private banks (DPBs), including five new private banks, which

became operational after the initiation of reforms around 1995-96 and 16 foreign banks (FBs). Taken together, these banks account for, on average, nearly 95% of banking assets, over 90% of deposits and nearly 92% of credit during the period (Table 1).

The private banks became operational only since 1996. As a result, the number of reporting banks witnessed a sharp increase thereafter. Subsequently, the banking industry also witnessed some consolidation, both domestic and internationally. We also include a dummy variable for take this aspect on board. As a result, we have an unbalanced panel, with a minimum of 77 banks at the beginning of the sample period to a maximum of 83 banks. With an average of 49.1 quarters of observations per bank, there is a maximum of 4074 bank-years. However, we explore the lags in monetary transmission, we incorporate lags of the policy rate in our empirical specification. As a result, we are finally left with a maximum of 2108 bank-quarters.

Table 2 provides a description of the relevant variables, including the data source and summary statistics. The table suggests that bank lending rates have been quite high, averaging over 17% per annum. At the same time, credit growth has been tepid, at nearly 9% per annum, on average. Banks appear to be well-capitalized, although their non-performing loans are on the higher side. Beginning 2001, the Repo Rate was activated as the policy rate by the Indian central bank, which we employ as the policy variable. The average Repo Rate during the period was 8.3 percent.

We also compute a measure of banking industry structure: the share of foreign banks in total banking assets. We also extract information on the macroeconomic variables such as the Repo Rate and the GDP growth numbers.

To explore possible asymmetries in the monetary transmission process, we construct a monetary policy index. In our case, the index reflects the twin effects of both a price (policy rate) and a quantity (cash reserve ratio, CRR) variable, since both these measures were widely employed during this period.

We code the variable on a scale ranging from -1 to +1, wherein higher values indicate contractionary monetary policy.[2] Accordingly, in case there is an increase in either the effective policy rate and/or the CRR by more than 50 basis points (bps) between two consecutive months in a given quarter, it is coded as +1. Monetary policy in this case is deemed as strongly contractionary. An increase in excess of 25 bps up to 50 bps in either or both these variables between two successive months is coded as 0.5. In that case, the monetary policy is deemed as medium contractionary. Monetary policy

[2] Besley and Burgess (2004) employ a similar strategy to code labor regulations in Indian states during 1958-92.

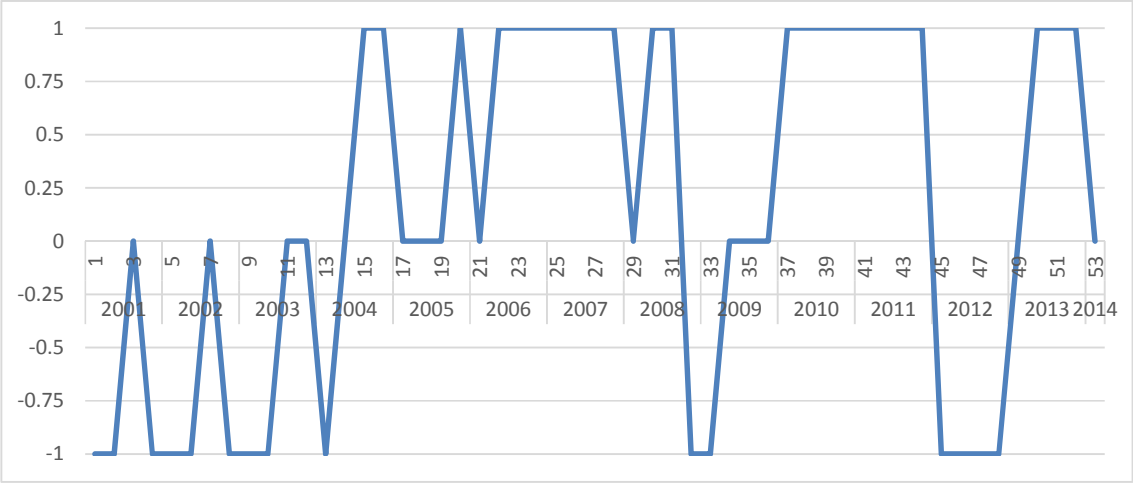
is deemed as mildly contractionary provided there has been an increase of up to 25 bps in either or both these variables, in which case it is coded as 0.25.

The coding process is just the reverse in the event the monetary policy is expansionary. Provided there is no change in any measure during the month, it is coded as zero. Therefore, the maximum value the index can assume in any month equals +2 (provided both the policy rate and CRR are increased by over 50 basis points over the previous month) and the minimum value equals -2 (provided both the policy rate and CRR are reduced by over 50 basis points over the previous month).

The raw scores for a month are cumulated for the year as a whole to arrive at an aggregate index for the year. This cumulative score can range from -24 (loosening of both the policy rate and CRR across all months during the year) to +24 (tightening of both the policy rate and CRR across all months during the year).

The summary statistics of the monetary policy variable indicates that the mean is -0.405 (with a standard deviation of 2.25). The minimum and maximum values of the variable in any given year equal -4 and +6, respectively. Taken together, these numbers imply that, on average, monetary policy has been mildly expansionary for the entire period; there have also been years when monetary policy has been expansionary and likewise, years when it has been fairly contractionary.

Chart 1: Monetary Policy Index over the period



Employing these numbers, we construct a monetary policy index as follows. We scale all numbers by 24 (the maximum achievable value). A value greater than zero in any year would signify contractionary (or tightening) monetary policy. In case the index value is less than zero, we deem monetary policy as expansionary. Monetary policy is deemed neutral in case the value of the index in any given quarter equals zero.

3. Empirical Strategy

The empirical strategy involves estimating the following specification for bank b in year t:

$$r_{b,t} = \alpha_1 PR_t + \alpha_2 PR_t * OWN_{b,t} + X_{bt-1}\beta' + Other\ controls + \gamma OWN_{b,t} + \varepsilon_{b,t} \qquad \textbf{(14)}$$

In Eq. (1), r denotes the optimal lending rate, $\mathbf{X}$ is a matrix of (lagged) bank-specific controls to take on board the potential endogeneity between the outcome and the independent variables; Other controls includes banking industry level (e.g., foreign banks' asset share, FBSH) and macroeconomic controls (e.g., real GDP growth, GDPGR); OWN (OWN=SOB, DPB) are bank ownership dummies for state-owned (SOB) and domestic private (DPB) banks (foreign banks are the control category) and ε_{bct} is the error term. All equations take into account the mergers in the banking industry during the period.

The coefficients of interest are PR and PR*OWN. The former captures the direct pass-through of policy rates to the optimal lending rate and its latter captures the differential response across ownership.

The bank-specific variables include log of total assets (LTA), bank-wise asset share (SHTA) in a given year, capital adequacy ratio (CRAR) and fee income to total asset (NINT). Following Berger et al.(2005), we include both LTA and SHTA. The former controls for scale economies and the latter for market power of banks. Among the other variables, CRAR takes into account for banks' funding structure whereas NINT accounts for banks' income diversification (e.g., foreign banks have higher reliance on non-interest income).

We estimate the impact of explanatory variables on the dependent variable by fixed effects panel regression. This method of estimation provides better estimators than simple OLS when the explanatory variables are correlated with the error term. For example, it is possible that some of the control variables employed might be endogenous with respect to the performance indicators. In that case, employing OLS could render biased coefficients. Using a fixed-effects model can solve the problem of correlation. In the fixed effects specification, the differences across banks are captured by the differences in constant

term. Throughout, inference is based on standard errors that are clustered at the bank and year levels, i.e., 2D clustered errors (Cameron et al., 2011).

4. Results and discussion

Prior to a discussion of the results, Table 3 provides the correlation matrix of the relevant variables. The evidence appears to suggest that lending rates are negatively correlated with size and positively with capital and non-interest income. In other words, bigger banks tend to have lower lending rates, whereas banks with better capital position and diversified income streams have higher rates. There does not appear to exist any correlation between policy rate and bank lending rates. These raw correlations do not control for bank-specific factors or the macroeconomic environment.

4.1 Baseline Results

The results of the regression exercise are set out in Table 4. The first four columns look at lending rate, whereas the subsequent columns examine the impact on credit. We sequentially introduce lags of the policy rate in order to ascertain its impact on bank lending rate.

We first quickly discuss the control variables (not reported for brevity). Small and liquid banks exhibit higher loan growth. These results is consistent with evidence which suggests that and other economies. The results also reveal that lending channel of monetary policy works for Indian economy for a combined sample of SOBs and PBs. That is, an increase in policy rate by the central bank generates a reasonable decline in loan growth of Indian banks. However, there are important differences in the responses of SOBs and PBs.

Across the first four columns, the coefficient on the policy rate is observed to be statistically significant only for the third lag, suggesting that the transmission of policy rates to bank lending rates takes place with roughly a lag of three quarters, consistent with prior research for India (Patra and Kapur, 2010; Mohanty, 2013; RBI, 2014, Das, 2015). The magnitude is equally important, as well. Based on the estimates in Col.(3) for example, a one standard deviation increase in the policy rate – an increase of roughly 9 percentage points – is associated with a 8.8 percentage point increase in the lending rate with a three-quarter lag (corresponding to an annualized rate of 35 percent).[3]

[3] The long and variable lags involved in monetary policy transmission, which in India is approximately three quarters has also been pointed out by Rajan in his media interaction in February 2015.

As compared to this, the coefficient on log Credit is significant in both the first and second lags. As earlier, a one standard deviation increase in the policy rate is associated with a 0.2 percentage points decline in lending (corresponding to an annualized decline of roughly 1 percent), with a one quarter lag.

Therefore, while the magnitude of the interest rate channel is quite large, it works its way through to bank lending rates only with a lag. As compared to this, the magnitude of the bank lending channel is much smaller; however, it works its way much quickly in response to a policy rate change.

Looking at the differential impact across bank ownership, the evidence in Column (6) indicates that, in response to a monetary contraction, DPBs raise lending rates by 10 basis points, with a two-quarter lag. With average lending rates equal to 17%, this is a negligible difference.

Coming to credit, the evidence indicates a differential response, both in terms of timing as well as magnitude. More specifically, in response to a monetary contraction, DPBs lower lending by 4% with a one period lag, whereas SOBs lower lending by 5%. Intuitively, a rise in lending rates lowers credit demand as the price of credit (interest rate) rises. Concurrently, the rise in lending rate makes it more profitable for lenders to extend credit. The evidence suggests that the former effect dominates the latter. To encapsulate, while both the interest rate and the bank lending channel appear relevant in the Indian scenario, there is a trade-off: the impact of the former is much higher as compared to the latter, although it occurs with a significant lag.

4.2 Asymmetries in monetary transmission

Next, we explore the monetary transmission to bank lending rate across phases of the monetary policy cycle. More specifically, we investigate the impact on bank lending rate when the policy rate is altered. The expansionary and contractionary phases are based on our earlier discussions. The results are set out in Tables 5A and 5B. The former table examines the response during expansionary periods, the latter during periods of contraction. For each variable, the first column indicates the average response (denoted as 'Average' at the top of the column), whereas the subsequent two columns indicate the response for the top and bottom 25 percentile.

In Table 5A, the coefficient on MYP expansion is statistically significant in Columns (4) and (5). In column (4) for example, the point estimate on MYP expansion equals -0.14, suggesting that during periods of monetary expansion, well-capitalized banks lower lending rates by 0.14% points, on average.

Column (5) investigates the response of banks whose capital ratios are greater than or equal to those at the 75th percentile. The findings suggest that, in response to a monetary expansion, banks with highest levels of capital end up lowering lending rates. To see this, note that, the average response to a monetary expansion for well-capitalized banks equals -1.4, whereas those for banks with sufficient capital equals 2.61, yielding a net effect of 1.2% points (=-1.4+2.61=1.2). In other words, sufficiently well-capitalized banks raise lending rates by roughly 120 basis points, in response to a monetary expansion.

As compared to this, smaller banks expand lending during periods of expansionary monetary policy, presumably in order to garner market shares. The point estimates suggest that the increase in lending is roughly 2.1% points. With average lending for the sample banks being Rs.1380 million (≈USD 2million), this implies that, in absolute terms, an increase of Rs. 30 million, a non-negligible amount.

The most perceptible response is for capitalized banks. More specifically, well-capitalized banks expand lending by 2.8% points, on average; the magnitudes are roughly double that for banks with sufficient capital.

During periods of monetary contraction, there appears to be limited response of bank lending rates (Table 5B). On the lending side, the evidence indicates that although less capitalized banks cut back lending, banks with lowest capital levels increase lending by a substantial degree. The impact for the low-capitalized banks is extremely large. To see this, consider the differential between the lending of an average low-capitalized bank and an average well-capitalized bank when capital levels equal 0.18, the average for the sample. Based on the point estimates, the differential is approximately 0.06% points (=-0.028+0.18*0.27=-0.06), roughly 20% (=0.06*100/0.28) lower as compared to a situation without any such response.

Summing up, the evidence suggests that, in the Indian case, bank capital is the most relevant characteristic that defines the response of banks in response to a monetary policy. We next explore whether the response differs across ownership and whether the crisis had any role to play in this regard.

4.3 Monetary transmission, bank ownership and crisis

Table 6 provides the results of the regression results from estimating the differential response across bank ownership to monetary policy and the evolution of such behavior during the crisis. The top half of the table examines the response of lending rates, while the bottom half focuses on bank credit.

The results suggest that there is no discernible impact of lending rates to either a monetary expansion or a contraction: the coefficients are not significant in all cases.

On the other hand, during periods of either monetary expansion or contraction, banks tend to increase lending. While the increase in lending during periods of monetary expansion is intuitive, the expansion during periods of monetary contraction can be explained either by the tendency of banks for evergreening or even credit growth targets, irrespective of the state of the monetary cycle. Illustratively, in Panel B, column 1, the increase in lending during periods of monetary expansion equals 3%, thrice the numbers obtaining during periods of monetary contraction (Panel B, column 4).

Additionally, the crisis appears to have effect a differential impact on lending across bank ownership. More specifically, consider the differential between the lending of an average state-owned bank and an average foreign bank. If it is not a crisis year, the differential is approximately 3.3%. Inclusive of the crisis, the point estimates in Column (3) yield an estimate of -0.041, a 25% difference compared to the no-crisis benchmark. In effect, SOBs appear to have significantly cut back lending during the crisis.

5. Concluding remarks

In this paper we investigate both the interest rate channel as well as the credit channel of monetary policy, using bank-level data for the period from 2001 to 2014. We also looked at whether state-owned and domestic private banks respond differently to changes in monetary policy during periods of monetary expansion and contraction.

The evidence suggests that while both the interest rate and the bank lending channel appear relevant in the Indian scenario, bank lending is a much potent channel as its impact is manifest almost immediately consequent upon a monetary action. Robustness checks across periods of monetary expansion and contraction that bank capital is the most relevant characteristic that defines the response of banks consequent upon a monetary action. Banks were observed to increase lending not only in response to a monetary expansion, but also during periods of monetary contraction. We also find that private banks exhibit larger reaction to monetary policy shock under interest rate channel, whereas state owned banks display a larger response under the credit channel. Further research would, of course, be necessary to understand the behavior across other bank characteristics, such as funding and income profile, which have come into prominence since the crisis (Gambacorta and Marquez-Ibanez, 2011). Addressing these aspects comprise elements for future research.

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Tables

Table 1: Share of sample banks in the banking sector

Variables	Share(percent)
Capital and reserves	78.6
Deposits	90.1
Investment	84.3
Gross loans and advances	91.6
Total assets	95.0
Gross NPAS	92.0
Liquid assets	86.2
Profit	78.9

Table 2: Variable description and summary statistics

Variable	Empirical definition	Data source	Mean	SD.	p.75 (p.25)
Dependent					
Lending Rate (LR)	Interest income on advances/ Total advances	Prowess	0.172	1.31	0.169(0.065)
log Credit	Log (Advances)	Prowess	9.14	2.09	10.39 (7.14)
Independent: Policy variable					
Policy Rate (PR)	Repo Rate	HSIE	0.083	0.091	0.080(0.060)
Independent: Bank specific					
LTA	Log (total asset)	Prowess	9.14	2.09	10.77 (7.80)
SHTA	Total asset of bank *b* in year *t*/Banking asset in year *t*	Prowess	1.03	1.35	1.50 (0.00)
CRAR	Capital adequacy ratio	Prowess	0.18	0.19	0.16 (0.11)
NINT	Non-interest income/Total asset	Prowess	0.013	0.019	1.40 (0.40)
LIQUID	Liquid assets/ Total assets, where liquid assets= cash in hand+balances with central bank+call money+AFS investments	Prowess	0.303	0.080	0.34 (0.26)
Independent: Others					
dy_MERGER	Dummy=1 for the acquirer bank in the year of merger, else zero	Computed based on RTP and RCF	0.02	0.13	
GDPGR	Real GDP growth in year *t*	HSIE	0.02	0.07	
FB_Share	Foreign bank assets/ Total banking asset	Prowess	0.07	0.01	
Independent: Ownership					
SOB	Unity if bank is state-owned, else zero	Prowess	0.34	0.47	
PB	Unity if bank is domestic private, else zero	Prowess	0.33	0.47	
FB	Unity if the bank is foreign, else zero	Prowess	0.34	0.47	
HSIE	Handbook of Statistics on Indian Economy				
RCF	Report on Currency and Finance				
Prowess	Prowess, CMIE				

Table 3: Correlation matrix of relevant variables

	LR	PR	LTA	SHTA	CRAR	NINT	LIQUID
LR							
PR	0.0040						
LTA	-0.0832*	0.0399*					
SHTA	-0.0368*	-0.002	0.5749*				
CRAR	0.0564*	-0.1192*	-0.6162*	-0.1568*			
NINT	0.4217*	-0.0520*	-0.3166*	-0.1115*	0.2255*		
LIQUID	-0.030	-0.0441*	-0.2710*	-0.0304*	0.0827*	0.0597*	

$^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$

Table 4: Regression results – baseline results

Dep. var	Lending Rate						Log Credit					
					Interaction: PR*OWN						Interaction: PR*OWN	
					SOB	DPB					SOB	DPB
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
PR	-0.69	-1.46	-3.68	-4.24	-2.84	-1.95	-0.09	-0.03	-0.08	-0.00	-0.22	0.06
	(3.72)	(3.90)	(4.47)	(4.51)	(6.50)	(5.75)	(0.16)	(0.16)	(0.17)	(0.18)	(0.27)	(0.20)
PR, lag 1	0.36	0.41	0.54	0.48	0.05	0.15	**-0.03***	**-0.03***	-0.02	-0.02	-0.01	**-0.04*****
	(0.24)	(0.27)	(0.32)	(0.29)	(0.17)	(0.20)	**(0.01)**	**(0.01)**	(0.01)	(0.01)	(0.01)	**(0.01)**
PR, lags 2		0.39	0.53	0.47	0.04	0.10		**-0.03***	-0.02	-0.02	**-0.05*****	-0.01
		(0.26)	(0.31)	(0.27)	(0.17)	(0.19)		**(0.01)**	(0.02)	(0.02)	**(0.01)**	(0.01)
PR, lags 3			**0.96***	**0.92***	-0.00	0.05			0.02	0.02	0.02	-0.01
			(0.46)	**(0.45)**	(0.15)	(0.18)			(0.01)	(0.01)	(0.02)	(0.01)
PR, lags 4				2.01	-3.19	-4.63				-0.28	-0.16	-0.31
				(2.61)	(2.45)	(2.94)				(0.16)	(0.15)	(0.17)
Controls	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Ownership												
d_SOB	-0.00	0.03	0.10	0.09	-0.18	0.03	-0.02	-0.02	-0.02	-0.02	-0.04	**-0.03***
	(0.25)	(0.26)	(0.26)	(0.24)	(0.51)	(0.20)	(0.01)	(0.01)	(0.01)	(0.01)	(0.03)	**(0.01)**
d_PB	-0.12	-0.09	-0.04	-0.05	-0.13	-0.12	**-0.03***	**-0.03***	**-0.02***	**-0.02***	**-0.03****	0.02
	(0.29)	(0.29)	(0.29)	(0.28)	(0.25)	(0.52)	**(0.01)**	**(0.01)**	**(0.01)**	**(0.01)**	**(0.01)**	(0.03)
Constant	0.36	0.31	0.36	0.41	0.46	0.40	0.31***	0.31***	0.31***	0.31***	0.23***	0.21***
	(0.47)	(0.49)	(0.46)	(0.44)	(1.01)	(1.01)	(0.04)	(0.04)	(0.04)	(0.04)	(0.05)	(0.04)
N.Obs.	2108	2108	2030	2030	2030	2030	1707	1707	1642	1642	1642	1642
R-squared	0.0684	0.0706	0.0809	0.0811	0.0696	0.0697	0.2181	0.2193	0.2209	0.2221	0.1718	0.1751

Standard errors (clustered by bank and quarter) in parentheses

$^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$

Table 5A: Regression results – Pass through during expansionary periods

Panel A	**Dependent variable = Lending Rate**								
	Average	p.75	p.25	Average	p.75	p.25	Average	p.75	p.25
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
MYP expansion	-0.539	-0.033	1.073	-0.142*	-1.398*	0.633	-0.500	-0.193	-1.764
	(0.604)	(0.045)	(1.986)	(0.066)	(0.684)	(0.477)	(0.444)	(0.379)	(1.352)
MYP expansion*SIZE	0.049	0.001	-0.218						
	(0.053)	(0.004)	(0.320)						
MYP expansion*CRAR				0.370	2.606*	-6.795			
				(0.545)	(1.280)	(5.313)			
MYP expansion*LIQUID							1.471	0.739	5.987
							(1.210)	(1.028)	(4.494)
Controls	Y	Y	Y	Y	Y	Y	Y	Y	Y
N.Obs	2108	598	479	2108	521	467	2108	485	508
R2	0.07	0.409	0.069	0.069	0.074	0.177	0.072	0.157	0.101
Panel B	**Dependent variable = log Credit**								
	Average	p.75	p.25	Average	p.75	p.25	Average	p.75	p.25
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
MYP expansion	0.029	-0.043	-0.104	0.028***	0.054*	-0.031	0.013	0.109	0.021
	(0.022)	(0.064)	(0.068)	(0.008)	(0.025)	(0.030)	(0.020)	(0.061)	(0.073)
MYP expansion*SIZE	-0.001	0.005	0.021*						
	(0.002)	(0.005)	(0.010)						
MYP expansion*CRAR				-0.051	-0.080	0.387			
				(0.044)	(0.061)	(0.305)			
MYP expansion*LIQUID							0.023	-0.196	0.046
							(0.065)	(0.146)	(0.310)
Controls	Y	Y	Y	Y	Y	Y	Y	Y	Y
N.Obs	1707	526	317	1707	352	389	1707	369	400
R2	0.173	0.072	0.109	0.174	0.096	0.219	0.173	0.213	0.158

Standard errors (clustered by bank and quarter) in parentheses

$^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$

Table 5B: Regression results – Pass through during contractionary periods

Panel A	**Dependent variable = Lending Rate**								
	Average	p.75	p.25	Average	p.75	p.25	Average	p.75	p.25
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
MYP contraction	-0.835	0.009	-0.873	0.129	0.069	0.016	-0.385	-0.660	-0.680
	(0.436)	(0.033)	(1.323)	(0.182)	(0.591)	(0.225)	(0.231)	(0.471)	(1.153)
MYP contraction *SIZE	0.084	-0.002	0.074						
	(0.044)	(0.003)	(0.231)						
MYP contraction *CRAR				-1.021	-0.976	2.226			
				(0.887)	(1.360)	(1.874)			
MYP contraction *LIQUID							1.105	1.691	1.582
							(0.679)	(1.212)	(4.755)
Controls	Y	Y	Y	Y	Y	Y	Y	Y	Y
N.Obs	2108	598	479	2108	521	467	2108	485	508
R2	0.074	0.404	0.074	0.075	0.066	0.176	0.071	0.159	0.099
Panel B	**Dependent variable = log Credit**								
	Average	p.75	p.25	Average	p.75	p.25	Average	p.75	p.25
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
MYP contraction	0.035	0.048	0.051	0.001	0.022	-0.028**	-0.021	-0.037	0.034
	(0.018)	(0.053)	(0.065)	(0.005)	(0.019)	(0.008)	(0.019)	(0.058)	(0.055)
MYP contraction *SIZE	-0.003	-0.004	-0.007						
	(0.002)	(0.005)	(0.010)						
MYP contraction *CRAR				0.035	-0.013	0.277*			
				(0.033)	(0.043)	(0.117)			
MYP contraction *LIQUID							0.094	0.132	-0.126
							(0.062)	(0.148)	(0.228)
Controls	0.035	0.048	0.051	0.001	0.022	-0.028**	-0.021	-0.037	0.034
N.Obs	1707	526	317	1707	352	389	1707	369	400
R2	0.169	0.067	0.103	0.169	0.094	0.244	0.168	0.216	0.148

Standard errors (clustered by bank and quarter) in parentheses

$^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$

Table 6: Regression Results - monetary transmission, bank ownership and crisis

Panel A	(1)	(2)	(3)	(4)	(5)	(6)
Dep. var=Lending Rate						
MYP expansion	-0.075	-0.292	-0.290			
	(0.107)	(0.268)	(0.280)			
MYP contraction				-0.034	-0.255	-0.255
				(0.048)	(0.155)	(0.155)
d_SOB	-0.083	-0.046	-0.044	-0.090	-0.257	-0.257
	(0.187)	(0.178)	(0.173)	(0.197)	(0.254)	(0.253)
d_PB	-0.182	-0.139	-0.138	-0.187	-0.367	-0.365
	(0.243)	(0.230)	(0.230)	(0.250)	(0.319)	(0.320)
d_SOB* MYP expansion		0.303	0.304			
		(0.252)	(0.250)			
d_PB* MYP expansion		0.354	0.354			
		(0.256)	(0.253)			
d_SOB*MYP contraction					0.327	0.331
					(0.189)	(0.190)
d_PB*MYP contraction					0.350	0.352
					(0.197)	(0.197)
Crisis*d_SOB			-0.013			-0.038
			(0.099)			(0.084)
Crisis*d_PB			-0.005			-0.038
			(0.106)			(0.084)
Controls	YES	YES	YES	YES	YES	YES
Constant	-0.100	-0.105	-0.122	-0.102	0.055	-0.022
	(0.982)	(0.985)	(1.066)	(0.978)	(1.013)	(1.049)
N.Observations	2108	2108	2108	2108	2108	2108
R^2	0.065	0.066	0.069	0.066	0.068	0.069
Panel B	(1)	(2)	(3)	(4)	(5)	(6)
Dep. var = log Credit						
MYP expansion	0.019***	0.026*	0.027**			
	(0.003)	(0.010)	(0.010)			
MYP contraction				0.008**	0.018*	0.018*
				(0.003)	(0.008)	(0.008)
d_SOB	-0.033**	-0.034**	-0.033**	-0.031**	-0.025*	-0.025*
	(0.012)	(0.012)	(0.012)	(0.012)	(0.010)	(0.010)
d_PB	-0.035**	-0.035**	-0.035**	-0.034**	-0.025*	-0.025*
	(0.011)	(0.012)	(0.012)	(0.011)	(0.011)	(0.011)
d_SOB* MYP expansion		-0.011	-0.011			
		(0.011)	(0.011)			
d_PB* MYP expansion		-0.005	-0.005			
		(0.011)	(0.011)			
d_SOB*MYP contraction					-0.011	-0.011
					(0.009)	(0.008)
d_PB*MYP contraction					-0.017	-0.017
					(0.009)	(0.009)
Crisis*d_SOB			-0.008*			-0.005
			(0.004)			(0.004)
Crisis*d_PB			-0.004			0.00041
			(0.007)			(0.006)
Controls	YES	YES	YES	YES	YES	YES
Constant	0.198***	0.198***	0.183***	0.199***	0.192***	0.187***
	(0.038)	(0.038)	(0.042)	(0.039)	(0.039)	(0.043)
N.Observations	1707	1707	1707	1707	1707	1707
R^2	0.171	0.172	0.172	0.166	0.168	0.169

Standard errors (clustered by bank and quarter) in parentheses

$^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$