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Risk Taking Channel of Monetary Policy: A Review of the Evidence and Some Preliminary Results for India

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Abstract

Some recent papers have studied the link between the stance of monetary policy and the risk-taking behavior of banks. Loose monetary policy can encourage banks to reach for yield, which will increase their share of risky assets and also induces banks to take more risks on account of a rise in asset values. On the funding side, loose monetary policy increases incentives to use more short term funding. This paper provides a comprehensive review of the evidence on the risk taking channel of monetary transmission and empirically examines the existence of the risk taking channel in Indian banking. The paper's novelty also lies in the fact that it incorporates the role of ownership and empirically tests the response of banks in terms of a wide array of risks, i.e., asset, default and market risks in the face of easy and tight monetary stances adopted by the central bank.

JEL Classification: G21, G28

Keywords: Banks, Risk, Monetary Policy

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1. Introduction

A number of recent papers have studied the link between the monetary policy stance of a central bank and the risk-taking behavior of commercial banks (Delis et al., 2011; Jimenez et al., 2014; Altunbas et al., 2015; Angeloni et al., 2010). Loose monetary policy can encourage banks to take on more risk on both the asset and the liability sides of their balance sheets. First, a prolonged period of low interest rates incentivize banks to "reach for yield" (Rajan, 2005), which will increase the share of risky assets that they hold. Secondly, low interest rates are increase valuation of assets that could encourage banks to take on more risks (Adrian and Shin, 2009). On the funding side, loose monetary policy increases incentives to use more short term funding (Adrian and Liang, 2014). This kind of monetary policy effect has come to be known as the risk taking channel of monetary policy transmission and has been frequently used to explain how low interest rates caused the 2007 financial crisis (De Nicolo et al., 2010). The presence of a risk taking channel would suggest that the monetary policy of a central bank has important financial stability implications.

A different strand of the monetary policy literature has looked into how differences in ownership structures of banks affect their monetary policy transmission actions. Pill (1997) argued that after an increase in domestic interest rates, the motivation to raise overseas funds to finance domestic lending activities increases. Banks with better access to foreign sources of funds enjoy an advantage over those which are constrained by domestic non-deposit funding. Foreign banks are therefore more likely to gain a larger market share in credit than domestic banks. De Bondt (1999) showed that foreign owned banks might have better access to international capital markets and other foreign sources of funds than much larger wholly domestic banks. Monetary policy contractions may be tempered by the ability of such international banks to borrow funds offshore.

In this paper we combine the above two strands of the literature to investigate how different bank characteristic, especially related to their ownership, have an effect on the risk taking channel of monetary policy transmission. In particular, this paper makes three contributions. First, we

provide a comprehensive review of the existing evidence on the risk taking channel of monetary policy transmission. Second, in view of the absence of such studies in a developing country context, we carry out an empirical exercise to examine the evidence for the risk taking channel in the context of Indian banking. The paper's novelty also lies in the fact that it empirically tests the response of banks in terms of a wide array of risks, i.e., asset, default and market risks in the face of easy and tight monetary stances adopted by the central bank.

2. Risk Taking Channel of Monetary Policy and Ownership Effects in Monetary Transmission

2.1 Risk Taking Channel: The International Evidence

Lucchetta (2007) studied the impact of monetary policy on banks' investment and interbank lending behavior. She found that, across European countries, the policy rate negatively affects liquidity retained by banks and the decision of a bank to be a lender in the interbank market. The policy rate is found to be positively correlated with lending and bank risk-taking behavior. Jimenez et al. (2014) uncovered similar evidence from credit register data of Spanish banks. They showed that lower overnight rates prior to loan origination lead banks to lend more to borrowers with a worse credit history and to grant more loans with a higher per-period probability of default.

Delis et al. (2011), using data from the US banking sector, found evidence of a highly significant negative relationship between monetary policy rates and bank-risk taking. Altunbas et al. (2015) investigated the effect of monetary easing on bank risk for banks from the US and the EU. Their findings suggest that prolonged period of relatively low levels of interest rates lead to higher bank risk. This result holds for a wide range of measures of risk, as well as macroeconomic and institutional controls including the intensity of supervision, securitization activity and bank competition. Angeloni et al. (2010) studied the effects of monetary policy on banks' risk exposure using quarterly US data and found the presence of a risk-taking channel. They explained this phenomenon through a model in which monetary expansion increases bank leverage due to a fall in the cost of borrowed funds. On one hand, this exacerbates risk exposure and on the other, the risk spiral depresses output, therefore dampening the conventional

amplification effect of the financial accelerator. This suggests the importance of bank characteristics such as leverage in determining the strength of the risk taking channel.

The importance of bank characteristics in the impact of monetary policy on risk-taking was also observed by Delis and Kouretas (2010) who studied approximately 18,000 annual observations on Euro area banks over the period 2001-2008. They showed that while low interest rates substantially increase bank risk-taking, this effect is less pronounced for French institutions, which hold on average a relatively low level of risky assets. Their findings also suggest that the impact of interest rates on risky assets is lower for banks with higher equity capital and is amplified for banks with higher off-balance sheet items. Jimenez et al. (2014) reported similar findings for Spanish banking where the risk enhancing effect of lower overnight rates was particularly pronounced for less capitalized banks. On the other hand, De Nicolo et al. (2010) found that when the policy rate is low, high-charter-value (well-capitalized) banks increase risk taking while low-charter-value (poorly capitalized) banks do the opposite.

Other than capital, bank size has also been found to be influencing the risk taking channel. Bonfim and Soares (2014) used bank loan level data to show that smaller banks grant more loans to non-financial companies with recent defaults or without credit history when policy interest rates are lower. They also found that loans granted when interest rates are low are more likely to default in the hiking phase of the interest rate cycle. Dell'Ariccia et al. (2013) provided evidence for regional differences in the way the risk taking channel operates. They showed that increases in monetary policy rates reduce the risk taking by banks and that this relationship is more pronounced in regions that are less in sync with the nationwide business cycle, and less pronounced for banks with relatively low capital or during periods when banks' capital erodes.

2.2 Ownership Effects in Bank Risk Taking and Monetary Transmission

Saunders et al. (1990) investigated the relationship between bank ownership structure and risk taking. They argued that stockholder controlled banks have incentives to take higher risk than managerially controlled banks and that these differences in risk become more pronounced in periods of deregulation. The study showed that stockholder controlled banks exhibit significantly higher risk taking behavior than managerially controlled banks during the 1979-1982 period of relative deregulation in the United States.

Barry et al. (2011), using detailed ownership data for a sample of European commercial banks, analyzed the link between ownership structure and risk in both privately owned and publicly held banks. They found that ownership structure is significant in explaining risk differences but mainly for privately owned banks. A higher equity stake of either individuals/ families or banking institutions is associated with a decrease in asset risk and default risk. In addition, institutional investors and non-financial companies impose the riskiest strategies when they hold higher stakes. Higher stakes of banking institutions in publicly held banks are associated with lower credit and default risk.

Bhaumik et al. (2011) provided evidence for ownership effects in monetary transmission through banks. Using bank-level data from India they showed that there are considerable differences in the reactions of different types of banks to monetary policy initiatives of the central bank. For instance the bank lending channel of monetary policy is much more effective in a tight monetary policy regime for state-owned banks, old private banks and foreign banks but not for new private banks. Their findings also revealed differences in the impact of monetary policy on the maturity of loans disbursed. Monetary tightening in a tight money regime leads to lower short term and medium term lending, but in an easy money regime leads to higher short term lending.

Figueira et al (2011) examined how ownership structure interacts with monetary policy in shaping financial intermediaries' risk appetite. Based on data for commercial, cooperative and savings banks from 17 Western European countries, they showed that differences in organizational form influence the transmission of monetary impulses via the risk-taking channel. While shareholder banks appear to alter the composition of their portfolios more proactively over the business cycle, there is evidence that the effects of lower interest rates on the aggregate level of risk in the economy are dampened by the presence of stakeholder banks.

2. 3 The Indian Evidence on Monetary Policy Transmission

Aleem (2010) examined the channels of monetary transmission in India and found that the lending rate initially increases in response to a monetary tightening. He concluded that banks play an important role in the transmission of monetary policy shocks to the real sector. Khundrakpam (2011) studied the operation of credit channel of monetary policy rate transmission in India and found that besides the positive influence of economic activity on bank

credit, policy induced expansion or contraction in deposit or money supply induce banks to adjust their credit portfolio. Although the credit channel of monetary transmission is found to be significant, there has been a decline in its strength during the post global financial crisis period. Bhaduri and Goyal (2012) provided evidence for the bank lending channel of monetary transmission in India. Further, segregating banks by asset size and liquidity, the authors showed that small, illiquid banks are more affected by policy changes, and the effect is more pronounced in areas of non-priority sector lending. Finally, domestically owned banks are more sensitive to policy rate changes vis-à-vis foreign banks.

Sengupta (2014) showed that while the bank lending channel is an important means of transmission of monetary policy in India, but it has weakened after the introduction of the Liquidity Adjustment Facility (LAF) in 2000 for monetary policy operations. The interest rate and asset price channels have become stronger and the exchange rate channel, although weak, shows a mild improvement in the post-LAF period. Das (2015) found significant, albeit slow, pass-through of policy rate changes to bank interest rates in India. There is evidence of asymmetric adjustment to monetary policy as the lending rate adjusts more quickly to monetary tightening than to loosening. In addition, the speed of adjustment of deposit and lending rates to changes in the policy rate has increased in recent years. Mishra et al (2016) found that a tightening of monetary policy is associated with a significant increase in bank lending rates and conventional effects on the exchange rate, though pass-through to lending rates is only partial.

Das et al (2016) analyzed the lending responses within banks to quantitative tools of monetary policy using data from over 125,000 branches of banks. They showed that the within-bank variation in lending is economically significant, and is explained by a rich suite of branch asset, liability, and organizational variables. Branches that respond more to monetary policy are the ones that are larger, make loans with smaller ticket size, are deposit rich, make shorter term loans, have fewer non-performing assets, and greater managerial capacity. Responses to monetary policy are found to be more sluggish in state-owned banks.

The above review highlights the fact that there is a lacuna in the literature with respect to investigating the role of ownership in influencing the risk taking channel. Moreover there has been no study investigating the risk taking channel for Indian banks. However, taking cognizance of this channel is important for bankers, supervisors and policymakers as it has

significant implications for the transmission of monetary policy actions to the real economy as well as for financial stability. Further, understanding how bank ownership plays a role in the risk taking channel is also significant for the Indian context which exhibits a wide ownership spectrum. In terms of size, public sector banks account for the largest share of the entire banking system's assets and loans when compared to domestic private and foreign banks. In this backdrop we carry out an assessment of the risk taking channel of monetary transmission in India.

3. Development of Monetary Policy in India

The liberalization of the Indian economy in the early 1990s necessitated an encompassing recast of monetary policy operating procedures. The central bank of the country, the Reserve Bank of India (RBI) shifted from direct to indirect instruments in sync with the increase in market orientation in the economy (Reddy, 2002; Kanagasabhapathy, 2001). This needed the development of an array of policy measures which could efficiently modulate monetary situations in alignment with price discovery. Also, shifts in transmission mechanisms lead to the policy impulses which further traveled through quantitative and rate channels. Finally, episodes of volatility in foreign exchange markets emphasized the need for quick policy reactions to balance domestic and external sources of monetization to sustain financial markets in an orderly manner.

Even within the set of indirect instruments, authorities preferred market based instruments such as open market operations (OMOs). Accordingly, the cash reserve ratio (CRR) was lowered from 15% in the early 1990s to only 5% by 2004, with some minor adjustments to deal with the evolving liquidity situation in the economy. With the introduction of the Liquidity Adjustment Facility (LAF), in 2000, the RBI was also able to influence short term interest rates by modulating liquidity in the system through repo rate operations and also transmit interest rate signals to the market (RBI, 2000; Sen Gupta et al, 2000; Dua et al, 2003).

The current operating framework of monetary policy has the following distinguishing features. The repo rate is the single policy rate and operates in a corridor between the Marginal Standing Facility (MSF) rate and the reverse repo rate. The MSF rate is 25 basis points above the repo rate and the reverse repo rate is 25 basis points below the repo rate. The transition to the current

framework in which the interest rate is the operating target, from the earlier regime based on reserve targeting – i.e., base money, borrowed reserves, non-borrowed reserves has been driven by two guiding considerations. First, financial sector reforms largely freed the interest rate from administrative prescriptions and settings, thereby enhancing its effectiveness as a transmission channel of monetary policy. Second, there has been an erosion in stability and predictability in the relationship between money aggregates, output and prices with the proliferation of financial innovations, advances in technology and progressive global integration.

While the use of monetary instruments in striving to achieve monetary policy objectives is quite pervasive, central banks have also been employing non-monetary instruments as part of their overall policy toolkit. They are tailored to deal with various exigencies such as surges in capital flows, credit allocation, pro-cyclicality and interconnectedness and the zero lower bound on the nominal interest rate. One set of instruments is primarily regulatory in nature: selective credit control measures ranging from improving credit culture (establishing credit bureaus; credit registry; higher risk weights for sensitive sectors), supervisory measures (on-site and off-site inspection of banks) and moral suasion. A second set of measures, primarily financial in nature, work their way through the foreign exchange market: liberalizing/restricting capital flows; intervention in the foreign exchange market and sterilization operations; reserve requirements on foreign currency instruments and variants of the Tobin tax. A third set of measures is macro-prudential in nature, designed to contain systemic risks. They seek to address two specific dimensions of systemic risk – the time dimension (excessive leverage in upturns and excessive risk aversion in downturns) and the cross-sectional dimension or risk concentration (size, substitutability, interconnectedness) as collapse of large or systemically important financial institutions can destabilize the rest of the financial system. In this context the risk taking channel becomes especially important as it suggests there is a macro-prudential role even with changes in the policy rates.

4. Risk Taking Channel of Monetary Policy: Results for India

4.1 Data and Methodology

Bank-wise figures of the variables employed in the study for Indian Scheduled Commercial Banks (SCBs) i.e., public sector banks, domestic old and new private banks and foreign banks, have been put

together from the various issues of Statistical Tables Relating to Banks in India. This is an annual publication of the Reserve Bank of India (RBI) which provides audited data on the balance sheet and income statements of individual banks.

Our empirical analysis has two components. First, we test whether the risk taking channel exists or not in the Indian banking sector. Second, we investigate the effect of bank ownership on the risk taking channel taking into account interactions with tight and easy monetary policy regimes. Based on the extant literature, we estimate regression equation 1 to test for the presence of the risk taking channel while equation 2 which tests ownership and regimes effects is adapted from Bhaumik et al (2011).

$$\Delta y_{it} = \alpha_i + \beta_1 \Delta MP_{i,t-1} + \beta_2 Z_{i,t} + \varepsilon_{it} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (1)$$

$$\Delta y_{it} = \sum_j \alpha_j (\Delta MP_{i,t-1} * Oship_{jit} * TMP_{t-1}) + \sum_j \beta_j (\Delta MP_{i,t-1} * Oship_{jit} * EMP_{t-1}) + \beta_3 Z_{i,t} + \varepsilon_{it} \ldots\ldots\ldots\ldots\ldots\ldots (2)$$

Where, Δy_{it} = the change in risk level of a bank, i is bank and t is time and ε_{it} is the i.i.d. error term. MP stands for monetary policy and Oship refers to ownership type. We estimate these equations for a panel data set consisting of 777 observations for the period 1999-2000 to 2015-2016. We employ panel data regression methodology, viz. fixed effects and random effects models and the final choice of the appropriate model is based on the outcome of the Hausman test.

Following Zhang et al, 2013 and Altunbas et al, 2007, we define three types of risks, viz. default risk (gross NPAs/ gross advances), market risk (interbank borrowings/total borrowings) and asset risk (loan loss provisions to total assets). MP is the monetary policy variable proxied by the weighted average call rate (WCR). We rely on the WCR to proxy monetary policy because the Reserve Bank of India uses a variety of monetary policy tools such as the repo rate, reverse repo rate, marginal standing facility rate and the cash reserve ratio. Changes in all of these instruments have an impact on the short term overnight rate in the inter-bank market which is the WCR. This variable has been previously used as the monetary policy indicator for India by Aleem (2010). Our bank specific control variables are profitability, denoted by the return on assets (ROA), size (proxied by the log of total assets), capitalization, measured as the ratio of equity/total assets and liquidity, measured as the ratio of liquid assets/total assets.

Following Altunbas et al (2012) and Bhaumik et al (2011), we reiterate that empirically it is very hard to establish causality between monetary policy and bank risk. This is not only because it is difficult to completely address the problem of endogeneity with respect to monetary policy but also because it is not possible to reliably ascertain how much risk-taking by banks can be related to monetary policy, particularly in real time. Therefore, we assume that a change in monetary policy in one year will affect the change in risk level of banks with a lag in the next year. With this presumption, we hope to take care of potential endogeneity problems. Therefore, we take into account $\Delta MP_{i,t-1}$ which is the one year lagged change in monetary policy stance where ΔMP is the change in WCR, calculated as $MP_{i,t-1}$ - $MP_{i,t.}$ Oship is a dummy variable and j is the index of different kinds of bank ownership. We divide banks into four groups- foreign, public, old domestic private and new domestic private. We consider foreign banks as the benchmark category.

We classify three cases of monetary policy regimes and assign dummy variables accordingly: period of no change, tight monetary policy (TMP) and easy monetary policy (EMP). We consider the period of no change as our benchmark category. TMP_{t-1} and EMP_{t-1} indicate tight and easy monetary policy regimes respectively with a one year lag. Table 1 provides greater details of all the above mentioned variables.

4.2 Descriptive Statistics

Table 2 and the corresponding Graph 1 describe the movement in the weighted average call rate (WCR) which we consider as our monetary policy indicator. We find that in the growth period of 2000-2006, the monetary policy stance favors both easy as well as tight policy regimes. During the crisis period of 2007-2009, it tilts more towards an expansionary regime while in the post crisis period from 2010-2016, a contractionary monetary policy is frequent.

Table 3 illustrates the mean and standard deviation of our study variables. Among the risk variables we find that, foreign banks have greater mean default and asset risks while new private sector banks have a higher mean market risk. With respect to the control variables, expectedly, public sector banks are the largest in size while foreign banks display greater average liquidity, capitalization as well as profitability.

4.3. Regression Results

Table 4 shows the results from estimating equation 1. The regression for default risk shows that monetary policy does not have a significant effect on this category of bank risk. However higher liquid assets are associated with lower default risk. The second regression shows that larger banks are more exposed to market risk in the form of greater inter-bank borrowings. However monetary policy changes do not appear to have any effect on market risk. Finally in the case of asset risk we find that changes in monetary policy have a statistically significant effect on asset risk. Tightening of monetary policy seems to exacerbate asset risk measured by loan loss provisions. This finding is in sharp contrast with the risk enhancing effects of easy monetary policy that has been widely reported for the US and European countries.

In Table 5 we report the results of estimating equation 2. In these specifications we study the differential impact of tight and easy monetary policy and the interaction of monetary policy with ownership effects. As in the previous case we find that liquidity has a negative effect on default risk. But in the case of market risk, we see that easy monetary policy has a statistically significant impact on market risk in the case of new private sector banks. In other words, when the central bank keeps interest rates low, this induces some banks to increase short term funding that gives rise to market risk. This is in line with the predictions of Adrian and Liang (2016). More importantly it is only the new private sector banks who display this kind of behavior – thereby revealing an ownership effect in the risk taking channel that is missing from the literature. Among the control variables, size has a positive effect on market risk as evidenced in the previous exercise but here we also find that profitability has a dampening effect on market risk. Finally in case of asset risk, we do not find any evidence for ownership effects in the risk taking channel. However capitalization and profitability have significant effects on asset risk.

5. Conclusions and Policy Recommendations

This paper has attempted to fulfill two objectives. First, to present a comprehensive review of the evidence on risk taking channel of monetary transmission and ownership effects therein. Second, to explore the possibility of a risk taking channel in the Indian context. We find weak evidence for the risk taking channel in India. In particular we are able to show that tight monetary policy

may exacerbate asset risk but there are no ownership effects in this transmission channel. Secondly, easy monetary policy may lead to higher market risk in the case of new private sector banks but not in the case of other ownership groups. Our limited evidence may indicate a limited role of conventional monetary policy when it comes to financial stability. Therefore, the monetary policy authority in India has to use other tools such as macro-prudential measures when it comes to attaining financial stability.

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Table 1- Definitions of Variables

Variable	**Definition**
Risk Variables	
Default Risk	*Default risk* is measured by the ratio of gross non-performing assets (NPAs) to gross advances. A high value of the ratio indicates a higher proportion of problem loans in a bank's overall portfolio and increased exposure to credit risk.
Market Risk	*Market risk* is measured by the ratio of interbank borrowings to total borrowings. A high value of this ratio for a bank indicates that it relies more on interbank borrowings and faces higher risk arising from movements in interest rates. Interbank markets are vital for banks' liquidity management when interbank markets function smoothly in normal time. However, in crisis periods, overreliance on interbank borrowing can lead to liquidity problems.

Asset Risk	*Asset risk* is measured by the ratio of loan loss provisions to total assets. While higher provisions help banks absorb losses in a smoother manner, making such banks less vulnerable to bankruptcy, in the case of India where provisioning is pro-cyclical, the ratio is a backward looking indicator of the quality of assets on a bank's balance sheet. Therefore a higher ratio indicates deterioration in asset quality, i.e. higher asset risk.
Monetary Policy Variable	
Weighted Average Call Money Rate (WCR)	The call money rate is the interest rate on a type of short-term loan that banks give to brokers who in turn lend the money to investors to fund margin accounts. For both brokers and investors, this type of loan does not have a set repayment schedule and must be repaid on demand. Weighted average is an average in which each quantity to be averaged is assigned a weight. These weightings determine the relative importance of each quantity on the average. Weightings are the equivalent of having that many like items with the same value involved in the average. As defined by the RBI, WCR is the volume–weighted average of daily call money rates for the week (Saturday to Friday). Data cover 90-95 per cent of total transactions reported by participants.

Monetary Policy Regime Variables	
Tight Regime	A course of action undertaken by the central bank to constrict spending in an economy that is seen to be growing too quickly or to curb inflation when it is rising too fast. The RBI aims to make money tight by raising short-term interest rates which increases the cost of borrowing and effectively reduces attractiveness.
Easy Regime	An easy money policy, a.k.a an accommodative monetary policy, is one that increases the money supply usually by lowering interest rates. It occurs when a country's central bank decides to allow new cash flows into the banking system.
Control Variables	
Bank Specific	
Return on Assets	ROA reflects the ability of a bank's management to generate profits from its assets. It is calculated as ROA= Profit during the year/Total Assets.
Capitalization	*Capitalization* is measured by the capital buffer of banks given by the ratio of equity to total assets. It reflects to what extent a bank's total assets are funded by equity capital.
Liquidity	*Liquidity* is measured by the liquidity buffer or the ratio of liquid assets to total assets. It shows the ability of a bank to

	pay its liabilities as and when they fall due.
Size	Size is an important characteristic of a bank in trying to understand what scale of operations may help in managing day to day operations as well as risk better. It is measured by the log of total assets.

Table 2- Movement of Weighted Average Call Rate (WCR) from 2000-2016

Year	March End	April End	Delta WCR
1999-2000	15.5	10.5	5.000
2000-2001	10.15	7.6	2.550
2001-2002	12	12.5	-0.500
2002-2003	6.12	12	-5.880
2003-2004	3.75	7	-3.250
2004-2005	4.72	3.3	1.420
2005-2006	6.5	3.7	2.800
2006-2007	7	5.6	1.400
2007-2008	6.5	10.62	-4.120
2008-2009	3.62	6.9	-3.280
2009-2010	5.5	4.02	1.480
2010-2011	7.58	3.75	3.830
2011-2012	9.95	7.61	2.340
2012-2013	7.77	9.27	-1.500
2013-2014	8.59	7.43	1.160
2014-2015	7.35	8.48	-1.130
2015-2016	7.36	6.49	0.870

Graph 1- Trends in WCR from 2000-2016

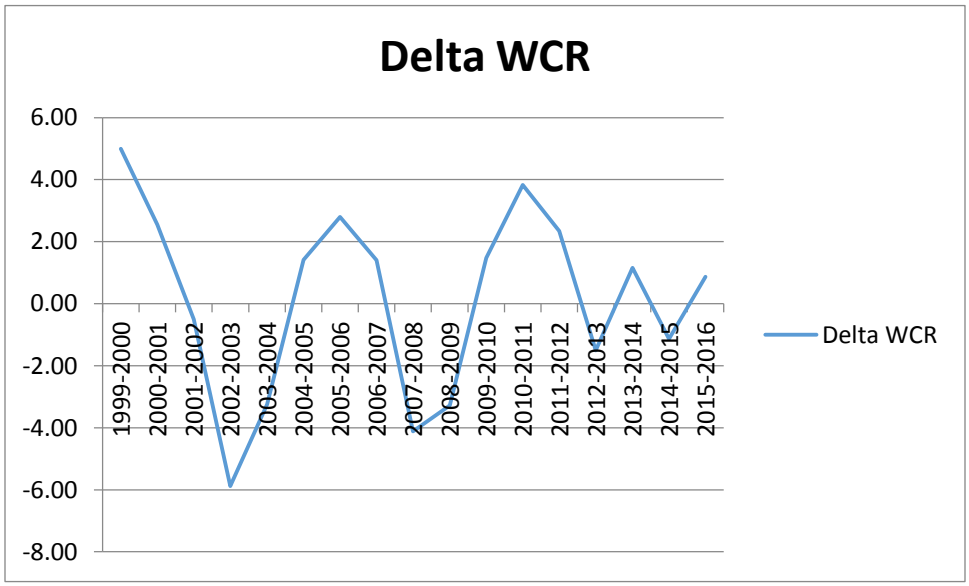

Table 3: Descriptive Statistics

	Foreign Banks No. of Obs:255		Old Private Sector Banks No. of Obs:144		New Private Sector Banks No. of Obs:94		Public Sector Banks No. of Obs:292	
Variable	**Mean**	**S.D**	**Mean**	**S.D**	**Mean**	**S.D**	**Mean**	**S.D**
Risk Variables								
ΔDefault Risk	0.007	3.461	-0.008	0.089	-0.013	0.203	-0.008	0.075
ΔMarket Risk	-0.102	1.029	0.032	0.346	0.479	4.601	0.077	1.619
ΔAsset Risk	0.134	2.154	-0.004	0.112	0.000	0.009	0.017	0.154

Control Variables								
Size	5.320	1.187	5.982	0.605	6.789	0.622	6.903	0.487
Liquidity	2.297	7.489	0.130	0.128	0.117	0.203	0.121	0.337
Capitalization	3.133	12.311	0.014	0.033	0.008	0.007	0.012	0.038
ROA	0.398	2.240	0.008	0.016	0.011	0.009	0.009	0.034

Table 4- Testing the Presence of the Risk Taking Channel (Regression Specification 1)

	Change in default risk (Gross NPAs/Gross Advances) (Δdr)	Change in market risk (Interbank Borrowings/ Total Borrowings) (Δmr)	Change in asset risk (Loan Loss Provisions/Total Assets) (Δar)
Monetary Policy Variable			
deltawcrlag	-0.010 (0.022)	0.023 (0.023)	0.037 (0.011)***

Control Variables			
Size	-0.036 (0.079)	0.492 (0.178)***	0.138 (0.089)
Liquidity	-0.054 (0.027)**	0.034 (0.031)	-0.020 (0.015)
Capitalization	0.020 (0.017)	0.022 (0.024)	0.112 (0.123)***
ROA	0.098 (0.066)	-0.058 (0.118)	0.351 (0.059)***
Intercept	0.238 (0.507)	-3.053 (1.127)	-0.972 (0.567)
FE/RE	RE	FE	FE
R-square (within)	0.015	0.013	0.415
Wald χ^2	6.42		
F statistic		1.67	87.58***

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 5- Effect of Ownership and Monetary Policy Regime on the Risk Taking Channel (Regression Specification 2)

	Change in default risk (Gross NPAs/Gross Advance) (Δdr)	Change in market risk (Interbank Borrowings/ Total Borrowings) (Δmr)	Change in asset risk (Loan Loss Provisions/Total Assets) (Δar)
Interaction Term			
deltawcrlag*psb*tmplag	0.001 (0.050)	-0.003 (0.048)	0.002 (-0.025)
deltawcrlag*oldprsb*tmplag	-0.004 (0.065)	0.032 (0.065)	0.008 (0.039)
deltawcrlag*newprsb*tmplag	-0.005 (0.094)	-0.047 (0.090)	0.001 (0.047)
deltawcrlag*psb*emplag	-0.002 (0.054)	0.038 (0.051)	-0.002 (0.027)
deltawcrlag*oldprsb*emplag	-0.000 (0.082)	0.030 (0.080)	-0.000 (0.044)
deltawcrlag*newprsb*emplag	0.000 (0.104)	0.236 (0.099)***	-0.005 (0.052)

Control Variables			
Size	-0.032 (0.079)	0.195 (0.103)*	0.125 (0.092)
Liquidity	-0.054 (0.027)**	0.023 (0.027)	-0.019 (0.015)
Capitalization	0.020 (0.017)	0.027 (0.017)	0.112 (0.012)***
ROA	0.099 (0.066)	-0.228 (0.068)***	0.343 (0.060)***
Intercept	0.207 (0.510)	-1.267 (0.657)	-0.878 (0.587)
FE/RE	RE	RE	FE
R-square (within)	.014	0.010	0.405
Wald χ^2	6.18	21.81***	
F statistic			41.65***

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

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